



ISRA 2024

Israeli Radiological Association
Annual Meeting

**PROGRAM
AND
ABSTRACT BOOK**

PROGRAM



Annual Meeting
3-5 NOV. 2024

Dan Hotel - Eilat | Israel

SUNDAY, 3 NOVEMBER 2024

TIME	Big Blue Hall
10:30 - 12:00	Gathering and Registration
12:00 - 13:50	Plenary Session 1: Opening Session - To screen or not to screen Chairs: Prof. Ilan Shelef, Prof. Orly Goitein
12:00 - 12:10	Opening Remarks Prof. Ilan Shelef, Prof. Orly Goitein
12:10 - 12:30	Cancer screening Lecture in memory of Prof. Moshe Graif Prof. Lital Keinan Boker
12:30 - 12:50	Breast cancer screening Prof. Miri Sklair-Levy, Dr. Michal Guindy Dr. Ahuva Grubstein
12:50 - 13:10	Lung cancer screening Prof. Dorith Shaham
13:10 - 13:30	To screen or not to screen – This is the heart of the matter Dr. Ilya Volovik
13:30 - 13:50	Screening with abdominal ultrasound Prof. Liat Appelbaum
13:50 - 14:30	Lunch, ePoster Viewing & Professional Exhibition
14:30 - 15:00	Anti-Amyloid therapies for Alzheimer's disease: what the radiologist needs to know Dr. Orit Lesman Segev 
15:00 - 16:30	Plenary Session 2: La Prima Volta Chairs: Prof. Nurith Hiller, Prof. Sigal Tal
15:00 - 15:07	BEYOND CONVENTIONAL IMAGING: IDENTIFYING LOBULAR BREAST CARCINOMA IN PREGNANCY Dr. Ran Kedem Mashraki

15:07 - 15:14	<p>NAEGLARIASIS: THE BRAIN DEVOURING INFECTION, RADIOLOGICAL APPEARANCE OF ONE OF TWO RARE CASES IN ISRAEL</p> <p>Dr. Moanes Awad</p>
15:14 - 15:21	<p>AN UNCOMMON PRESENTATION OF A PULMONARY ECHINOCOCCAL CYST IN A 10-YEAR-OLD FEMALE</p> <p>Dr. Karina Yerep</p>
15:21 - 15:28	<p>A SUDDEN ONSET OF TESTICULAR PAIN, AN INTRIGUING DIAGNOSTIC CHALLENGE</p> <p>Dr. Alisa Barbarash</p>
15:28 - 15:35	<p>A RARE CASE OF PRIMARY RENAL EWING SARCOMA IN ADULT PATIENT</p> <p>Dr. Hamza Matouq</p>
15:35 - 15:42	<p>HEPATIC ADRENAL REST TUMOR (HART) – A RARE CASE FROM THE RADIOLOGIC POINT OF VIEW</p> <p>Dr. Ben Caspy</p>
15:42 - 15:49	<p>DROPPED GALLSTONES MIMICKING MALIGNANCY ON PET CT</p> <p>Dr. Jawad Mansour</p>
15:49 - 15:56	<p>A RARE ENCOUNTER: A MEDIASTINAL MASS IN A 20-YEAR-OLD WOMAN</p> <p>Dr. Yael Netanyahu Madar</p>
15:56 - 16:03	<p>OMENTAL INFARCTION: AN UNUSUAL CAUSE OF ACUTE ABDOMINAL PAIN IN CHILDREN</p> <p>Dr. Aviv Peer</p>
16:03 - 16:10	<p>AN UNUSUAL CASE OF A SPINAL EPIDURAL ABCESS</p> <p>Dr. Shirley Shechter</p>
16:10 - 16:17	<p>MRI REVEALS KEY CLUES IN DIAGNOSING RARE MEGACYSTIS CONDITION</p> <p>Dr. Avner Merdler</p>
16:17 - 16:24	<p>SUBPHRENIC ABSCESS IN 11-YEAR-OLD GIRL – A HAUNT FROM THE PAST</p> <p>Dr. George Naser</p>



Big Blue Hall

16:30 - 18:40	Parallel Session 3: Abdominal Imaging Chairs: Dr. Naama Lev Cohain, Dr. Natalia Goldberg
16:30 - 16:50	Novel oncological treatments adverse events: myriads of imaging findings Dr. Yael Eshet
16:50 - 17:10	Pancreatic Neuroendocrine Tumors Dr. Ofer Benjaminov
17:10 - 17:19	STONES IN THE LIVER PATH: EXPLORING THE RELATION OF RENAL STONE COMPOSITION AND FATTY INFILTRATION OF THE LIVER Dr. Revital Nassimov
17:19 - 17:28	COMBINED USE OF PROSTATE-SPECIFIC ANTIGEN DENSITY AND MAGNETIC RESONANCE IMAGING FOR PROSTATE BIOPSY DECISION PLANNING: A RETROSPECTIVE SINGLE CENTER VALIDATION STUDY Dr. Shlomit Tamir
17:28 - 17:37	RADIOLOGICAL RENAL CELL CARCINOMA TUMOR SHAPE IRREGULARITY AS A PREDICTOR OF PATHOLOGICAL OUTCOME Dr. Suzan Faranesh-Aboud
17:37 - 17:46	ACCURATE SPLEEN VOLUME ESTIMATION IN PATIENTS WITH GAUCHER DISEASE USING DEEP LEARNING Dr. Amir Watad

17:46 - 17:55	SPLenic BIOPSY: A SAFE AND ACCURATE PROCEDURE Dr. Semion Postrilko
17:55 - 18:04	THE VALUE OF BODY CT EXAMINATIONS AMONG CAR PASSENGERS WITHOUT CLINICAL EVIDENCE OF SIGNIFICANT INJURY INVOLVED IN MOTOR VEHICLE ACCIDENTS Dr. Erez Berkowitz
18:04 - 18:13	HEPATIC ATYPICAL HEMANGIOMAS: AN AMBIGUOUS IMAGING DIAGNOSIS ASSOCIATED WITH SUBOPTIMAL MANAGEMENT DECISIONS Dr. Shlomit Tamir
18:13 - 18:22	CONCORDANCE BETWEEN RENAL CELL CARCINOMA SIZE ON DIFFERENT IMAGE PLANES ON COMPUTED TOMOGRAPHY SCANS AND PATHOLOGICAL SIZE Dr. Suzan Faranesh-Aboud
18:22 - 18:31	OBESITY IS ASSOCIATED WITH FATTY LIVER AND FAT CHANGES IN THE KIDNEYS IN HUMANS AS ASSESSED BY MRI Dr. Hadar Raphael
18:31 - 18:40	RADIOLOGY AND ART - HIDDEN FIGURES Dr. Lia Laufer

21:00

Evening Program Live Band - Hitmen

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Coral A Hall

16:30 - 18:40	Parallel Session 4: Cardiothoracic Imaging Chairs: Dr. Alla Khashper, Dr. Tamar Gaspar
16:30 - 16:50	Acute Aortic Syndrome Prof. Galit Aviram
16:50 - 16:59	VERY-EARLY DETECTION OF POST-TRAUMATIC PULMONARY EMBOLISM IN COMBAT TRAUMA: INSIGHTS FROM THE IRON SWORDS WAR Dr. Israel Shenkman
16:59 - 17:08	UNEXPECTED EARLY PULMONARY THROMBI IN WAR INJURED PATIENTS Dr. Itai Sasson
17:08 - 17:17	DOES PROSPECTIVE AUTOMATIC NOTIFICATION OF IMAGING EXPERTS IMPROVE THE OUTCOMES OF THE CLINICAL USE OF AI SOFTWARE TO DETECT PULMONARY EMBOLISM? Dr. Karin Adrai
17:17 - 17:26	COMPUTED TOMOGRAPHY FOR LEFT ATRIAL APPENDAGE THROMBUS DIAGNOSIS: PROTOCOL OPTIMIZATION Dr. Laurian Copel

17:26 - 17:35	EVALUATION OF AI-BASED DETECTION OF INCIDENTAL PULMONARY EMBOLI IN CARDIAC CT ANGIOGRAPHY SCANS Dr. Dana Brin
17:35 - 17:44	PRE-STENTING ADDED VALUE OF ADVANCED CHEST CT PROCESSING FOR THE EVALUATION OF POST TRANSPLANTATION BRONCHIAL STENOSIS Dr. Sivan Eden
17:44 - 17:53	INSIGHTS INTO CHEST RADIOGRAPH SEX CLASSIFICATION THROUGH ADVANCED EXPLAINABLE AI Dr. Bar Rinott
17:53 - 18:02	VALUE OF COMPREHENSIVE RADIOLOGIST INTERPRETATION OF CHEST RADIOGRAPHS OF PATIENTS DISCHARGED FROM THE EMERGENCY DEPARTMENT Dr. Shaden Ghrayeb
18:02 - 18:11	THE CHALLENGES OF THE SEGMENTATION PROCESS IN AN INTERNATIONAL MULTICENTER RADIOMICS STUDY IN LUNG CANCER Dr. Maria Spector
18:11 - 18:20	PATIENT DOSES FROM CHEST EXAMINATIONS AT A TERTIARY MEDICAL CENTER -INITIAL AUDIT RESULTS Dr. Idris Elbakri
18:20 - 18:40	Cardiac findings in chest CT scans Dr. Tamar Shalmon



Dolphin Hall

17:10 - 18:40	Parallel Session 5: Innovation Chairs: Dr. Arnon Makori, Dr. Gal Ben Arye
	Scientific lectures will start at 17:10 Please join us in the parallel sessions in the other halls
17:10 - 17:19	ASSESSING GPT-4 MULTIMODAL PERFORMANCE IN RADIOLOGICAL IMAGE ANALYSIS Dr. Dana Brin
17:19 - 17:28	FAST BRAIN MRI ACQUISITION WITH DUAL-MODALITY DEBLURRING Dr. Alexander Nazarov
17:28 - 17:37	USE OF VIRTUAL REALITY SMART GLASSES DURING TRAINING IN ULTRASOUND SCHOOL FOR RADIOGRAPHERS IN MACCABI HEALTHCARE SERVICES: FIRST EXPERIENCE AND TRAINEES` FEEDBACK Dr. Evgenia Avizov Khodak
17:37 - 17:46	YOUNGER IS NOT ALWAYS BETTER WHEN IT COMES TO PROFESSIONAL MATURITY IN RADIOLOGY Dr. Gabi Galperin

17:46 - 17:55	WHO MOVED MY CT SCAN? REDISTRIBUTION OF EXPERT WORKFLOW FOLLOWING THE ASSIMILATION OF AI IN STROKE CARE ROTEM Dr. Rotem Sivan Hoffmann
17:55 - 18:04	ARTIFICIAL INTELLIGENCE-DR. IVENANALYSIS OF PAROTID GLAND DUCTOPENIA IN SIALO-CBCT: A NOVEL DIAGNOSTIC APPROACH Dr. Talia Yeshua
18:04 - 18:13	LANGUAGE MODELS VERSUS RADIOLOGY RESIDENTS: DIAGNOSTIC ACCURACY IN COMPLEX SYNDROMES Dr. Hagar Reuveni-Olshaker
18:13 - 18:22	INNOVATIVE PROTOCOL OPTIMIZATION FOR RADIATION DOSE REDUCTION IN PEDIATRIC HEAD CT SCAN Dr. Shlomi Caduri
18:22 - 18:31	HOUR-BY-HOUR ANALYSIS OF THE INCREASING RADIOLOGY WORKLOAD - THE DETAILS MAKE THE DIFFERENCE Dr. Nitai Bar
18:31 - 18:40	WHOLE BODY MRI WITH DIFFUSION WEIGHTED IMAGING IN ONCOLOGY AND HEMATOLOGY: ADVANCES AND CLINICAL APPLICATION Dr. Konstantin Kenigsberg



MONDAY, 4 NOVEMBER 2024

TIME	Big Blue Hall
07:30 - 08:00	Registration Opens
08:00 - 10:40	Plenary Session 6: Radiology at War (Hebrew) Chairs: Prof. Eli Atar, Prof Jacob Sosna
08:00 - 08:10	The southern front - Soroka Medical Center Prof. Ilan Shelef
08:10 - 08:20	The southern front - Barzilai Medical Center Dr. Viktor Lyapis
08:20 - 08:30	The northern front- Ziv Medical Center Dr. Saher Srour
08:30 - 08:40	The northern front- Galilee Medical Center Dr. Dan Paz
08:40 - 09:00	Mass casualty incident management: lessons from Soroka Medical Center- October 7th 2023 Dr. Amit Frenkel
09:00 - 09:20	Post Mortem CT for disaster victim identification Prof. Michalle Soudack
09:20 - 09:40	AI4VI - artificial intelligence for victim identification- a multi-center imitative Dr. Alon Krispin
09:40 - 10:00	Pre-MRI Safety Evaluation for Trauma Patients - Standardizing the Process Prof. Emanuel Kanal

	ISRA 2024 Awards (Hebrew)
10:00 - 10:10	Best Teacher Award: Recipient - Prof. Nurith Hiller
10:10 - 10:20	Honorary Member Award: Recipient - Dr. Miriam Katz
	Outstanding Radiologists Awards (Hebrew)
10:20 - 10:25	Awarded to Dr. Razi Najjar Ziv Medical Center
10:25 - 10:30	Awarded to Dr. Larisa Dukhano Soroka Medical Center
10:30 - 10:35	Awarded to Dr. Viktor Lyapis Barzilai Medical Center
10:35 - 10:40	Awarded to Dr. Sharbel Khoury Galilee Medical Center
10:40 - 11:10	Coffee Break, ePoster Viewing & Professional Exhibition
11:10 - 14:20	Plenary Session 7 Chairs: Prof. Ilan Shelef, Dr. Shlomit Tamir (Hebrew)
11:10 - 12:10	General Assembly ISRA
12:10 - 13:10	The radiology report: Results from a national multidisciplinary survey - Panel discussion Dr. Shlomit Tamir , Dr. Osnat Moreh, Prof. Ilan Shelef, Dr. Naama Lev Cohain, Dr. Eliel Ben David
13:10 - 13:20	Greetings from The Mayor Mr. Eli Lankri
13:20 - 14:20	Olympic Quiz Dr. Christine Dan Lantsman
14:20 - 15:00	Lunch, ePoster Viewing & Professional Exhibition

Big Blue Hall


15:00 - 16:56	Parallel Session 8: Pediatric Imaging Chairs: Dr. Ruth Cytter Kuint, Prof. Michalle Soudack
15:00 - 15:20	Imaging of cerebral palsy, a primer for the radiologist Dr. Mika Shapira Rootman
15:20 - 15:40	Israeli guidelines for non-accidental injury - clinical aspects Dr. Inbar Hartman
15:40 - 16:00	Israeli guidelines for management of child abuse Dr. Ruth Cytter Kuint
16:00 - 16:20	Neuroimaging in non-accidental injury Dr. Mika Shapira Rootman
16:20 - 16:29	THE ROLE OF 18F-FDG PET-CT AND MRI IN PROGNOSIS OF PEDIATRIC RHABDOMYOSARCOMA Dr. Kamila Mukhitdinov
16:29 - 16:38	DIAGNOSTIC INSIGHTS AND CLINICAL OUTCOMES OF FETAL URINARY EXTRAVASATION Dr. George Naser
16:38 - 16:47	DOSE REDUCTION FOR PEDIATRIC HEAD CT EXAMINATIONS – INITIAL RESULTS Dr. Idris Elbakri
16:47 - 16:56	SOTOS SYNDR. OME: DEEP NEUROIMAGING PHENOTYPING REVEALS A HIGH PREVALENCE OF MALFORMATIONS OF CORTICAL DEVELOPMENT Dr. Bar Neeman

Coral A Hall

15:00 - 16:45	Parallel Session 9: Interventional Radiology Chairs: Dr. Galia Rosen, Dr. Robert Schachner
15:00 - 15:20	Embolization In knee osteoarthritis Dr. Udi Bendet
15:20 - 15:40	Embolization of prostatic arteries Dr. Zalman Yzhakov
15:40 - 16:00	Histotripsy: A New non-invasive tool for tumor destruction: Science and Clinical Applications Dr. Jonathan Susman
16:00 - 16:09	EMBOLECTOMY- SOMETHING OLD, SOMETHING NEW, SOMETHING RETRACTING, AND ASPIRATION TOO Dr. Avivit Shoham
16:09 - 16:18	DISTAL TRANSRADIAL (SNUFFBOX) ACCESS IN RADIOCEPHALIC FISTULA INTERVENTIONS Dr. Artem Khaes
16:18 - 16:27	DYNAMIC CTA - A NOVEL IMAGING MODALITY FOR EVAR SURVEILLANCE AND ENDOLEAK DETECTION Dr. Stanislav Kosykh
16:27 - 16:36	SHOCKWAVE PERIPHERAL LITHOPLASTY SYSTEM, THE NEW KID ON THE (CALCIUM) BLOCK Dr. Avivit Shoham
16:36 - 16:45	ANGIOGRAPHY FOR DETECTING LATE PERIPHERAL VASCULAR INJURIES IN WAR-RELATED TRAUMA: A RESTOSPECTIVE COHORT STUDY Dr. Efrat Gilat

Dolphin Hall

15:00 - 16:34	Parallel Session 10: Breast Imaging Chairs: Dr. Yael Adler Levy, Dr. Renata Faermann
15:00 - 15:20	AI in Breast Imaging Prof. Rachel F. Brem
15:20 - 15:40	Breast cancer genetics – the local view and updates Prof. Yael Goldberg
15:40 - 15:49	BREAST CANCER ON POST BILATERAL MASTECTOMY SURVEILLANCE Dr. Joana Lvovski
15:49 - 15:58	THE DIAGNOSTIC PERFORMANCE OF ULTRAFAST MRI TO DIFFERENTIATE BENIGN FROM MALIGNANT BREAST LESIONS: A SYSTEMATIC REVIEW AND META-ANALYSIS Dr. Noa Leizarowitz
15:58 - 16:07	EARLY RESULTS OF USING AI IN MAMMOGRAPHY SCREENING FOR BREAST CANCER Dr. Hadar Sandler Rahat
16:07 - 16:16	BREAST MRI-BASED ARTIFICIAL INTELLIGENCE TO IDENTIFY HIGH RISK AREAS IN RESIDUAL BREAST TISSUE AFTER MASTECTOMY AND RECONSTRUCTION: BRILLIANT STUDY INITIAL DEVELOPMENT Mr. Dor Polikar
16:16 - 16:25	IS LOSS OF FATTY HILUM IN AXILLARY LYMPHADENOPATHY PREDICTIVE OF MALIGNANCY? Dr. Yeran Shemmessian Koussa
16:25 - 16:34	CAN WE PREDICT CLIP MIGRATION AFTER MRI-GUIDED BIOPSY? Dr. Sapir Lazar

Tarshish Hall	
15:00 - 17:00	Lung Cancer Screening Workshop- Hands on Case Discussion Chairs: Dr. Osnat Moreh-Rahav, Prof. Dorith Shaham Sponsored by Astra Zeneca 
15:00 - 15:30	Understanding Lung-RADS: Basic Concepts and Updates Dr. Osnat Moreh-Rahav
15:30 - 17:00	Case Interpretation Dr. Osnat Moreh-Rahav, Prof. Dorith Shaham

Big Blue Hall	
17:00 - 17:30	Coffee Break, ePoster Viewing & Professional Exhibition
17:30 - 19:05	Plenary Session 11: La Prima Volta Chairs: Dr. Ayelet Wandel, Dr. Anat Ilvitzky
17:30 - 17:37	NEUROENDOCRINE TUMOR MASQUERADING ANOREXIA NERVOSA IN A TEENAGER Dr. Mohammad Imam
17:37 - 17:44	HEPATIC INVOLVEMENT IN UNDIAGNOSED BEHCET'S DISEASE MIMICKING HEPATIC ABSCESS Dr. Johan Matta
17:44 - 17:51	TRIAD OF INTRACRANIAL COMPLICATIONS IN PEDIATRIC SINUSITIS: A CASE OF VENOUS THROMBOSIS, OSTEOMYELITIS, AND ARTERITIS Dr. Kanar Bader
17:51 - 17:58	NEONATAL TESTICULAR TORSION Dr. Elena Tomashpolski
17:58 - 18:05	TOMBSTONE COMPLEX- AN UNUSUAL ETIOLOGY FOR BILE DUCT OBSTRUCTION Dr. Naseem Mfanas
18:05 - 19:05	Chest X-ray Bootcamp Dr. Tamar Shalmon
21:00	Evening Program - Stand-up Comedy – Eli Haviv

TUESDAY, 5 NOVEMBER 2024

TIME	Big Blue Hall
08:00 – 08:50	Plenary Session 12: To Err is Human (Hebrew) Chairs: Dr. Saher Srour, Prof. Ilan Shelef
08:00 - 08:20	The effects of artificial intelligence on claims in imaging Adv. Dr. Shai Feuring
08:20 - 08:30	WHERE AND WHEN ERRORS OCCUR: CAN WE PREDICT AND REDUCE RESIDENT ERRORS IN PRELIMINARY RADIOLOGICAL REPORTS? Dr. Alla Khashper
08:30 - 08:40	GOD IS IN THE DETAILS Dr. Ahuva Grubstein
08:40 - 08:50	HOW TO AVOID MISSING BONE MARROW PATHOLOGY - LOOKING BEYOND BONE WINDOWS Prof. Nurith Hiller
08:50 – 10:00	Plenary Session 13: La Prima Volta Chairs: Dr. Lior Copel, Dr. Rotem Sivan
08:50 - 08:57	WHEN LIGHTNING STRIKES TWICE Dr. Jawad Abu Nassar
08:57 - 09:04	RADIOLOGIC FINDINGS OF NAIL PATELLA SYNDROME Dr. Diab Saba

09:04 - 09:11	TORSION OF WANDERING ACCESSORY SPLEEN Dr. Suad Bishra
09:11 - 09:18	NOT THE USUAL CASE OF PREGNANCY CONSTIPATION Dr. Hagar Reuveni-Olshaker
09:18 - 09:25	EXTRAHEPATIC PORTAL CAVERNOMA CHOLANGIOPATHY (EHPCC) Dr. Nizar Hanna
09:25 - 09:32	TUMORAL PULMONARY HYPERTENSION Dr. Talar Silvi Hagopian
09:32 - 09:39	AORTOENTERIC FISTULA FOLLOWING EVAR IN A PATIENT WITH EXTENSIVE VASCULAR HISTORY Dr. Emily Radovici
09:39 - 09:46	BRIDGING THE DIAGNOSTIC DIVIDE: OSTEOPETROSIS AND RICKETS Dr. Lama Ibrahim
09:46 - 09:53	WHO`S NAGGING MY BRAIN? Dr. Ala Srouji
09:53 - 10:00	MESENCHYMAL CHONDR. OSARCOMA. EXTREMELY RARE CASE, OF INTEREST BOTH TO RADIOLOGISTS AND PATHOLOGISTS Dr. Artem Khaes
10:00 - 10:30	Coffee Break, ePoster Viewing & Professional Exhibition

Big Blue Hall

10:30 - 12:15	Parallel Session 14: Musculoskeletal Imaging Chairs: Dr. Myriam Stern, Dr. Masha Galiner
10:30 - 10:50	MRI of the Sacroiliac Joints: Which Protocol to Use and How to Report—An International Consensus Prof. Iris Eshed
10:50 - 10:59	HIGH INCIDENCE OF PROGRESSIVE DESTRUCTIVE ARTHROPATHY IN PATIENTS TREATED WITH CRIZOTINIB FOR ALK-REARRANGED / ROS1 POSITIVE NSCLC Dr. Yael Eshet
10:59 - 11:08	VALUE OF ULTRASOUND EVALUATION FOR HIGH-VELOCITY PERIPHERAL NERVE INJURIES Dr. Myriam Daniele Stern
11:08 - 11:17	COMPARATIVE ANALYSIS OF STANDARD MAGNETIC RESONANCE ARTHROGRPHY AND SYNTHETIC COMPUTED TOMOGRAPHY FOR DETECTING BONY BANKART LESIONS: A RETROSPECTIVE STUDY Dr. Lihi Pertman
11:17 - 11:26	VORICONAZOLE INDUCED PERIOSTITIS INCIDENCE IN A TERTIARY MEDICAL CENTER: A RETROSPECTIVE ANALYSIS Dr. Nitai Bar

11:26 - 11:35	<p>DIAGNOSTIC PERFORMANCE OF VIRTUAL NON-CALCIUM CT IMAGES FOR THE DETECTION OF HIP FRACTURE IN PELVIC TRAUMA</p> <p>Dr. Yehonatan Bar Moshe</p>
11:35 - 11:44	<p>UTILITY OF CT PULMONARY ANGIOGRAPHY (CTPA) FOR SUSPECTED PULMONARY EMBOLISM IN THE OPPORTUNISTIC DIAGNOSIS OF OSTEOPOROSIS</p> <p>Dr. Yair Glick</p>
11:44 - 11:53	<p>ULTRASOUND GUIDED FINE NEEDLE BIOPSY IN PATIENTS WITH INFLAMMATORY MYOSITIS: COULD IT REPLACE OPEN SURGICAL BIOPSY?</p> <p>Dr. Lutof Zreik</p>
11:53 - 12:02	<p>EVALUATION OF THE DIAGNOSTIC POTENTIAL OF A NOVEL TOMOSYNTHESIS SYSTEM FOR MSK</p> <p>Dr. Ophir Robenpour</p>
12:02 - 12:11	<p>PRE-OPERATIVE JAW LESIONS DIFFERENTIATION USING HU ANALYSIS</p> <p>Dr. Chen Nadler</p>

Coral A Hall

10:30 - 12:15	Parallel Session 15: Abdominal Imaging Chairs: Dr. Rivka Kessner, Dr. Suzan Faranesh–Aboud
10:30 - 10:50	Liver Transplant Interventions: Saving the Graft Dr. Jonathan Susman
10:50 - 10:59	ULTRASOUND-TOMOGRAPHIC IMAGE FUSION FOR FOLLOW- UP OF COMPLICATED DIVERTICULITIS Ms. Avigail Heinrich
10:59 - 11:08	ASSESSMENT OT THE ADDED VALUE OF 18 F-FDG PET/CT TO PELVIC MRI IN STAGING CERVICAL CANCER PATIENTS Dr. Yael Adler-Levy
11:08 - 11:17	THE USE OF MULTIPARAMETRIC ULTRASOUND IN THE FOLLOW UP OF PATIENTS WITH LIVER STEATOSIS UNDER DIETARY INTERVENTION Dr. Sivan Eden
11:17 - 11:26	BLADDER NECK POSITION DIFFERENCES ON CT IN PATIENTS WITH INCIDENTAL ASYMPTOMATIC URINARY BLADDER GAS: A COMPARATIVE RETROSPECTIVE STUDY Dr. Israel Cohen

11:26 - 11:35	SONOGRAPHIC EVALUATION OF FUCOVITAL CONSUMPTION ON HEPATIC STEATOSIS AND TRIGLYCERIDE LEVELS IN PATIENTS WITH NAFLD Dr. Liad Hadad Cnafi
11:35 - 11:44	OCTOBER 7 TERROR ATTACK: A ONE-DAY CASE SERIES OF IMAGING TRAUMA PATIENTS AT A SINGLE MEDICAL CENTER REMOTE FROM THE FRONT Prof. Michal Amitai
11:44 - 11:53	BEYOND INTUITION: THE ROLE OF METACOGNITION IN RADIOLOGIC ACCURACY AND EFFICIENCY Dr. Eyal Bercovich
11:53 - 12:02	PATIENT DOSES FROM COMMON CT EXAMINATIONS AT A TERTIARY MEDICAL CENTER -INITIAL AUDIT RESULTS Dr. Idris Elbakri

Dolphin Hall

10:30 - 12:15	Parallel Session 16: Neuro-Imaging Chairs: Dr. Eliel Ben-David, Dr. Ruth Eliahou
10:30 - 10:50	Update on acute stroke Dr. Goni Merhav
10:50 - 11:10	Diving into the deep neck structures Dr. Gahl Greenberg
11:10 - 11:19	RADIOMICS-BASED PREDICTION OF THYROID NODULE MALIGNANCY: A COMPARATIVE STUDY WITH CLINICAL AND SONOGRAPHIC FEATURES Dr. Eliel Ben-David
11:19 - 11:28	FAST ACQUISITION FOR AUTOMATIC DT-MRI TRACTS SEGMENTATION Dr. Omri Leshem
11:28 - 11:37	CPN IN SEIZURES Dr. Elena Tompashpolski
11:37 - 11:46	COMPARING DIAGNOSTIC ACCURACY OF TRAINEE INTERPRETATIONS IN BOTH CONVENTIONAL AND BONE REMOVAL IMAGES FROM HEAD CT SCANS Dr. Noa Ben Harav
11:46 - 11:55	SUBARACHNOID SPACE MEASUREMENTS IN APPARENTLY NORMAL FETUSES USING MAGNETIC RESONANCE IMAGING Dr. Dani Starodubsky
11:55 - 12:04	THE POTENTIAL OF CHATGPT AS AN AIDING TOOL FOR THE NEURORADIOLOGIST Dr. Simon Nikola

Big Blue Hall

12:30 - 13:00	Plenary Session 17: Closing Session (Hebrew) Chairs: Prof. Orly Goitein, Prof. Ilan Shelef
12:30 - 12:40	Michal Meidan Avrahami Scholarship Award Awarded by Dr. Ramar Katz
12:40 - 12:50	La Prima Volta Award Awarded by Prof. Nurith Hiller
12:50 - 13:00	Closing Remarks Prof. Orly Goitein, Prof. Ilan Shelef
13:00 - 13:30	Light Lunch

Social Program

SUNDAY, 3 NOVEMBER 2024

Hitmen Band

Show starts: 21:00

Big Blue Hall, Dan Eilat

The fun cover band, who moves and cheers any party. Enjoy the greatest hits of all time: rock and roll, 60s, 70s, 80s, 90s and also new songs.

The Hitmen band loves when the audience requests songs, and to adapt the live performance especially to the requests and spirit of the audience. It is recommended to bring dancing shoes and a lot of energy!

MONDAY, 4 NOVEMBER 2024

Stand-up Comedy – Eli Haviv

Show starts: 21:00

Big Blue Hall, Dan Eilat

Eli Haviv in a stand-up show about God, mother, vets and a few other things.

General information

Dan Eilat

Breakfast - 07:00 - 11:00

Dinner – 18:30 – 21:00

Leonardo Plaza

Breakfast - 07:00 - 10:30

Dinner - 18:30 - 21:00

Lunch:

Conference lunches are for conference participants only.

Check-out - 11:00

For questions and inquiries, contact a Kenes Israel representative at the Congress registration desk.

ABSTRACTS



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3-5 NOV. 2024

Dan Hotel - Eilat | Israel

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ORAL PRESENTATIONS

Parallel Session 3: Abdominal Imaging



Annual Meeting
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STONES IN THE LIVER PATH: EXPLORING THE RELATION OF RENAL STONE COMPOSITION AND FATTY INFILTRATION OF THE LIVER.

Revital Nassimov, Sigal Tal, Alla Khashper
Radiology, Shamir Medical Center, Israel

Background: There is an increased prevalence of urolithiasis among patients with nonalcoholic fatty liver disease (NAFLD). The study aims to evaluate the association between subtypes of renal stones and NAFLD using Dual-energy computed tomography (DECT).

Methods: 150 DECT scans for evaluation of renal stones were retrospectively analyzed, recording the presence of NAFLD. The composition of the largest stone or the stone that causes mechanical obstruction was evaluated and subdivided into 3 major types based on the calculated ratio: uric acid (UA) 1.14, cystine 1.15-1.28, and calcium 1.29. The number and size of stone were recorded, as well as its volume, location, and side.

Results: There was an increased incidence of renal stones in men (90.9%) compared to women (62.1%) ($p < 0.001$). Calcium stones were the most common ($N=134$, 89.3%), followed by UA ($N=9$, 6%) and cystine ($N=7$, 4.7%) stones. Cystine stones were found exclusively among men, but UA and calcium stones showed no gender difference. NAFLD demonstrates a stronger association with UA stones (66.7%) and with cystine stones (71.4%) compared to calcium stones (27.6%) ($p = 0.003$). The mean ratio of composed stone differed significantly in patients with NAFLD (1.33) compared to those without NAFLD-1.42 ($p < 0.001$).

Conclusions: The study revealed a significant difference between stone subtypes in patients with NAFLD, suggesting the potential for precise lifestyle recommendations and the identification of specific risk factors.

COMBINED USE OF PROSTATE-SPECIFIC ANTIGEN DENSITY AND MAGNETIC RESONANCE IMAGING FOR PROSTATE BIOPSY DECISION PLANNING: A RETROSPECTIVE SINGLE CENTER VALIDATION STUDY

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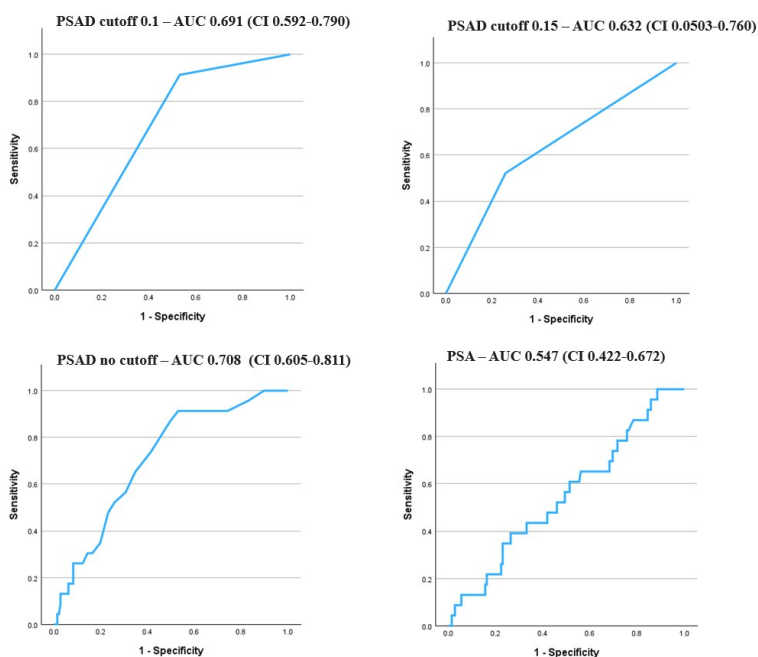
Background: Previous studies suggested that PSA density (PSAD) combined with Prostate MRI may help avoid unnecessary prostate biopsies with a limited risk of missing prostate cancer (PCa) with a Gleason grade group [GGG] 1), specifically when evaluating PIRADS 3 intermediate lesions. However, some authors report an unacceptable rate of missed clinically significant prostate cancer (csPCa). We aimed to validate the optimal diagnostic strategies based on the combined use of PSAd and MRI.

Methods: IRB approved retrospective analysis of men who underwent prostate MRI between 2013 and 2023. MRI reports were reviewed to extract prostate volume and the highest PIRADS/Likert score. The highest Gleason group was extracted from pathology reports. Multiple PSA levels prior to the MRI were collected.

Results: The cohort included 759 patients; mean age 66 years old (range 40-86); 333 (44%) patients had PCa of whom 210 (28%) had csPCa. Associations of clinical and imaging factors with csPCa are shown in Figure 1. For the overall cohort, AUC was 0.730 for PIRADS, 0.734 for continuous PSAD levels, 0.646 for 0.1 cutoff, and 0.685 for 0.15 cutoff (Figure 2). PSAD cutoff of 0.1 missed 39 (13%) of csPCa, and a cutoff of 0.15 missed 76 (16%) of csPCa.

Subgroup analysis of PIRADS 3 lesions, AUC was 0.708 for continuous PSAD levels, 0.691 for 0.1 cutoff, and 0.632 for 0.15 cutoff (Figure 3). PSAD cutoff of 0.1 missed only 2 cases (3%) of csPCa, and a cutoff of 0.15 missed 11 (9%) of csPCa.

Conclusions: Our findings highlight the importance of PSA density in managing prostate cancer, especially for PIRADS 3 lesions. A cutoff of 0.15 missed 9% of clinically significant cases, while 0.1 missed only 3%. We recommend routinely including PSA density in imaging reports and using a 0.1 cutoff, alongside other risk factors, to guide biopsy decisions.



RADIOLOGICAL RENAL CELL CARCINOMA TUMOR SHAPE IRREGULARITY AS A PREDICTOR OF PATHOLOGICAL OUTCOME

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Background: The incidence of renal cell carcinoma (RCC) is increasing with Surgical management being the primary treatment. Preoperative evaluation relies heavily on computed tomography (CT). Tumor Shape Irregularity (TSI) was shown to predict higher tumor grade in RCC. Our objective is to evaluate the performance of preoperative radiological assessment of RCC TSI as a predictor of pathological stage and involvement of surgical margins (PSM).

Methods: A retrospective review of 63 patients who had CT before partial / radical nephrectomy was made. TSI was classified based on CT into three grades: grade 1 (completely elliptical shape), grade 2 (elliptical shape with minor & focal protrusions), or grade 3 (non-elliptical shape presenting with major and/or extensive protrusions). PADUA and RENAL scores were calculated, assessing tumor size, exophytic or endophytic growth, proximity to or involvement of the collecting system or sinus, and location relative to polar line. Patients' medical records were used to retrieve demographic, clinical and pathological data.

Results: Among 63 patients, two-thirds were men. The mean age was 63 ± 10.7 (37-87) years. Average Creatinine was 1.39 ± 1.8 (0.6-10.8) mg/dL. 54% of patients underwent radical nephrectomy, 46% underwent partial nephrectomy. Average tumor size was 5.6 ± 3.2 (1.4-14.9) cm. 15.9% of patients had TSI score of 1, 36.5% had TSI score of 2 and 47.6% had TSI score of 3. 92% of patients had clear cell RCC, 11 patients had T stage of 3 or higher. PSM was reported in 8 patients. TSI correlated well with RENAL and PADUA scores. Higher TSI was a predictor of higher stage and grade and a strong predictor of PSM ($P=0.02$)

Conclusions: TSI assessment on CT scans in RCC patients can predict upstaging, upgrading and risk of PSM. It also correlated well with PADUA and RENAL scores. TSI can help Urologists maximize surgical strategies & decrease surgical margins involvement during partial nephrectomy.

ACCURATE SPLEEN VOLUME ESTIMATION IN PATIENTS WITH GAUCHER DISEASE USING DEEP LEARNING

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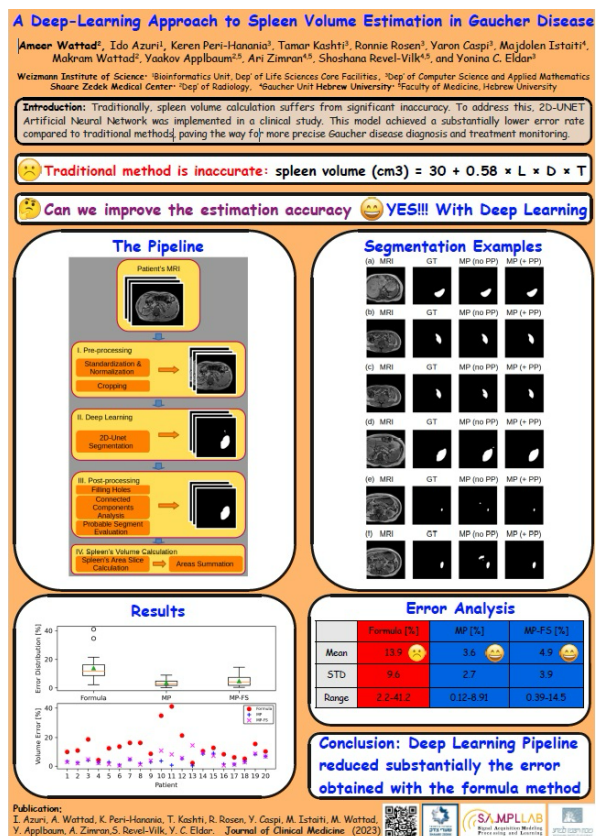
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Background: Gaucher disease (GD) is a rare lysosomal storage disease, in which glucocerebroside accumulates in body organs such as the spleen, liver, and bone marrow, resulting in spleen and liver enlargement. Accurate estimation of the spleen volumes using (MRI) is crucial for monitoring of response to treatment. A commonly used calculating method in clinical practice is a formula which uses 3 measurements of the spleen in MRI. However, the inaccuracy of this formula is significant clinically.

Methods: In this study, we utilized deep learning methods to provide an accurate spleen volume estimation. We received and analyzed MRI scans of GD patients in which the spleen was manually segmented by radiologists, and then calculated the areas of the slices and integrated them to yield the ground truth volume. Then, we trained a deep-learning segmentation model using the MRI slices data and applied leave-one-out cross-validation on 30 patients to assess the accuracy of our model.

Results: Our approach demonstrated an average error of $2.9 \pm 2.5\%$ between the ground truth spleen volumes and deep learning estimates, which is significantly lower than the $13.9 \pm 9.6\%$ error rate of the commonly used spleen volume calculation formula. Thus, our method improves the accuracy of MRI-based volume estimation.

Conclusions: Deep learning methods for body organ segmentation successfully segment abdominal organs. Particularly, this enables accurate estimation of abdominal organs volumes. In this study, it yields accurate spleen volumes with significant lower error when compared to the formula method. This outcome is expected to be generalized to other studies, especially when the spleen volume shape is deviated from the formula shape approximation. In addition, using deep learning methods is time efficient and does not require expensive expert time for volume estimation. Also makes the diagnosis and monitoring of response to treatment more precise and effective.



SPLENIC BIOPSY: A SAFE AND ACCURATE PROCEDURE

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Background: Splenic core biopsy is traditionally believed to be a dangerous procedure. This single center study at a tertiary medical center reviews the experience of image guided spleen core biopsy to evaluate the safety and accuracy of the procedure.

Methods: A retrospective review of splenic core biopsies performed at a single center between May 2017 and August 2024. Pathology reports and clinical notes were reviewed to ascertain accuracy and complication rates of the procedure, respectively.

Results: 15 patients underwent 16 splenic core biopsies. 13 (81%) procedures were CT guided and 3 (19%) US guided. 10 (67%) patients had multiple splenic lesions and 5 (33%) with a single lesion as detected radiographically. The most common indication for biopsy was suspicion for lymphoproliferative disease with the spleen as the only accessible site of sampling. The procedure was performed using a supercore 18G needle in 13 (81%) cases while 3 (19%) of the cases a 16G needle was used. Two samples were taken in each biopsy. Definitive diagnosis was achieved in 14 (88%) of the biopsies, while 2 (12%) biopsies were non diagnostic. The most common diagnosis was diffuse large B-cell lymphoma, being made in 10 (71%) patients; other diagnoses included: T-cell lymphoma, marginal zone lymphoma, angiosarcoma, and metastatic adenocarcinoma. Only one patient (6%) suffered from complications in the form of self-limited abdominal wall bleeding (minor complication).

Conclusions: Image guided core biopsy of the spleen is a safe and accurate procedure.

THE VALUE OF BODY CT EXAMINATIONS AMONG CAR PASSENGERS WITHOUT CLINICAL EVIDENCE OF SIGNIFICANT INJURY INVOLVED IN MOTOR VEHICLE ACCIDENTS

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Background: The use of chest-abdomen-pelvis (body) CT in ER for motor accident victims is increasing. However, there are concerns about increased exposure to ionizing radiation. The clinical benefit of these examinations in car passengers without clear clinical signs, solely on the mechanism of injury, has not been thoroughly examined. Our Objective is to evaluate the rate of CT examinations with clinically significant traumatic findings among car passengers involved in motor vehicle accidents, without clinical evidence of injury to the body organs.

Methods: A retrospective study identifying body CT examinations performed using a trauma protocol for car passengers involved in accidents in our institution's ER between 1/11/2022-30/04/2023. Demographics and clinical data were collected, and CT findings were analyzed, categorized into clinically significant traumatic findings and those that were not.

Results: 107 subjects were included, mean age 40.60 ± 16.85 years. 44 subjects reported pain. Physical examination revealed mild superficial signs of trauma in 37 and an open fracture in one. Traumatic findings were demonstrated in 36/107 (33.6%) CTs, but only in 7 (6.5%) clinically significant traumatic findings were identified. These included: vertebral fractures (4), splenic lacerations with active arterial bleeding (1), active superficial/subcutaneous bleeding (1), and retroperitoneal fat stranding (1). In 29/36 (80.6%) positive CTs non-significant findings included: rib/sternum fractures (23), cutaneous/subcutaneous signs of trauma without active bleeding (12), and clavicle and/or scapula fractures (3). 4/107 subjects (3.74%) required hospitalization following CT findings. One patient underwent angiographic therapy due to splenic arterial active bleeding. No subject underwent surgical exploration. No deaths were reported.

Conclusions: A low rate of clinically significant traumatic findings in body CT was observed among car passengers involved in accidents referred for examination based on the mechanism of injury, without clinical signs of significant traumatic injury. We recommend developing additional criteria for more sensible referral to CT examinations in this scenario.

HEPATIC ATYPICAL HEMANGIOMAS: AN AMBIGUOUS IMAGING DIAGNOSIS ASSOCIATED WITH SUBOPTIMAL MANAGEMENT DECISIONS

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Background: While most hemangiomas present with characteristic imaging features, some exhibit atypical features that mimic other benign or malignant lesions, creating diagnostic uncertainty. The term "atypical hemangioma" lacks precise definition, potentially leading to varied interpretations. We aimed to explore the characteristics of lesions interpreted as atypical hemangiomas, evaluate whether the use of this term is associated with unnecessary work up, and whether it is associated with under-diagnosis of malignant lesions.

Methods: This retrospective study reviewed radiology reports from two hospitals between 2013 and 2023 that contained the term "atypical hemangioma". Two radiologists reviewed the images independently and documented lesion characteristics based on standardized criteria. Ground truth categorization was established using additional imaging, follow-up data, and pathological correlation when available.

Results: Of 327 cases, 305 (93.3%) were non-malignant, while 22 (6.7%) were malignant. Significant differences were observed between benign and malignant lesions' size, border definition, and other imaging characteristics. Malignant lesions were more likely to have ill-defined borders (50% vs. 18.1% of benign lesions for GBA and 54.5% vs. 17.9% of benign lesions for ST), early heterogeneous enhancements (46.2% for both readers vs. 9.7% for GBA and 9.3% for ST for benign lesions), and restricted diffusion on MRI (100% for GBA vs. 17.6% of benign lesions and 75% for ST vs. 7.8% of benign lesions).

Conclusions: This study highlights the ambiguity of the term "atypical hemangioma" which may be associated with unnecessary work-up of benign lesions or under-diagnosis of malignant lesions. We suggest that in the presence of atypical features, the report should mention whether the lesion is probably benign or not and recommend appropriate work-up strategy. Once a diagnosis of hemangioma is confidently made, we suggest using the term "hemangioma with atypical features". This approach may help optimize patient management, avoid unnecessary procedures and decrease malignancy under-diagnosis.

CONCORDANCE BETWEEN RENAL CELL CARCINOMA SIZE ON DIFFERENT IMAGE PLANES ON COMPUTED TOMOGRAPHY SCANS AND PATHOLOGICAL SIZE

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Background: Treatment decisions for renal cell carcinomas (RCC) depend mainly on tumor size. Pretreatment size evaluations are gained mainly on computed tomography (CT) images. Several studies have validated the concordance between radiological and pathological size. CT protocols evaluating renal masses are usually contrast-enhanced multiphase scans with multiplanar reconstruction. Guidelines in the literature require maximal radiology diameter measurement for preoperative staging, however, there is no specification or consensus on the image plane or phase of contrast enhancement used for measurements. The objective of this study was to verify the most accurate CT image plane for size measurement with correlation to pathological size.

Methods: A retrospective review was conducted on 49 patients who underwent preoperative CT before partial or radical nephrectomy at Bnai-Zion Medical Center between 2011 and 2023. Radiological maximal diameter was measured on 4 imaging planes: axial, coronal, sagittal, and reformatted plane parallel to the long axis of the tumor. The portal phase of contrast enhancement was used for the vast majority of measurements, with few cases measured on the corticomedullary phase. Demographic, clinical, and pathological data were retrieved from patients' medical files.

Results: Mean tumor size on different planes (axial, coronal, sagittal, and tumoral) was 5.26 ± 2.95 cm, 5.28 ± 2.8 cm, 5.42 ± 3.0 , and 5.69 ± 3.0 cm respectively. The pathological tumor size was 4.95 ± 2.73 cm. The study showed no statistically or clinically significant differences in any measurement, with the highest average discrepancy of 4mm (between pathological size and arterial phase).

Conclusions: To our knowledge, this is the first study to compare RCC size measurement in different CT planes and its concordance with pathological size. In our study, we concluded that any imaging plane (axial, coronal, sagittal, or tumoral axis) can be used with a good correlation to pathological size. Further investigation is needed to evaluate the accuracy of measurements on different enhancement

OBESITY IS ASSOCIATED WITH FATTY LIVER AND FAT CHANGES IN THE KIDNEYS IN HUMANS AS ASSESSED BY MRI

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Background: Obesity is associated with metabolic syndrome and fat accumulation in various organs. Obesity is a major risk factor for developing chronic kidney disease (CKD). We aim to evaluate the association between fat deposition in the liver and kidneys and their relation to obesity by MRI.

Methods: MRI studies performed for any indication at Chaim Sheba Medical Center during 2017-2020 were evaluated. Fat fraction (%) in the liver and kidneys was estimated using Dual-Echo sequences, applying the equation: $\eta = (IP-OP/2IP)*100$ (IP: in-phase; OP: opposed-phase). MRI findings were correlated with measures of obesity as well as other demographic and clinical data. As assessment of fatty kidneys by MRI is not yet established, we decided to set a threshold of 4% fat fraction to define a fatty kidney.

Results: We included 399 patients, median age of 51-years, 52.4% women, and median BMI (Body Mass Index) 24.6 kg/m². Fatty liver was found in 18% and fatty kidney in 18.6% of the patients. Out of 67 patients with fatty livers, 34.3% also had fatty kidneys, whereas among the 315 patients without fatty livers, only 15.2% had fatty kidneys ($p < 0.01$). Patients with both fatty liver and kidney were more obese, diabetics and with higher systolic BP. Patients with fatty liver had an adjusted OR of 2.91 (97.5% CI; 1.61–5.25) to have fatty kidneys. Fatty liver together with fatty kidneys were found only in patients with BMI higher than 25 kg/m².

Conclusions: We found that obesity is correlated with fat accumulation in the liver and kidneys. MRI is a suitable modality to assess fat deposition in the kidneys. Focusing on fat deposition in the kidneys, as is done with fat in the liver, may contribute to earlier detection of patients at risk developing clinical CKD. Further studies are needed to standardize this method.



Assessment of renal and liver fat using dual-phase MRI sequences: In-phase (a) (IP) (TR 127.85, TE 2.30) and opposed phase (OP) (b) (TR 127.85, TE 1.15) axial images demonstrating fat fractions of 14% in the lower pole of the kidney and of 39% in the liver.

RADIOLOGY AND ART - HIDDEN FIGURES

Lia Laufer

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X-ray and CT scans are well-known techniques used by major museums laboratories around the world to uncover hidden artworks or layered compositions, such as different paintings on the same canvas created by an artist over various periods.

Some artists have found inspiration in the imagery produced by CT or MRI scans (particularly in color reconstructions) or angiography images.

My aim, however, is different: I focus on the hidden figures that appear in everyday radiological work. Most of these figures are discovered in CT scans, while others are found in MRI, X-ray, or fluoroscopy images.

These figures can be divided into two categories:

-Zoomorphic - Representations of known or fictional animals.

-Anthropomorphic - Images resembling human portraits, silhouettes, or masks.

While these figures have no diagnostic significance, they provide a delightful and amusing break in my routine work. A colleague once asked me, "How do you spot them?" The answer is quite simple—they reveal themselves, saying, "Hi, I am here."



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VERY-EARLY DETECTION OF POST-TRAUMATIC PULMONARY EMBOLISM IN COMBAT TRAUMA: INSIGHTS FROM THE IRON SWORDS WAR

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Background: Pulmonary embolism (PE) is a potentially fatal complication following trauma, typically classified as early (within 72 hours) or late. The Iron Swords War in Israel provided a unique trauma care situation, with close proximity between combat zones and tertiary medical centers reducing evacuation times to less than an hour. This enabled the detection of post-traumatic PE soon after injury. Since the onset of the war, our center has observed numerous post-traumatic PE cases detected in initial CT scans, suggesting that some PEs develop almost concurrently with injuries. This phenomenon of "very early" post-traumatic PE has not been described in the medical literature and warrants further investigation.

Methods: We conducted a retrospective analysis of soldiers who arrived directly from the battlefield and underwent CT scans as part of their initial trauma evaluation between October 2023 and February 2024. Non-diagnostic CTs were excluded, leaving 240 cases for analysis. Clinical findings including Injury Severity Score and Abbreviated Injury Scale were collected as well as any pre-hospital interventions. Radiological findings were reviewed by two senior radiologists.

Results: PE was identified in 20 patients (8.3% of the cohort) on CT scans performed shortly after injury. Most PEs were located at the segmental level (60%), with 35% of cases showing bilateral emboli. Injury characteristics, such as limb injuries, higher severity scores, whole blood administration, tranexamic acid use, and tourniquet application, were significantly associated with early PE. Initial radiology reports missed PE in 50% of cases, while AI systems missed 60%.

Conclusions: This study identifies a novel phenomenon of "very early" PE in military trauma patients, detected within hours of injury. Limb injuries, higher severity scores, and certain prehospital interventions were significantly associated with early PE. Heightened clinical suspicion and improved radiological protocols are critical for prompt detection and management in high-risk trauma patients.

UNEXPECTED EARLY PULMONARY THROMBI IN WAR INJURED PATIENTS

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Background: Pulmonary embolism (PE) is commonly associated with deep vein thrombosis and the components of Virchow's triad: hypercoagulability, stasis, and endothelial injury. High-risk patients for venous thromboembolism have traditionally included prolonged immobility and hypercoagulable conditions. Recent findings of pulmonary thrombi (PT) in young, healthy combat soldiers during initial trauma assessments challenge this assumption. Our objectives is to investigate the prevalence and characteristics of incidental PT detected in combat trauma patients on the admission contrast-enhanced computed tomography (CT) scans, and to evaluate the effectiveness of an artificial intelligence (AI) algorithm in diagnosing PT within this acute trauma settings.

Methods: This retrospective study, held in two tertiary hospitals, analyzed the triage contrast-enhanced CT scans of acutely injured war patients aged 18-45, between 07.10.2323-07.01.2024. PT were retrospectively detected using an AI algorithm and confirmed by a senior chest radiologist. The findings were compared to the initial attending radiologists' reports. Demographic, clinical, injury data, and CT-based right/left ventricular diameter ratio, were recorded.

Results: Of the 190 patients, age 25.91 ± 6.05 , 183 males) included, the AI identified 10 confirmed patients with PT (5%). Of them, six (60%) were missed by the initial radiologist. Compared to the non-PT patients, patients with PT tended to have more complex and severe injuries (higher Injury Severity Score, 13.05 ± 10.60 versus 22.83 ± 5.67 respectively, $p < 0.05$). No other difference was identified. Notably, despite the presence of thrombi, significant right ventricular dilatation was not found in 9/10 of them.

Conclusions: To the best of our knowledge, this is the first report of PT in war injured patients, providing a unique characterization of incidental PT identified in the triage CT of young acutely injured soldiers. PT events occur more frequently than anticipated, highlighting the crucial role of AI systems, and moreover, calling for improved radiologists' awareness to identify PT, especially in more severe injured patients.

DOES PROSPECTIVE AUTOMATIC NOTIFICATION OF IMAGING EXPERTS IMPROVE THE OUTCOMES OF THE CLINICAL USE OF AI SOFTWARE TO DETECT PULMONARY EMBOLISM?

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Background: Artificial intelligence (AI) is routinely used in our institution to detect PE. This study aimed to determine whether the clinical outcomes of PE detection are improved by real-time notification of expert radiologists by text messaging of AI imaging results.

Methods: As part of a quality improvement (QI) program, in May 2023, Hadassah Medical Center introduced a real-time notification alert system of positive results of AI software to detect PE. The system sends SMS and RIS notifications to designated radiology experts. These radiologists then verify the AI findings and provide immediate feedback to ensure accurate reporting in CT reports. Data of the QI program was retrospectively analyzed. Statistical analysis was performed to compare detection rates of PE and incidental PE according to the referral source and the percentage of cases in which changes were made (earlier reporting or change of negative to positive study).

Results: A total of 224 CT scans were analyzed, of which 48.7% showed PE which was suspected and 51.3% demonstrated incidental PE. The mean age of patients was 65 (range 18 to 96 years), with a higher rate of PE among women (58%). Scans were performed in patients referred from the ED (60%), inpatients (34%) and outpatients (6%). Among outpatients, 90% of identified cases were incidental PE. Expert monitoring changed reports from initially negative or unreported cases to positive diagnoses of PE in 5.3 % of the cases. Of the cases with earlier reporting of PE to the referring physician 50% were in outpatient studies, 30% in inpatients and 20% in the ED.

Conclusions: Our study highlighted the importance of close monitoring by radiology experts of AI-aided positive PE alerts. Diagnostic performance improved, particularly for incidental findings in outpatients, and the time to clinical decision-making decreased, potentially benefiting patient outcomes.

COMPUTED TOMOGRAPHY FOR LEFT ATRIAL APPENDAGE THROMBUS DIAGNOSIS: PROTOCOL OPTIMIZATION

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Background: Stroke is the second leading cause of death worldwide. Ischemic stroke represents about 80% of total strokes. Cardiac embolism due to arrhythmia is one of the most common causes of ischemic stroke. Trans-oesophageal-echo and cardiac CT (CCT) are used to rule out left atrial appendage thrombi (LAAT). Standard CCT protocol includes arterial and delayed phases. Our purpose is to determine if CCT with only a delayed phase is sufficient to exclude LAAT. To find a threshold for LAAT diagnosis.

Methods: We searched our institution's RIS and collected CCT performed to exclude LAAT between 01.01.2020 and 01.10.2023. All exams were performed on modern CT (either Siemens Somatom Drive or Force) using FLASH/Turbo-FLASH techniques with two tubes working simultaneously utilizing a high-pitch scan. The quantity of contrast material was adjusted to the patient's body weight with ROI test bolus technique placed on LA. The scan protocol included an arterial phase and a delayed phase (40 seconds post arterial phase). A density index ratio of tip of the LAA to ascending aorta (LAA-AA ratio) was calculated in both arterial and venous phases. All scans were interpreted blindly by 2 radiologists and disagreements were resolved by consensus.

Results: 133 CCT scans were included. The mean age was 69.6 years, 77 patients (57.9 %) were males. On the delayed phase, there were 123 negative exams and 10 positive exams for LAAT. Thirty-one scans were false positive for LAAT on the arterial phase (23.3 %) with the filling defect resolving on the delayed phase. No LAAT was detected only on the delayed phase. The threshold of the LAA-AA ratio was 0.271 and 0.540 for arterial and venous phases, respectively ($p \leq 0.001$).

Conclusions: Delayed phase CCT is sufficient to exclude LAAT. LAA-AA ratio can assist in LAAT diagnosis in both arterial and delayed phases in unequivocal cases.

EVALUATION OF AI-BASED DETECTION OF INCIDENTAL PULMONARY EMBOLI IN CARDIAC CT ANGIOGRAPHY SCANS

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Background: Incidental pulmonary embolism (PE) detection is reported in 1% of cardiac CT angiography (CCTA) scans. This is despite the inherent limitations of CCTA, including targeted aortic contrast opacification, and a limited field of view. This study aimed to assess the performance of an AI algorithm in the detection of incidental PE in CCTA scans.

Methods: A dedicated AI algorithm was utilized to retrospectively analyze CCTA scans for PE presence. A natural language processing (NLP) system was used to review the original radiology reports for PE presence. Discrepancies between the radiology report and the AI algorithm prompted a repeated review by a chest radiologist blinded to either reading. The AI algorithm performance was compared with the radiology reports for PE detection.

Results: Between 2021 and 2023, 1534 cardiac CTA scans were performed. The AI algorithm identified 27 positive PE scans. The repeated review confirmed the presence of PE in 22/27 and negated PE presence in 5/27 cases. Of the confirmed cases, 10/22 were not mentioned in the initial radiology report (45.5%). All unreported cases were detected in segmental or subsegmental arteries (P<0.05). The AI algorithm performance had 100% sensitivity, 99.6% specificity, 99.6% accuracy, 81.4% positive predictive value, and 100% negative predictive value.

Conclusions: This study demonstrated the effectiveness of AI algorithms in detecting incidental PE in CCTA scans, particularly segmental or subsegmental PEs, which are more prone to being missed by radiologists. The integration of such AI tools could enhance both radiological diagnostics and patient outcomes by identifying PEs that may otherwise go undetected. The study is limited by the small number of positive PE cases and the possibility of false negative underestimation, due to the reliance on NLP for the initial report reviews.

PRE-STENTING ADDED VALUE OF ADVANCED CHEST CT PROCESSING FOR THE EVALUATION OF POST TRANSPLANTATION BRONCHIAL STENOSIS.

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Background: Despite advancements in lung transplantation, bronchial stenosis continues to be the most common complication. There are several ways to treat bronchial stenosis, including balloon dilation, steroid injections, and stent placement. While bronchoscopy is the gold standard for bronchial stenosis diagnosis, CT can be used as a support tool. The correlation between stenosis demonstrated on CT and bronchoscopy, as well as the relationship between spirometry and CT findings in various lung diseases, has been reported in previous studies. This study aims to assess the benefit of advanced CT processing by measuring correlations to spirometry before and after stent placement, in lung transplant recipients diagnosed with bronchial stenosis.

Methods: All lung transplant recipients diagnosed with bronchial stenosis requiring stent placement between 2004 and 2022 were retrospectively retrieved from our lung transplant clinic registry. Advanced CT measurements, including measurements of the stenosis site and lung volumes, were correlated to spirometry results at two different time points: prior to and post-stent placement.

Results: The study cohort included 41 lung transplants with 42 endobronchial stents. Most were placed within the first six months after the lung transplantation and were located at the main bronchi. A significant expected change in spirometry results was observed after the stent placement (for FEV1 $P=0.028$, and for FVC $P=0.018$); this change was also demonstrated in the advanced CT measurements ($P0.001$) with both of these observations correlated ($R_s (-0.25) - (-0.4)$, $P0.05$).

Conclusions: Advanced CT processing measurements of the stenotic site and lung volumes correlate with spirometry measurements. This CT measurements can serve as a supportive tool in decision-making before performing invasive procedures prior to stent placement, as well as for follow-ups.

INSIGHTS INTO CHEST RADIOGRAPH SEX CLASSIFICATION THROUGH ADVANCED EXPLAINABLE AI

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Background: This study aimed to classify chest radiographs by sex using artificial intelligence (AI) and to explore the classification outcomes through advanced explainable AI technology. Anatomical differences between males and females often manifest in imaging studies, and understanding these distinctions can enhance diagnostic and research applications.

Methods: We used the publicly available NIH Chest X-ray Dataset, which includes 5000 radiographs of patients aged 45-60, evenly split between males and females, all without pathological findings. The ResNet18 classifier was employed for the sex classification task. Our approach incorporated a novel Explainable AI technology developed by our research group, known as DXAI. This method decomposes images into class-distinct and class-agnostic components, providing detailed insights into the neural network's decision-making process. The study was conducted in two stages: initially analyzing full chest X-rays, followed by an analysis of cropped images focusing on the upper thorax to minimize the influence of breast tissue.

Results: The classifier achieved an accuracy of 95.60% for full chest X-rays and 89.46% for cropped images. The analysis of the full-image data highlighted breast tissue as a key feature distinguishing female radiographs from male ones. When examining cropped images, differences became more pronounced; female images emphasized features of the upper thorax, while male images highlighted the chest wall, axilla, and mediastinal border.

Conclusions: Our chest X-ray sex classifier demonstrates high accuracy in distinguishing between sexes, with notable results for both full and cropped images. The explainable AI methodology revealed that breast tissue presence was a significant factor in classification. Additionally, the upper thorax and chest wall differences between genders were observed, providing deeper insights into anatomical distinctions not easily visible to the human eye.

VALUE OF COMPREHENSIVE RADIOLOGIST INTERPRETATION OF CHEST RADIOGRAPHS OF PATIENTS DISCHARGED FROM THE EMERGENCY DEPARTMENT

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Background: Most conventional chest images obtained in our emergency department (EDs) are evaluated by non-radiologists. AI usually marks multiple imaging features but with no definite clinical diagnosis. In order to bench mark AI to the potential clinical impact we evaluated the percentage of suspected or definite radiographic abnormalities and how frequently these were detected by ED physicians in comparison to expert radiological interpretation.

Methods: This prospective study examined the chest radiographs of all patients who were discharged from our ED over a six-week period. A radiologist with more than 30 years of experience in plain film interpretation evaluated each chest radiograph and assigned it to one of three comprehensive categories: normal; unchanged / improved; or having an abnormally /questionable abnormality. For all chest radiographs considered abnormal, the discharge summary from the ED was examined to determine whether the abnormality had been observed and noted or if the patient had received appropriate treatment based on another imaging procedure, clinical history or laboratory testing.

Results: Chest radiographs demonstrated an abnormality /questionable appearance requiring additional imaging in 128 (7.4%) of the 1742 studies. In 80 (62.5%), 4.6% of the total cases, the relevant abnormality was known to ED physician. However, in 48 (37.5%), 2.8% of the total cases, there was no evidence that an ED physician was aware of the imaging abnormality.

Conclusions: Having a radiologist interpret chest images of patients discharged from the ED adds value to patient care. As the vast majority (92.6%) of chest radiographs of patients discharged from the ED were normal / unchanged, we suggest a triage system, such as artificial intelligence, to eliminate those cases that do need interpretation by a radiologist. The study highlights the potential value of AI in chest X-ray interpretation.

THE CHALLENGES OF THE SEGMENTATION PROCESS IN AN INTERNATIONAL MULTICENTER RADIOMICS STUDY IN LUNG CANCER

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Background: Lung cancer remains a major global health challenge, with non-small cell lung cancer (NSCLC) representing the most prevalent subtype. Radiomics, extracts quantitative features from medical images, shows promise in optimizing tumor assessment, treatment planning and patient outcomes. However, implementing radiomics presents challenges due varied acquisition protocols, image parameters, and tumor characteristics. This study focuses on overcoming segmentation challenges in an international multicenter setting.

Methods: This ongoing retrospective, observational, multicenter study enrolled patients with confirmed NSCLC diagnosed between 2012-2022. Chest CTs acquired according to local standard-of-care protocols were collected and pseudo-anonymized in DICOM format. After quality assessment, images underwent harmonization to address inter-institutional variability in acquisition parameters. Tumor segmentation delineated regions of interest using a combination of automated and semi-automated with manual corrections as needed.

Results: From the initial cohort of 983 patients with available radiological images, 770 patients had suitable chest CT scans. Standardization of slice thickness and reconstruction kernels mitigated inter-institutional image variability. Segmentation challenges were categorized into technical and tumor-related factors. Technical segmentation challenges included image noise and errors in automatic methods. Tumor-related challenges, arose from complex anatomical locations (e.g., abutting the mediastinum or pleura, or with atelectasis), diffuse disease or poorly defined tumor. Cases were excluded for the following reasons: 55 (7.1%) due to technical issues, 25(3.2%) lesion related factors, 17(2.2%) diffuse disease, 42(5.5%) disease limited to pleura or lymph-nodes, 48(6.2%) post-surgical-images and 19(2.5%) other reasons. To address these challenges, contrast-enhanced images and semi-automated segmentation tools were employed, allowing for manual corrections in complex cases. Ultimately, a total of 564 (73.2%) patients were successfully segmented for radiomics analysis.

Conclusions: This study highlights challenges in developing a radiomic model in NSCLC for patient-personalized treatment strategies across multiple centers. Overcoming data variability and segmentation hurdles is crucial for implementing radiomics in clinical practice.

PATIENT DOSES FROM CHEST EXAMINATIONS AT A TERTIARY MEDICAL CENTER -INITIAL AUDIT RESULTS

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Background: We present the results of an internal audit of chest x-ray (CXR) patient doses. We determine median doses and compare them to European diagnostic reference levels (DRLs) as a step towards identifying optimization opportunities.

Methods: We collected data from 5 x-ray rooms. Technologist recorded patient weights. Exposure parameters and system-reported dose values were obtained from the PACS. Systems reported the dose-area product (DAP dGy cm²), the entrance skin exposure (ESE μ Gy) or both. We calculated median kVp, mAs, DAP and/or ESE and compared median doses to European DRLs. We generated an exponential fit for dose vs weight. Values that were larger than the fit plus 1 standard deviation were considered outliers and were reviewed by a senior technologist.

Results: There were 181 CXR radiographs: 93 PA and 88 LAT. The tables below summarize the results.

PA CHEST

			ESE
109	1.4	0.55	39.9
EUCLID	2.0	300.0	

LAT CHEST

			ESE
117	7.0	2.8	220
EUCLID	5.0	1100	

Of 22 outliers, 12 were attributable to body habitus or clinical condition (lung congestion, pleural effusion), 2 were overexposed and 8 were considered acceptable images with appropriate techniques.

Conclusions: Median LAT and PA CXR doses were established. Doses were lower than European DRLs. There was good agreement in median doses and exposure parameters among the 5 x-ray rooms. Most outliers were considered justified.

Parallel Session 5: Innovation



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ASSESSING GPT-4 MULTIMODAL PERFORMANCE IN RADIOLOGICAL IMAGE ANALYSIS

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Background: This study aims to assess the performance of OpenAI's multimodal GPT-4, which can analyze both images and textual data (GPT-4V), in interpreting radiological images. It focuses on a range of modalities, anatomical regions, and pathologies to explore the potential of zero-shot generative-AI in enhancing diagnostic processes in radiology.

Methods: We analyzed 230 anonymized emergency room diagnostic images, consecutively collected over one week, using GPT-4V. Modalities included ultrasound (US), computerized tomography (CT) and X-ray images. The interpretations provided by GPT-4V were then compared with those of senior radiologists. This comparison aimed to evaluate the accuracy of GPT-4V in recognizing the imaging modality, anatomical region, and pathology present in the images.

Results: GPT-4V identified the imaging modality correctly in 100% of cases (221/221), the anatomical region in 87.1% (189/217), and the pathology in 35.2% (76/216).

However, the model's performance varied significantly across different modalities, with anatomical region identification accuracy ranging from 60.9% (39/64) in US images to 97% (98/101) and 100% (52/52) in CT and X-ray images ($p < 0.001$). Similarly, pathology identification ranged from 9.1% (6/66) in US images to 36.4% (36/99) in CT and 66.7% (34/51) for X-ray images ($p < 0.001$). These variations indicate inconsistencies in GPT-4V's ability to interpret radiological images accurately.

Conclusions: While the integration of AI in radiology, exemplified by multimodal GPT-4, offers promising avenues for diagnostic enhancement, the current capabilities of GPT-4V are not yet reliable for interpreting radiological images. This study underscores the necessity for ongoing development to achieve dependable performance in radiology diagnostics.

FAST BRAIN MRI ACQUISITION WITH DUAL-MODALITY DEBLURRING

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Background: Efficient brain MRI acquisition is essential to minimize patient discomfort, reduce motion artifacts, and increase throughput. This study investigates the application of a novel acceleration technique that jointly reduces the acquisition time for MRI scan pairs (e.g. T1w-T2w) while maintaining adequate diagnostic accuracy.

Methods: A customized MRI acquisition protocol was developed to transform acceleration artifacts into one-dimensional image blur. Accelerated pairs of MRI scans are acquired under mutually orthogonal phase encoding directions, resulting in orthogonal blur directions. The pair is consecutively deblurred using a proprietary neural network that enforces the complementarity of the blur directions.

Experiments: 12 pairs of 3D T1w -T2w scans (0.63 x 0.63 x 1 mm³) were acquired from healthy subjects with a 1.5 T Philips Ingenia magnet. Each scan was performed twice: according to a standard clinical protocol comprising compressed sensing (=reference scans) and following the acceleration approach described in the methods (=accelerated scans). Acquisition time was 160 and 40 seconds for the reference and accelerated scans, respectively.

Results: Five-fold cross-validation resulted in average SSIM=0.82 and average PSNR=0.33. In Fig. 1, a sample pair of accelerated slices is shown before (left) and after (right) deblurring by the network.

Conclusions: The proposed approach demonstrated promising initial results, suggesting its applicability in significantly reducing brain MRI scanning time with intriguing future implementations.

USE OF VIRTUAL REALITY SMART GLASSES DURING TRAINING IN ULTRASOUND SCHOOL FOR RADIOGRAPHERS IN MACCABI HEALTHCARE SERVICES: FIRST EXPERIENCE AND TRAINEES` FEEDBACK.

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Background: The use of Virtual Reality (VR) simulations in healthcare education has dramatically increased in recent years.

Methods: This abstract explores the transformative impact of VR technology on sonographer training in the Maccabi healthcare system by examining its applications, benefits, and potential challenges in various scenarios. VR is revolutionizing the field of sonography education by simulating real-world ultrasound scenarios, offering interactive learning experiences, and improving practical skills. This immersive approach facilitates a deeper understanding of complex anatomy, enhances spatial awareness, and allows for repetitive practice without the constraints of real-world clinical settings. Additionally, VR-based training can be tailored to various skill levels and learning styles, providing personalized educational experiences.

Results: In collaboration with engineers, programmers, and VR specialists from the ARVR company, we developed several scenarios in a simulated environment similar to the real ultrasound study rooms used in our Maccabi clinics.

Conclusions: However, challenges such as the need for high-quality imaging data, system integration, and the learning curve associated with new technology must be addressed to fully realize the potential of VR in ultrasound training.

YOUNGER IS NOT ALWAYS BETTER WHEN IT COMES TO PROFESSIONAL MATURITY IN RADIOLOGY

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Background: The worldwide accepted model of a radiology department affiliated with an academic institution includes radiology residents trained and educated by a group of senior radiologists. Preliminary reports are created by residents and later finalized by radiology attending. The study aims to elucidate factors influencing clinical significant modifications in the final report.

Methods: In our study, 43,272 cases were included. The patient's demographic and clinical characteristics, imaging modality, weekday and time of the initial report, and the year of residency of the reporting resident were analyzed.

Results: In 1,162 cases (2.69%) clinically significant changes were made in the final radiology report. Higher discrepancy rate was observed in older patients (OR 1.006, 95% CI 1.004-1.008, p=0.001), in patients admitted to ICU (4.3%, OR 1.638, 95% CI 1.136-2.362, p=0.008), on weekends (OR 0.768, 95% CI 0.681-0.867, p=0.001), on early evening hours between 15:00 and 19:00 (OR 1.382, 95% CI 1.002-1.905, p=0.048) and), computed tomography compared to ultrasound (OR 0.495, 95% CI 0.386-0.635, p=0.001). Each year of residency improved the discrepancy rate, from 3.3% in first-year to 1.6% in fifth-year residents.

Conclusions: The study identifies key factors influencing discrepancies between preliminary and final radiological interpretations, including patients' characteristics, the employed imaging modality, and professional experience. The results provide a tool for targeted improvements in radiological training and practices.

WHO MOVED MY CT SCAN? REDISTRIBUTION OF EXPERT WORKFLOW FOLLOWING THE ASSIMILATION OF AI IN STROKE CARE

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Background: The introduction of AI into medical decision-making situations raises theoretical and practical discussions regarding roles and responsibilities delegation between humans and AI. Its integration into complex, time sensitive decision-making situations raises the question of its effects on the decision-making workflow within teams that involve multiple clinicians from various disciplines, hierarchy levels, departments and institutions. Stroke management serves as an ideal case study for those issues due to the multidisciplinary nature of the team decision making, the urgency of the decision required and the implementation of AI tools.

Methods: The study combines qualitative analysis of physicians` perceptions of delegation dynamics before and after tool deployment with quantitative assessment of changes in workflow interval durations. Interviews were conducted with physicians directly involved in stroke treatment workflows, including those from emergency rooms, neurology, radiology, and neuro-intervention. We collected quantitative data covering 15 months before and after the tool deployment. Our final dataset includes records of 4,974 patients, treated at a major hospital (equipped with thrombectomy facilities). 417 underwent intervention.

Results: Our initial analysis of qualitative data reveals that AI-based detection of ischemic stroke plays a relatively marginal role in the disruption of stroke workflow. Instead, the AI's alerts and communication platform disrupts the traditional delegation and decision-making process between physicians.

ARTIFICIAL INTELLIGENCE-DRIVEN ANALYSIS OF PAROTID GLAND DUCTOPENIA IN SIALO-CBCT: A NOVEL DIAGNOSTIC APPROACH

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Background: Ductopenia, a structural abnormality in salivary glands characterized by reduced ductal arborization, has been associated with glandular dysfunction. However, its detection and classification in cone-beam CT aided sialography (sialo-CBCT) scans remain subjective and challenging. This study aimed to develop an artificial intelligence (AI) system for automated detection and classification of parotid gland ductopenia using sialo-CBCT images.

Methods: This retrospective study analyzed 126 parotid sialo-CBCT scans of patients with symptoms of xerostomia. A multi-stage AI algorithm was developed, incorporating image preprocessing, data augmentation, and deep learning classification. The preprocessing stage included automatic region of interest (ROI) definition and gland segmentation using the Frangi filter. Data augmentation was achieved through multidirectional maximum intensity projection (MIP) images. A residual neural network (ResNet101) was employed for the final classification into normal-appearing glands (NAGs), moderate ductopenia, and severe ductopenia.

Results: The AI system achieved an overall accuracy of 94.9% and an F1 score of 0.90 for ductopenia classification. The sensitivity for detecting any ductopenia was 99.3%, with specificities of 100%, 87.3%, and 92.5% for NAGs, moderate, and severe ductopenia, respectively. The system demonstrated robustness across different preprocessing stages, with significant improvements observed after gland segmentation. Notably, the model maintained high performance even in cases with imperfect segmentation, achieving a sensitivity of 93% for ductopenic cases.

Conclusions: This novel AI-driven approach offers a highly accurate and objective method for detecting and classifying parotid gland ductopenia in sialo-CBCT images. By providing a quantitative assessment of ductal arborization, this tool has the potential to enhance early diagnosis of salivary gland dysfunction and monitor disease progression. Future studies should explore its integration into clinical workflows.

LANGUAGE MODELS VERSUS RADIOLOGY RESIDENTS: DIAGNOSTIC ACCURACY IN COMPLEX SYNDROMES

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Background: Radiology residents are often tasked with diagnosing complex multisystemic syndromes, frequently associated with increased cancer risks. This study compares the diagnostic performance of three large language models (LLMs) against radiology residents in identifying such challenging conditions.

Methods: We assessed diagnostic accuracy using textual descriptions of radiological findings from 60 complex multisystemic diseases selected from The Familial Cancer Database (FaCD). Participants included three LLMs (Generative Pre-Trained Transformers (GPT) -3.5, GPT-4, and Gemini Pro) and three radiology residents. All the participants were shown textual descriptions of radiological findings from patient cases obtained from the collaborative website Radiopaedia.org fitting the FaCD diseases. Diagnostic responses were scored on accuracy and first choice correctness. Experiments with the artificial intelligence (AI) models were conducted using default application programming interface (API) settings.

Results: GPT-4 achieved both highest diagnostic accuracy (63%) and first choice accuracy (40%). It significantly outperformed the radiology residents whose accuracies ranged from 22% to 43%. The overall average accuracy for AI models was 49.3%, compared to 29.0% for residents. Error analysis revealed that while some diseases were universally recognized, others highlighted diagnostic challenges across both human and AI participants.

Conclusions: GPT-4 outperforms radiology residents in diagnosing complex, infrequent multisystemic diseases. These findings suggest potential benefits of integrating AI tools to improve diagnostic accuracy for complex conditions and imply a need for revisions in residents training to incorporate AI competencies.

INNOVATIVE PROTOCOL OPTIMIZATION FOR RADIATION DOSE REDUCTION IN PEDIATRIC HEAD CT SCAN

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Background: CT scans are now widely used resulting in greater exposure to ionizing radiation and a corresponding risk of cancer. Children are more sensitive to radiation due to their young age, developing tissues and longer life expectancy and studies point to an increased risk of hematologic and central nervous system malignancies. Efforts are underway to minimize radiation exposure for this sensitive population.

Methods: We chose to focus on head CT examinations because the developing brain is particularly vulnerable to radiation exposure. We developed an innovative method for radiation dose reduction through protocol optimization, surpassing the partial optimization based on default protocols. Our method involves five steps:

1. *Protocol Selection:* Prioritizing which scanning protocols to optimize.

2. *Retrospective Analysis:* Increasing image noise by 50% in selected scans with challenging pathologies and assessing diagnostic accuracy.

3. *Anthropomorphic Phantom Use and New Protocol Creation:* Aiming for 15-20% and 30% radiation reductions.

4. *Phantom Analysis:* Analyzing image quality on new protocol sets using an image quality phantom.

5. *Clinical Implementation:* Applying optimized protocols to less complex examinations and collecting radiologist feedback based on a predefined quality assessment table.

Results: we examined 67 non-contrast head CT protocols (41 males; 26 females; from 0-18y, median= 4y). We achieved a 17% reduction in radiation dose without compromising image quality. The optimized protocol resulted in an average DLP of 255.31 mGy*cm. For comparison, the European Union's Diagnostic Reference Levels (DRLs) for pediatric head CT scans are 505mGy*cm(ages 1-6y) and 650mGy*cm(6y).

Conclusions: This significant reduction in radiation dose is crucial for young children. We are processing data to achieve up to a 30% reduction in pediatric head CT scans and exploring radiation dose reduction for other protocols. Our findings have significant implications for pediatric imaging centers worldwide and potential applications in adult CT scans.

HOURLY-BY-HOURLY ANALYSIS OF THE INCREASING RADIOLOGY WORKLOAD - THE DETAILS MAKE THE DIFFERENCE

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Background: The constantly increasing pressure on radiologists during recent years has been documented worldwide, but safety thresholds and good-practice guidelines are not clearly defined. We aim to characterize the distribution of workloads and delineate critical pressure levels beyond which radiologist efficiency may be compromised.

Methods: We conducted an analysis of CT scan and report timestamps from Rambam Healthcare campus, a tertiary hospital, and compared the years 2016 and 2023. The dataset included timestamps of all stages of the imaging pipeline. We focused on off-hour shifts when staffing is minimal and investigated performance during peaks in workload based on an hour-by-hour analysis. Statistical analyses were performed using R, means of continuous variables were compared with the independent t-test.

Results: Data from 36,859 scans performed during 497 off-hour shifts, excluding weekends, were analyzed. The average workload during an entire shift increased by 35.2% from 62.7 scans in 2016 to 84.6 in 2023 (CI 25.7-20.0, $p < 0.001$). Hour-by-hour analysis revealed that the average workload peak occurred on most shifts in 2016 during 19:00-21:00 and was deviated towards later hours in 2023, occurring between 21:00-00:00. The rise in workload was not evenly distributed across the shift but rather clustered to peak pressure periods. Increasing workload correlated with longer patient waiting times and longer reading lists.

Conclusions: The study identifies critical periods of workload surges, correlating these with potential declines in radiologist performance. It suggests that general trends in average workload fail to capture the nuances of pressure on radiology departments. The findings underscore the need for revisiting radiology department protocols, particularly during off-hours, which may mitigate the risks associated with high workload periods and ultimately enhance patient care and radiologist well-being.

WHOLE BODY MRI WITH DIFFUSION-WEIGHTED IMAGING IN ONCOLOGY AND HEMATOLOGY: ADVANCES AND CLINICAL APPLICATION

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Whole-body MRI with diffusion-weighted imaging (WB-MRI with DWI) has evolved from its early use in the early 2000s with 1.5T MRI systems and build-in radiofrequency Body-Coil that provided low-resolution images to modern 3T systems equipped with multichannel surface coils and fast protocols, achieving near isotropic voxel in high spatial resolution.

Historically, WB-MRI offered limited sensitivity and specificity, but current advancements significantly enhance diagnostic accuracy in oncology and hematology. WB-MRI with DWI outperforms conventional CT and in comparison, with FDG-PET/CT demonstrates similar sensitivity and specificity for initial differential diagnoses and in assessing treatment response, particularly in multiple myeloma, lymphoma, myxoid liposarcoma, breast, and prostate cancers. The technique offers enhanced tissue contrast, eliminates ionizing radiation, and provides a non-invasive alternative for comprehensive oncological staging and follow-up.

In this presentation we summarize more than 10 years of experience in applying the technique in various clinical scenarios and using different equipment. Tips and tricks for building the scanning protocol and interpreting the acquired data will be discussed.



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Parallel Session 8: Pediatric Imaging



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THE ROLE OF 18F-FDG PET-CT AND MRI IN PROGNOSIS OF PEDIATRIC RHABDOMYOSARCOMA

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Background: Rhabdomyosarcoma (RMS) is the most common pediatric soft tissue sarcoma. With the increasing use of PET-CT in initial RMS staging, its prognostic value remains to be fully understood. This retrospective study evaluates the significance of PET-CT for metabolic assessment and MRI/CT for anatomical assessment in 39 RMS patients diagnosed at Rambam Medical Center from 2008 to 2022.

Methods: The study analyzes sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and accuracy at initial staging and during interim assessment after three chemotherapy cycles.

Results: The results indicate that MRI and CT exhibit higher sensitivity (~81%) compared to PET-CT (~66%), with respective PPVs of 70% and 69%. Interim assessments show that both imaging modalities can serve as potential biomarkers for positive survival outcomes in RMS patients. However, due to the limited sample size, the low negative prediction counts yield mostly descriptive statistics, making definitive Conclusion about NPV and overall accuracy difficult.

Conclusions: Despite these limitations, the study suggests that MRI and CT may be more sensitive overall. Additional research with larger and more diverse patient cohorts is essential to draw reliable Conclusion. The study also raises the question of whether including PET-CT in interim phase assessments enhances overall survival accuracy, warranting further investigation.

DIAGNOSTIC INSIGHTS AND CLINICAL OUTCOMES OF FETAL URINARY EXTRAVASATION

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Background: Fetal urinary extravasation presents as a urinoma or urinary ascites due to urinary tract obstructions. Our study aims to present prenatal diagnosed urinary extravasation cases, focusing on key imaging findings and their clinical relevance.

Methods: A multi-center retrospective cohort study over five years of cases of fetal urinary extravasation diagnosed prenatally and confirmed postnatally. Prenatal Ultrasound, MRI, and genetic analysis are presented.

Results: Out of 1750 targeted scans for kidney and urinary tract anomalies, seven cases (0.4%) of fetal urinary extravasation were identified: five unilateral urinomas, one bilateral urinoma, and one urinary ascites case, diagnosed between 20 and 36 weeks of gestation with a gender split of three males and four females. Three cases were associated with lower urinary tract obstruction, three with unilateral obstructions (1 – ureterovesical junction, 1 – ureteropelvic junction, 1 - double collecting system & ureterocele), and one unique case was related to an intraspinal mass leading to non-obstructive urinary retention and subsequent bladder rupture. One case was associated with postpartum death due to respiratory insufficiency, and in another case, the pregnancy was terminated due to unfavorable genetic findings. Out of the cases that proceeded to delivery, three required surgical interventions for conditions (anterior urethral valve, posterior urethral valve, and ureterocele), and two were effectively managed conservatively.

Conclusions: Prenatal urinary extravasation is a rare condition resulting from various urinary obstructions and may have diverse clinical outcomes. Prenatal diagnosis of urinary extravasation, coupled with a thorough evaluation of the renal parenchyma, bladder, and urethra, can offer insights into the underlying etiology and contribute to parental counseling.

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DOSE REDUCTION FOR PEDIATRIC HEAD CT EXAMINATIONS – INITIAL RESULTS

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Background: Protocol review revealed that radiation dose from unenhanced pediatric head CT was higher than diagnostic reference levels (DRLs). This work presents the results of protocol modification to reduce the dose while maintaining image quality.

Methods: Doses for age-based fixed-dose protocol used at our institution ranged from 21.7 mGy to 37.2 for the age range of 0 to 12 years, divided in 5 age groups. The UK DRLs for the same age range was 19 to 36 mGy. The dose was lowered by adjusting mAs so that the dose ranged from 18 to 32 mGy over 0–12-year age range. A pediatric radiologist reviewed forty-one scans: twenty before and twenty-one after the change. Image quality and noise were rated on a 5 point scale (1: insufficient for diagnosis, 2: degraded, barely sufficient for diagnosis, 3: satisfactory/average, fully adequate, 4: above average and 5: excellent) .

Results: Average IQ scores were 3.3 and 3.5 for high and low dose images, respectively. All images scored 3 or more except one with a score of 2. Average noise scores were 3.2 and 3.3 respectively and none lower than 3. Average ages were 1.5 years (22 days to 9 years) and 4.4 years (20 days to 11 years) in the high and low dose cohorts.

Conclusions: Dose reductions in pediatric head scans were realized in the range of 15-19% without impacting image quality. Other optimization possibilities will be explored, such as modifying kVp and iterative algorithm strength.

SOTOS SYNDROME: DEEP NEUROIMAGING PHENOTYPING REVEALS A HIGH PREVALENCE OF MALFORMATIONS OF CORTICAL DEVELOPMENT

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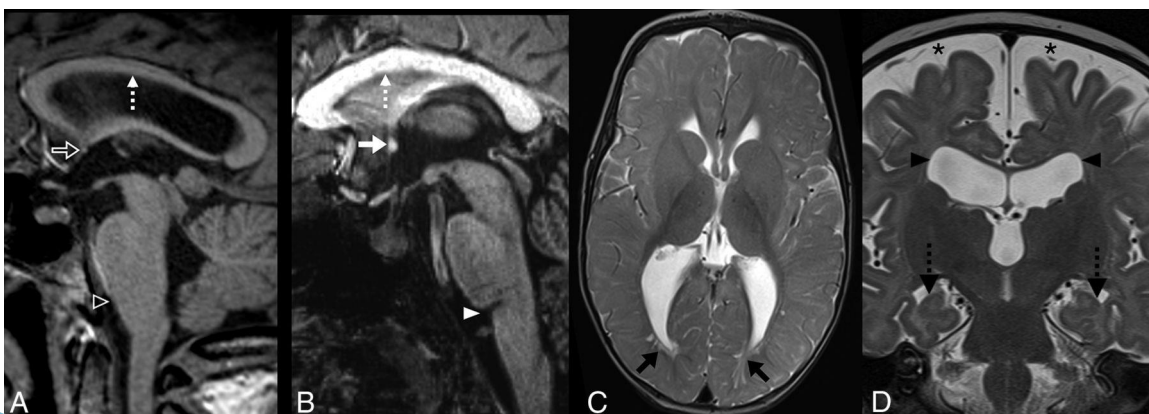
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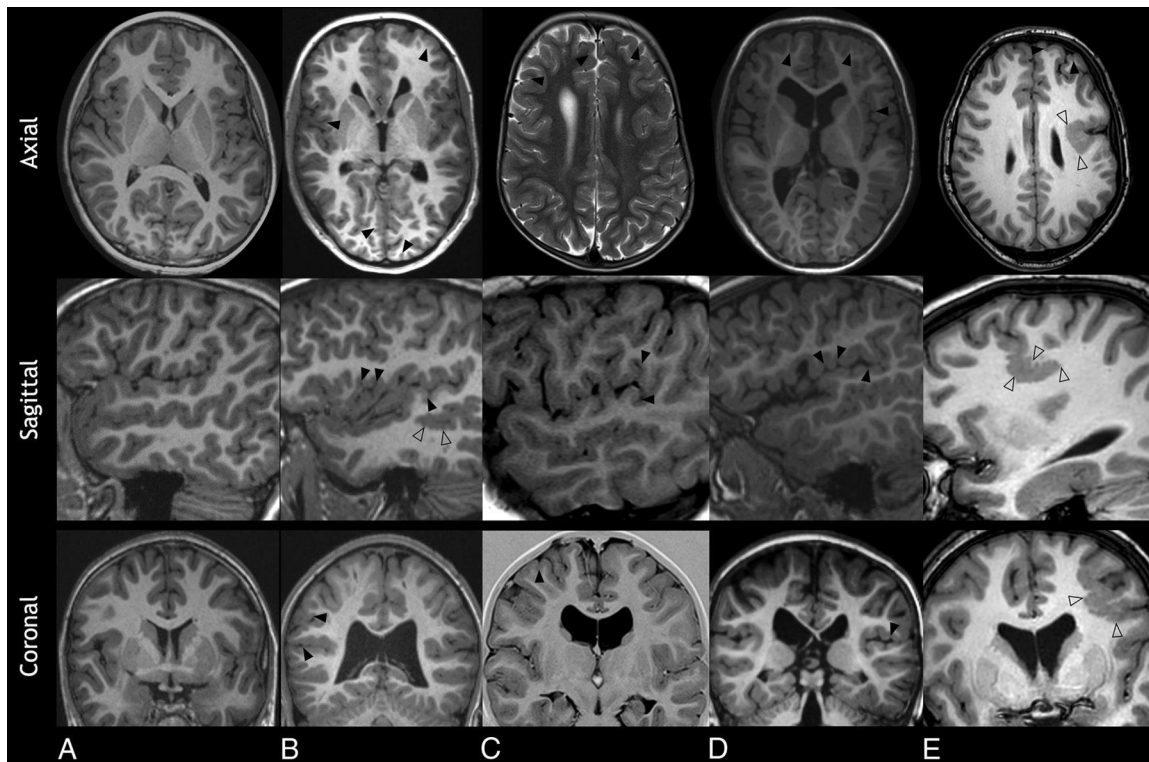
Background: Sotos syndrome is a rare autosomal dominant condition caused by pathogenic mutations in the NSD1 gene that presents with craniofacial dysmorphism, overgrowth, seizures, and neurodevelopmental delay. Macrocephaly, ventriculomegaly, and corpus callosum dysmorphism are typical neuroimaging features that have been described in the medical literature. The purpose of this study was to expand on the neuroimaging phenotype by detailed analysis of a large cohort of patients with genetically proved Sotos syndrome.

Methods: This multicenter, multinational, retrospective observational cohort study systematically analyzed the clinical characteristics and neuroimaging features of 77 individuals with genetically diagnosed Sotos syndrome, via central consensus review with 3 pediatric neuroradiologists.

Results: In addition to previously described features, malformations of cortical development were identified in most patients (95.0%), typically dysgyria (92.2%) and polymicrogyria (22.1%), varying in location and distribution. Incomplete rotation of the hippocampus was observed in 50.6% of patients and was associated with other imaging findings, in particular with dysgyria (100% versus 84.2%, $P = .012$).

Conclusions: Our findings show a link between the genetic-biochemical basis and the neuroimaging features and aid in better understanding the underlying clinical manifestations and possible treatment options. These findings have yet to be described to this extent and correspond with recent studies that show that NSD1 participates in brain development and has interactions with other known relevant genetic pathways.





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Parallel Session 9: Interventional Radiology



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EMBOLECTOMY- SOMETHING OLD, SOMETHING NEW, SOMETHING RETRACTING, AND ASPIRATION TOO

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Introduction: A thrombectomy is a procedure to remove a blood clot from either an artery or a vein. A blood clot which interrupts the blood flow to an organ can be limb or life-threatening, and necessitate urgent intervention.

In this presentation, we would like to share our experience with 20 cases of both arterial and venous thrombus, introduce our `device of choice` for various pathologies including the presentation of a few cases performed with the new INARI ClotTrieve system, and present a suggested workup for patients presenting with acute or acute on chronic thromboembolism.



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DISTAL TRANSRADIAL (SNUFFBOX) ACCESS IN RADIOCEPHALIC FISTULA INTERVENTIONS

Artem Khaes¹, Jacob Zeytun², Antony Verstandig², Michael Knijnik², Mahmoud Zeed², Adam Farkas²

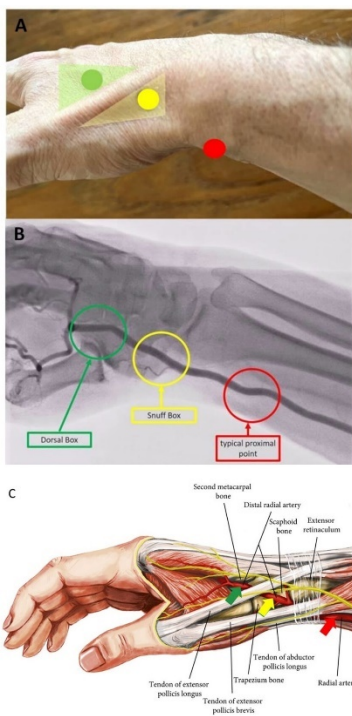
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Background: This study evaluates the efficacy and safety of distal transradial access (dTRA) through the anatomical snuffbox for radiocephalic fistula interventions. Traditional transradial access (TRA) is commonly used, but the snuffbox approach offers potential advantages due to its anatomic locations and reduced risk of certain complications.

Methods: A total of 95 patients underwent radiocephalic fistula interventions using dTRA, with outcomes assessed through ultrasound and angiographic follow-ups. The study focused on the feasibility, technical success, and safety profile of this method.

Results: dTRA demonstrated a high technical success rate (98.94%) with only one patient experiencing post-procedural arterial occlusion. The snuffbox approach allowed effective simultaneous access to both vein and artery, facilitating treatment of both inflow and outflow through a single access point. Notable benefits included reduced radiation exposure, and reduced risk of sheath dislodgement.

Conclusions: Distal transradial access via the anatomical snuffbox is a viable, effective, and safe alternative for radiocephalic fistula interventions. It offers significant benefits over traditional approaches, including improved patient positioning, reduced radiation, and potential lower incidence of complications.



DYNAMIC CTA - A NOVEL IMAGING MODALITY FOR EVAR SURVEILLANCE AND ENDOLEAK DETECTION

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Background: Better long-term outcome after endovascular aortic aneurysm repair (EVAR) depends on accurately diagnosing endoleak type using adequate imaging surveillance and reintervention especially in the setting of aneurysm growth. Current guidelines recommend the combination of computed tomography angiography (CTA) and duplex ultrasound imaging for follow-up after EVAR. Dynamic CTA (dCTA) is a novel imaging modality for EVAR surveillance and endoleak detection. It involves acquisition of several phases (~ 10 – 12) after contrast agent injection to depict the aneurysm sac and the flow of contrast agent through the sac, during multiple time points. This generates dynamic information, which can be viewed as a reconstructed movie (cine) to evaluate endoleaks after postprocessing. Our study aims to evaluate the efficacy and safety of dCTA in endoleak detection compared to the standard recommended imaging methods.

Methods: dCTA exams in patients with suspected endoleak were conducted and results were given by two trained interventional radiologist. It was then compared to ultrasound (US), contrast-enhanced US, CTA and Diagnostic angiography.

Results: 10 patients underwent dCTA for endoleak detection after EVAR. Of them, 9 were found to have endoleak, and the leak point and its mechanism were confirmed by ground truth methods. In one case with impressive sac enlargement and no obvious endoleak, dCTA didn't detect endoleak as all other modalities, including interventional diagnostic angiography. There is a significant difference (P-value

Conclusions: dCTA could prove itself as a valuable problem-solving tool in a certain group of patients with endoleaks after EVAR and if that so, can possibly reduce the need for interventional diagnostic methods

SHOCKWAVE PERIPHERAL LITHOPLASTY SYSTEM, THE NEW KID ON THE (CALCIUM) BLOCK

Avivit Shoham, Daniil Moiseev, Alexander Belenky

Vascular and Interventional Radiology Unit, Rabin Medical Center, Israel

Background: Arterial wall damage, mostly in the form of dissection, is the most common adverse effect from peripheral arterial percutaneous transluminal angioplasty (PTA), sometimes-necessitating stent placement. Shockwave intravascular lithotripsy is a novel device that modifies calcified lesions via calcium fracture, without damaging the arterial wall.

Methods: The goal of this presentation is to share our experience using the Peripheral Lithoplasty System (Shockwave Medical, Fremont, California) on 20 patients, including the equipment and its use, the feasibility and safety of using it in heavily calcified lesions both above and below knee, rate of complications, and efficacy and outcome including residual Stenosis.

Results: The use of Peripheral Lithoplasty System was shown to be safe, with low complication rates and excellent outcome with rare need for stent placement.

Conclusions: The SHOCKWAVE Peripheral Lithoplasty System is a safe and effective device for treatment of calcified lesions both above and below knee.

ANGIOGRAPHY FOR DETECTING LATE PERIPHERAL VASCULAR INJURIES IN WAR-RELATED TRAUMA: A RESTOSPECTIVE COHORT STUDY

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Background: Penetrating trauma is the primary cause of vascular injuries among young soldiers. These injuries often involve the lower extremities and frequently co-occur with other penetrating injuries, which may take precedence in treatment. The likelihood of missed vascular injuries or delayed complications increases in cases of multi-trauma, particularly from high-energy gunshot wounds and blast injuries. A similar observation during our recent experience treating patients with war-related injuries prompted the establishment of a novel facility protocol dictating pre-discharge surveillance diagnostic angiography for patients with peripheral vascular injuries, in order to detect late vascular complications.

Methods: This retrospective cohort study was conducted at a single level-one trauma center, reviewing patients with war-related peripheral vascular injuries caused by penetrating trauma from October 7th, 2023, to January 21st, 2024. Data collected included patient demographics, primary injury characteristics, associated complications, incidence of delayed or missed vascular injuries, means of diagnosis, treatment strategies, and outcomes.

Results: The cohort included 41 patients with war-related peripheral vascular injuries affecting 51 limbs. All patients were male (100%), the majority being soldiers (85%). Late vascular injuries were observed in 24 out of 51 (47%) cases, of which half were asymptomatic. A total of 17 diagnostic angiographies were performed with the sole indication of identifying asymptomatic late vascular injuries, of which 4 (24%) were positive. 5 additional diagnostic angiographies were performed to assess late injuries discovered incidentally on other imaging modalities; all were positive for late vascular injuries. Of all late vascular injuries, a total of 83% required subsequent treatment.

Conclusions: Interventional radiology plays an important role in the early detection and management of late peripheral vascular injuries in patients with penetrating extremity trauma, both symptomatic and asymptomatic. A pre-discharge surveillance diagnostic angiography protocol can identify vascular injuries that might otherwise be overlooked and potentially prevent more serious complications.

Parallel Session 10: Breast Imaging



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BREAST CANCER ON POST BILATERAL MASTECTOMY SURVEILLANCE MRI

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Background: Current guidelines regarding post bilateral mastectomy follow up indicate no need for routine surveillance imaging. Regardless many physicians and patients opt for performing breast MRI, though this practice is not evidence based. The aim of this study to evaluate the role of MRI in early detection of cancer in women post bilateral Mx (BMx).

Methods: Retrospective analysis of surveillance breast MRI in women s/p BMx between the years 2017-2020, at a single institution performed. Data collected included demographic information, personal and family history of breast cancer, indication for mastectomy (prophylactic vs. therapeutic) and reconstruction type. Findings underwent biopsy subsequent to an MRI finding were correlated with pathology. Malignancy determined by pathology; benignity determined by either pathology or stability on imaging for at least 12 months. Descriptive statistics applied with p0.05 considered significant.

Results: 229 asymptomatic women s/p BMx aged 29-76±8.7 years underwent 709 surveillance studies for a total of 1418 breasts examined, 1324 (93.3%) with silicone, 47 (3.3%) post autologous (DIEP) reconstruction and 47 (3.3%) no reconstruction. 158 (69%) women underwent risk-reducing prophylactic Mx (rr-Mx) on one side and therapeutic Mx (t-Mx) for cancer on the other, 45 (20%) underwent bilateral rr-Mx and 26 (11%) underwent bilateral t-Mx for bilateral breast cancer. Overall, 782/1418 breasts underwent rr-Mx and 184/1418 breasts t-Mx. Cancer detected in 6 breasts, 5 in post t-Mx and 1 in a rr-Mx. Overall cancer detection rate (CDR) was 0.4 (6/1418), higher in post t-Mx (CDR= 0.78, 5/636) than post rr-Mx (CDR= 0.12, 1/782), p0.05. No cancers detected in women post bilateral rr-Mx.

Conclusions: The risk of cancer in women undergoing bilateral rr-Mx is negligible and likely does not warrant MRI surveillance. In contrast, CDR in post BMx women was 0.78 on the side of prior cancer and surveillance MRI may be considered.

THE DIAGNOSTIC PERFORMANCE OF ULTRAFAST MRI TO DIFFERENTIATE BENIGN FROM MALIGNANT BREAST LESIONS: A SYSTEMATIC REVIEW AND META-ANALYSIS.

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Background: To assess the diagnostic performance of ultrafast MRI in differentiating benign from malignant breast lesions.

Methods: A comprehensive search was conducted until September 1, 23, in Medline, Embase and Cochrane databases. Clinical studies evaluating the diagnostic performance of UF-MRI in breast lesions stratification were screened and included in the meta-analysis. Pooled summary estimates for sensitivity, specificity, diagnostic odds ratio (DOR), and hierarchic summary operating characteristics (SROC) curves were calculated under the random-effect model.

Results: A final set of 16 studies analyzing 2090 lesions met the inclusion criteria and were incorporated into the meta- analysis. Using UF-MRI kinetic parameters, the pooled sensitivity, specificity, DOR and area under the curve for differentiating benign from malignant breast lesions were 83%, 77%, 18.9 and 0.875 respectively. We found no significant difference in diagnostic accuracy between the two main UF-MRI kinetic parameters, maximum slope (MS) and time to enhancement (TTE).

Conclusions: UF-MRI as a stand-alone technique has high accuracy in discriminating benign from malignant breast lesions. UF-MRI has the potential to obtain kinetic information and stratify breast lesions accurately while decreasing scan times, which may offer significant benefit to patients.

EARLY RESULTS OF USING AI IN MAMMOGRAPHY SCREENING FOR BREAST CANCER

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Background: Artificial intelligence (AI) has long been a subject of interest in radiology. Studies have shown that the use of AI in reading mammograms may increase cancer detection rates and decrease workload. This is a preliminary report of the real-life changes observed in the auditing analysis of our screening program with the implementation of AI software.

Methods: An AI system (iCAD version 2.0) was incorporated for reading mammograms in the Breast imaging unit in Beilinson Medical center in January 2021. The system was used on all mammographic examinations performed during that year. The exams were read by breast radiologist with AI assisted decision support. We compared the auditing analysis including cancer detection rates, early detection rates and percent of false negative examinations to those of previous 5 years.

Results: The report included a sum of 31,176 exams. In total, 6803 mammograms were performed during 2021 of which approximately half were screening mammograms. When comparing the auditing bench numbers of the screening program before and after the incorporation of the AI system, an increase in cancer detection rates (from 9/1000 before AI vs 9.3/1000 after AI), increase in the percentage of early stage cancer detected (smaller than 15 mm, lymph nodes negative, with good pathological differentiation) (from 63% before AI vs 100% after AI, p value 0.001) and a decrease in false negative rates (from 23% before AI vs 0% after AI, p value 0.001) and DCIS detection rates (from 32% before AI to 20% after AI, p value 0.001) were observed.

Conclusions: Our study demonstrated that even during the implementation of the AI system period, improvement of radiological report accuracy in mammographic screening programs was seen. These results are expected to improve further after the adaptation period.

BREAST MRI-BASED ARTIFICIAL INTELLIGENCE TO IDENTIFY HIGH RISK AREAS IN RESIDUAL BREAST TISSUE AFTER MASTECTOMY AND RECONSTRUCTION: BRILLIANT STUDY INITIAL DEVELOPMENT

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Background: Residual breast tissue (RBT) after mastectomy is present in over 50% of patients. Its amount varies based on factors including breast density, surgical expertise, type of mastectomy, with the highest RBT shown in nipple sparing (NSM) and skin sparing mastectomies (SSM). The impact of RBT on breast cancer-free survival is unclear, though some studies suggest non-radical surgery may increase recurrence rates. Manual segmentation and quantification of RBT on postoperative breast MRI is time consuming and potentially subjected to interobserver variation. This work is part of the BRILLIANT study to develop an artificial intelligence (AI)-based system for RBT segmentation on postoperative breast MRI after SSM/NSM and implant reconstruction.

Methods: Approval of the institutional ethics committee was obtained. A consecutive cohort of breast cancer patients who underwent postoperative MRI between 2020-2021. Ground-truth was determined by two expert breast radiologists who manually delineated RBT across all breast slices using 3D-slicer, omitting slices without breast tissue. A 3D-UNet was trained, tested, and validated, with results reviewed by two breast radiologists and repeatably corrected/trained.

Results: The first training section utilized 60 non-fat suppressed axial T2 MRIs. The 3D-UNet achieved 94% dice score coefficient (DSC) for the segmentation and 80% intersection over union (IoU) for detection of the axial borders of the breast. The algorithm successfully segmented RBT despite varying volumes and contours across the breast slices, accurately identifying breast borders and omitting non-breast slices. The residual breast volume was computed based on image resolution, with the system's output taking only a few seconds per patient.

Conclusions: This study introduces the first system to automatically segment RBT in MRIs of women post mastectomy and immediate implant-based reconstruction. Unlike existing 2D-based models for breast segmentation, this 3D-based system omits non-breast containing slices in addition to providing output compatible with breast radiologist performance, significantly improving time efficiency.

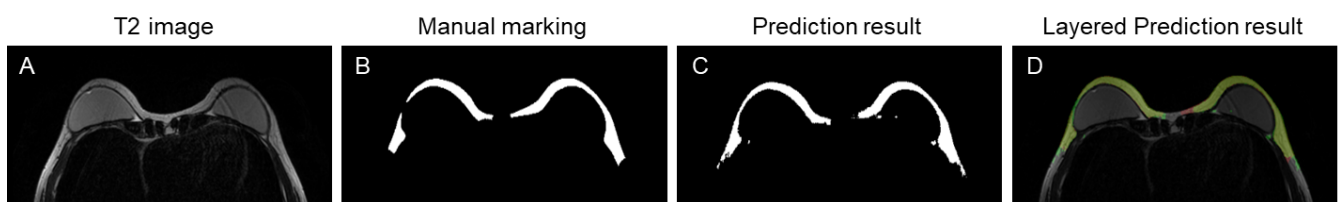


Figure 1: A representative axial T2 breast MRI slice of a patient after mastectomy and reconstruction (A), the manual marking of the residual breast tissue (B) and the algorithm's prediction result (C and D).

IS LOSS OF FATTY HILUM IN AXILLARY LYMPHADENOPATHY PREDICTIVE OF MALIGNANCY?

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Background: Etiologies of focal axillary lymphadenopathy include various malignant and non-malignant causes. Normal axillary lymph nodes (ALN) typically appear kidney-shaped with a thin hypoechoic cortex and a central hyperechoic fatty hilum. Reported signs of suspicious ALNs warranting histologic evaluation include increased size, cortical thickening 0.3 cm or complete effacement of the fatty hilum (FH). The purpose of this study was to evaluate the predictive value of loss of FH for malignancy ALN biopsy (ALNBx).

Methods: This retrospective study included analysis of US-guided ALNBx performed at a single institution between 2018-2022. Lactating women, silicone implants, known ALN metastasis, recent vaccination and male patients were excluded. Clinical information included patient demographics, risk factors and US referral indications. US features of biopsied ALNs (long and short axis, cortical thickness, loss of FH) and pathology outcomes were documented. For statistical analysis two-tailed χ^2 , Fisher's exact and Mann Whitney tests were applied, p

Results: 326 women met inclusion criteria, age ranging 21-88 (ave=52.6) years. 213/326 (65%) were examined for recently diagnosed breast cancer, 51/326 (15.5%) had palpable ALNs, 26/326 (8%) non-malignant diagnostic US, 24/326 (7.5%) evaluation of an axillary PET/MRI finding and only 12/326 (4%) underwent routine surveillance US. Malignancy was demonstrated in 198/326 (61%) biopsies, significantly more common in women with currently diagnosed breast cancer (81% vs 18% p0.0001). Malignant ALNs were larger than benign nodes in long and short axis and in cortical thickness (p0.05). However, effacement of FH showed no difference: 76/119 (64%) nodes without FH were malignant compared to 122/207 (59%) with FH present, p=0.38.

Conclusions: As a solitary finding, the presence or absence of a FH in an ALN is not predictive of malignancy. The decision whether to recommend follow-up or biopsy should consider additional parameters such as clinical indication and node size.

CAN WE PREDICT CLIP MIGRATION AFTER MRI-GUIDED BIOPSY?

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Israel*

Background: To evaluate the frequency and factors associated with clip migration in MRI-guided breast biopsies.

Methods: We retrospectively evaluated all MRI-guided biopsies performed between January 2013 and December 2020 in our institution for clip migration. Only patients with follow-up breast MRI showing the clip were included in the study. Migration was defined as 1 cm movement from the target lesion. Migration frequency and directions were recorded. Different factors associated with clip migration were analysed using the chi-square test and student t test as appropriate.

Results: A total of 291 biopsies in 268 women were included in the study with 31 migration events recorded (11%). All migrations occurred along the biopsy tract, 30 of them away from the needle (97%). More than 50% regional fat (around the target lesion) was the strongest factor associated with migration, seen in 21/140 (15%), compared to 10/150 (7%) with less than 50% local fat ($P=0.035$). Global fatty breast was more loosely associated with migration, showing borderline significance ($P=0.06$). Other factors did not correlate with clip migration, including lesion size, depth or location, pathology result, breast thickness or biopsy approach.

Conclusions: Although clip migration following breast MRI-guided biopsy is an uncommon event, it may occur when the target lesion is surrounded by fat, with the clip usually displaced away from the biopsy needle. This information could be valuable for pre-surgical localization and surgical planning.

Parallel Session 14: Musculoskeletal Imaging



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HIGH INCIDENCE OF PROGRESSIVE DESTRUCTIVE ARTHROPATHY IN PATIENTS TREATED WITH CRIZOTINIB FOR ALK-REARRANGED / ROS1 POSITIVE NSCLC

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Background: Progressive destructive arthritis was anecdotally described in patients exposed to crizotinib, a receptor tyrosine kinases inhibitor (TKI) used to treat anaplastic lymphoma kinase (ALK) or ROS Proto-Oncogene 1 (ROS1) positive non-small cell lung cancer (NSCLC). We aimed to check the incidence of this adverse effect.

Methods: We retrospectively evaluated imaging studies of all patients in our institution receiving TKI for ALK-rearranged or ROS1 positive NSCLC (crizotinib, alectinib, lorlatinib, brigatinib).

Results: Between February 2012 and August 2023, out of 71 subjects (51% male, 36-88 years old) who received TKI's for ALK-rearranged / ROS1 positive NSCLC, 34 (47%) were exposed at least once to crizotinib treatment. A high incidence (6/34, 18%) of progressive, irreversible, destructive arthritis in one or more joints was detected, up to 6 years after crizotinib initiation, significantly higher than in the control group ($p=0.02$). This included synovial proliferation and destructive arthropathy in hip and shoulder joints, and vertebral endplate destruction.

Conclusions: Clinicians and radiologist should be aware of signs of progressive destructive arthritis in patients receiving crizotinib, to avoid misdiagnosis and mistreatment.

COMPARATIVE ANALYSIS OF STANDARD MAGNETIC RESONANCE ARTHROGRAPHY AND SYNTHETIC COMPUTED TOMOGRAPHY FOR DETECTING BONY BANKART LESIONS: A RETROSPECTIVE STUDY

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Background: Evaluate and compare Synthetic Computed Tomography (CT) sequence to standard shoulder Magnetic Resonance Arthrography (MRA) in identifying bony Bankart lesions.

Methods: All consecutive shoulder MR arthrograms performed for suspected shoulder dislocation within a period of 1 year were retrospectively evaluated. MRA images in 3 planes were compared to synthetic CT reconstructions derived from MFFE sagittal sequence for the presence of a bony Bankart lesion. Reviewer also rated the confidence of diagnosis on a VAS scale of 1-10. Images were separately evaluated by a certified board radiologist with a two-week interval between the conventional and synthetic CT evaluation. Reliability was evaluated by a second reading performed by an MSK radiologist. Sensitivity, specificity, and diagnostic accuracy were compared between the conventional MRA and synthetic CT approaches.

Results: Preliminary findings suggest that synthetic CT offers comparable or superior diagnostic performance and increase diagnostic confidence in the detection of bony Bankart lesions compared to conventional MRA.

Conclusions: Synthetic CT improves diagnostic accuracy and confidence in the detection of bony Bankart.

VORICONAZOLE INDUCED PERIOSTITIS INCIDENCE IN A TERTIARY MEDICAL CENTER: A RETROSPECTIVE ANALYSIS

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Background: Voriconazole is a widely used antifungal medication, particularly for treating invasive pulmonary aspergillosis and as prophylaxis in patients with hematologic malignancies. Voriconazole can cause adverse effects, including periostitis—a painful inflammation of the periosteum. The incidence and characteristics of voriconazole-induced periostitis have been variably reported in the literature, ranging from 15% to 50%.

This study aimed to determine the incidence and characteristics of voriconazole-induced periostitis in a large cohort of patients treated for hematologic malignancies at a tertiary medical center, utilizing various imaging modalities.

Methods: We conducted a retrospective cohort study at Rambam Health Care Campus, including patients treated with voriconazole for at least 90 days from September 2015 to December 2022. Patients were treated based on their diagnosis of invasive pulmonary aspergillosis and received voriconazole as part of their treatment. Imaging studies performed after the initiation of treatment were reviewed to identify periostitis, with findings corroborated by senior radiologists.

Results: Out of 1239 patients treated for invasive pulmonary aspergillosis, 110 met the inclusion criteria. Of these, four patients (3.6%) exhibited radiological signs of periostitis. The condition was most frequently detected via chest CT, with humeral involvement in all cases and rib involvement in 75% of cases. Follow-up imaging did not show resolution of periostitis in the cases observed, primarily due to ongoing treatment, patient mortality, or lack of follow-up.

Conclusions: The incidence of voriconazole-induced periostitis in our large cohort was significantly lower than previously reported figures. While periostitis remains a rare side effect, it is important to recognize and monitor it due to its potential impact on patient comfort and treatment decisions.

<i>Table 1 - Demographics</i>	Overall (N=110)
Age at treatment initiation (years)	
Mean (SD)	56 (14)
Range	20 - 78
Gender	
Female	43 (39.1%)
Male	67 (60.9%)
Inclusion criteria (hematologic)	
Allogeneic hematopoietic cell transplantation	24 (21.8%)
Autologous hematopoietic cell transplantation	12 (10.9%)
Induction chemotherapy for acute leukemia	66 (60.0%)
Salvage treatment for relapsed or refractory acute leukemia	8 (7.3%)
Reason for voriconazole treatment cessation	
End of treatment	47 (42.7%)
Death	28 (25.5%)
Clinical worsening/side effects	26 (23.6%)
Lost to follow-up	4 (3.6%)
Still receiving	4 (3.6%)
Unknown	1 (0.9%)
<i>Table 2 - Treatment and follow-up times</i>	Overall (N=110)
Voriconazole treatment length (days)	
Mean (SD)	284 (236)
Range	92 - 1709
Imaging follow-up after treatment initiation (days)	
Mean (SD)	228 (184)
Range	46 - 1276



Bilateral femoral periosteal reaction associated with voriconazole. a. Coronal and b. Axial reconstruction.



DIAGNOSTIC PERFORMANCE OF VIRTUAL NON-CALCIUM CT IMAGES FOR THE DETECTION OF HIP FRACTURE IN PELVIC TRAUMA

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Purpose: To evaluate the performance of DECT virtual non-calcium (VNC) images for the detection of a hip fracture in patients with pelvic trauma.

Methods: 124 CT exams of trauma patients presented to the ED with clinical suspicion of hip fracture between May 2023 and August 2024, were retrospectively reviewed. Patients with metallic implants or suboptimal examination were excluded. All CT scans were performed on a Siemens DRIVE machine and VNC images were generated by the syngovia work station. All exams were reviewed on our PACS system by 2 senior radiologists. First standard scan images were reviewed and then compared to VNC images. Disagreement was solved by consensus. MRI or 14-day clinical follow-up was used as the reference standard.

Results: 100 patients were included. Mean age was 70.7 years (range 18-95) and F:M ratio was 57:43. The estimated average time from trauma to CT exam was 2.55 days (range 0-30).

37 patients were negative for a pelvic or hip fracture. 33 had hip fracture shown on the standard and VNC images. In 7 patients with no subsequent hip fracture VNC images were positive and in 4 patients VNC images were negative but hip fracture was apparent in the standard images Sensitivity, specificity and accuracy rate of VNC images for the detection of a hip fracture was 89%, 90.5% and 90% respectively.

Diagnostic efficacy of hip fracture improved when using combined standard and VNC images and detection rate of hip fractures increased from 30% to 33%.

Conclusions: VNC images exhibit high diagnostic ability for the detection of acute hip fractures.

UTILITY OF CT PULMONARY ANGIOGRAPHY (CTPA) FOR SUSPECTED PULMONARY EMBOLISM IN THE OPPORTUNISTIC DIAGNOSIS OF OSTEOPOROSIS

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Background: Unexpected, clinically-important findings in emergent CTPA ordered to confirm or exclude pulmonary embolism, are well described. The yield in the detection of unsuspected osteoporosis is not.

Methods: Consecutive CTPAs of patients presenting to the emergency department or hospitalized in the department of medicine and suspected of pulmonary thromboembolism. Clinical and targeted retrospective CTPA analyses were undertaken

Results: A total of 517 CTPAs (52.6% women, mean age 67.9±18.5 years) were included. Acute dyspnea (68%), arterial desaturation (33%), and chest pain (22%) were the predominant presentations. Syncope or hemoptysis was rare (2% each). Pulmonary embolism was identified in 99/517 (19.1%). Myriad other previously-unknown and significant findings were disclosed (n=15), the most important of which were pneumonia (46.6%), pulmonary congestion (10.8%), pulmonary neoplasm (2.7%), and pneumothorax (1.5%). Over 40% had osteoporosis (211/517, 40.8%) and 1:4 patients had osteoporotic fractures in the thoracic vertebrae. In two thirds of the patients osteoporosis was not previously diagnosed, and in the minority who were previously diagnosed with osteoporosis, only 40/211 were receiving treatment (18.9%). Unlike other pathologies, the presence of osteoporosis was not usually mentioned in the original imaging report (87.5% neglect).

Conclusions: Opportunistic screening for osteoporosis should become an inseparable part of CTPA analysis.

ULTRASOUND GUIDED FINE NEEDLE BIOPSY IN PATIENTS WITH INFLAMMATORY MYOSITIS: COULD IT REPLACE OPEN SURGICAL BIOPSY?

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Background: Various methods for muscle biopsy in patients with suspected myositis have been described, but there is no consensus regarding the preferred technique. The most common method to our knowledge, including at our institution, is the open surgical biopsy. In this study, we aimed to assess the effectiveness of minimally invasive, ultrasound (US)-guided fine needle biopsies (FNB) and explore whether it could replace the more invasive open

Methods: This is a retrospective case-control study. Data was collected from patients with symptoms suggestive of myositis who were referred for US-guided muscle biopsy. A matching number of control patients who underwent open biopsies were also included. Biopsies in the FNB group were performed by a specialized musculoskeletal radiologist using a 14-gauge needle. Biopsy results from each group were classified as diagnostic or non-diagnostic by an experienced rheumatologist. Complications and hospital stay duration were also evaluated.

Results: A total of 14 patients were included in each group (FNB and open biopsy). Each patient underwent the biopsy procedure only once. In the FNB group, 93% of the samples were diagnostic, compared to 79% in the open biopsy group. 4 FNB procedures were performed in an outpatient setting and were discharged 30 minutes after the procedure, while the remaining FNBs and all open biopsies were conducted in an inpatient setting. The mean hospital stay in the FNB group was 3 days (SD 3, range 0-11), compared to 5 days (SD 5, range 1-21) in the control group. One patient in the FNB group developed a small intramuscular hematoma. In the open biopsy group, 4 patients experienced delayed wound healing, some complicated with infections, and 1 patient developed a soft tissue hematoma.

Conclusions: Despite the small sample size, US-guided FNB appears to provide good diagnostic results, with fewer complications and reduced hospital stays compared to open biopsies.

EVALUATION OF THE DIAGNOSTIC POTENTIAL OF A NOVEL TOMOSYNTHESIS SYSTEM FOR MSK

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Background: Digital tomosynthesis is a well-established technology that has become the gold standard for breast mammography. In recent years its benefits in musculoskeletal imaging have been acknowledged and along with the growing availability at lower costs resulted in a rapid increase in its utilization. It improves the detection of subtle fractures, can exclude false lesions and can improve anatomic localization of abnormalities. It has been shown this technology can reduce the need for CT with a fraction of the radiation dose. This technology also reduces the burden on the radiologists as the number of slices is significantly lower than a standard CT exam recently a new technology based on cold cathode with a multi tube set-up has made this technology more affordable and hence more accessible. The purpose of this feasibility study is to evaluate the diagnostic potential of the cold-cathode multi-tube DTS

Methods: The study population includes 25 patients with known fractures that underwent CT and radiographs as part of the clinical work-up. After receiving informed consent, patients were scanned using the cold-cathode DTS within a timeframe of up to 10 days. Images were evaluated by 3 radiologists and orthopedics in consensus. Studies are evaluated for presence of abnormalities, anatomic location of fracture or lesion and whether the DTS provided additional information to the radiographs. CTs served as the gold standard.

Conclusions: DTS is a promising technology in the context of MSK imaging with various applications for improving the daily routine of the radiology department.

PRE-OPERATIVE JAW LESIONS DIFFERENTIATION USING HU ANALYSIS

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Background: Analysis of Hounsfield Unit (HU) measurements on Computed Tomography (CT) images is a recognized diagnostic tool for various lesions. However, its routine application in the pre-operative assessment of jaw lesions remains underexplored. We aimed to explore the utility of HU analysis in distinguishing between odontogenic keratocyst (OKC), central giant cell granuloma (CGCG) and unicystic ameloblastoma (UA).

Methods: This retrospective study included pre-operative Multidetector CT (MDCT) scans of patients with unilocular hypodense jaw lesions, with histologically proven, non-inflamed, OKC, CGCG or UA. Demographic data and anonymized DICOM files were retrieved for all included cases. Two observers, blind to the lesions' diagnosis, measured three HU values for each lesion, in axial slices, on Philips IntelliSpace Portal software. Statistical analysis included intra and inter-observer reliability and validity evaluations as well as comparisons of mean HU values between the different lesions and between the same lesion in different jaws.

Results: Our cohort included 30 jaw lesions (17 OKCs, 8 CGCGs and 5 UAs). Mean HU values for OKCs, CGCGs and UAs were 27.99 ± 13.8 , 70.68 ± 46.3 and 31.38 ± 7.4 , respectively. Statistically significant difference was found between mean HU values of OKC, CGCG and UA ($P=0.035$). Following additional pooled analysis, mean HU values of CGCG was statistically higher than OKC and UA (0.001). No statistically difference was found between HU values of different lesions in different jaws.

Conclusions: HU analysis may serve as a method for pre-operative differential diagnosis of CGCG from OKC and UA. Future multi-center studies with additional types of lesions are needed.

Parallel Session 15: Abdominal Imaging



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ULTRASOUND-TOMOGRAPHIC IMAGE FUSION FOR FOLLOW- UP OF COMPLICATED DIVERTICULITIS

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Background: Computerized tomography (CT) is the widely accepted imaging modality in the management of patients with complicated diverticulitis. CT is useful for follow-up and assessment of diverticular abscesses, but repeated CT scans require radiation exposure and contrast material injection. Ultrasound (US)-CT image fusion enables layering CT images on a standard US machine, possibly allowing for accurate localization and assessment of abscesses adjacent to the inflamed bowel. In this study we aim to assess the feasibility of US-CT fusion in the management of complicated diverticulitis.

Methods: We retrospectively collected data of patients with complicated diverticulitis, who presented with a diverticular abscess adjacent to the inflammatory bowel and followed up with US-CT fusion to guide clinical decision making. Patient demographics, clinical data, and outcomes were extracted and analyzed.

Results: A total of 12 patients were included. A baseline CT scan was conducted upon admission in all patients. An US-CT fusion was conducted within an average of seven days (range 3-12 days) from diagnosis. Five (41.6%) patients had more than one US-CT fusion scan as part of the follow-up . Five patients (41.6%) required a CT scan following the US-CT fusion, three because the US-CT fusion was not diagnostic enough and two due to worsening of symptoms. In total, 37 imaging studies were conducted during the follow-up period, 17 (46%) CT scans and 20 (56%) CT-US fusion scans. In 17/20 US-CT fusion scans (85%) we were able to sufficiently demonstrate the abscess. Our experience revealed that obtaining spatial alignment was consistently achievable, enabling visualization and accurate measurement of small or deep abscesses adjacent to the inflamed bowel.

Conclusions: US-CT fusion is a useful tool that allows accurate localization and measurement of abscesses in the follow-up of complicated diverticulitis.

ASSESSMENT OF THE ADDED VALUE OF 18 F-FDG PET/CT TO PELVIC MRI IN STAGING CERVICAL CANCER PATIENTS

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Background: Treatment of cervical cancer depends upon disease stage at diagnosis. The 2018 FIGO classification incorporated imaging into staging. Pelvic MRI and 18 F-FDG PET/CT both provide anatomical and functional assessments. However, MRI provides better spatial resolution and soft tissue contrast particularly in early-stage, local disease. PET/CT's radiation, cost, and limited availability question its necessity in these cases. The current study aimed to investigate the added value of PET/CT in staging presumed early cervical cancer.

Methods: Retrospective study analyzing clinical and imaging data from women with cervical cancer diagnosed from 1/2019-3/2024 at a single center. All underwent both pelvic MRI and whole body 18 F-FDG PET/CT at diagnosis. Radiological staging was independently reassessed for each patient using the 2018 FIGO system. We compared staging differences between MRI-only vs. MRI plus PET/CT and assessed the impact of adding PET/CT on treatment decisions.

Results: Ninety women participated. Mean age at diagnosis was 54.8 (range 27-81). Histology was Adenocarcinoma in 14 (15.55%) and SCC in 73 (81.11%). Adding PET/CT influenced treatment in 6/90 patients (6.67%): In 4 women PET/CT revealed metastatic retroperitoneal lymph nodes that were MRI occult, and chemoradiation was applied instead of surgery. In 2 patients, MRI findings were suspicious, but PET/CT ruled out metastatic disease and they underwent surgery.

Conclusions: Our results emphasize 18 F-FDG PET/CT importance alongside MRI in staging presumed early cervical cancer in a small number of patients. It is therefore reasonable to allow each center to decide whether to use 18 F-FDG PET/CT to optimize treatment planning.

THE USE OF MULTIPARAMETRIC ULTRASOUND IN THE FOLLOW UP OF PATIENTS WITH LIVER STEATOSIS UNDER DIETARY INTERVENTION

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Background: Non-alcoholic fatty liver disease (NAFLD) is the most prevalent chronic liver disease globally. The current gold standard for assessing liver pathology is histological analysis via liver biopsy, a procedure associated with potential morbidity and mortality. This underscores the need for non-invasive modalities to evaluate hepatic steatosis, inflammation, and fibrosis. In a study evaluating dietary interventions in patients with NAFLD, we employed multiparametric ultrasound (MPUS) to monitor changes in liver fibrosis, steatosis, and inflammation. This study attempts to assess the added value of MPUS in evaluating liver parenchymal changes.

Methods: A randomized controlled trial was conducted from January 2020 to January 2021. Inclusion criteria were patients with NAFLD, aged 18–70, without cirrhosis. Fifty-five participants were recruited for a 3-month dietary intervention; 49 completed the study. Participants were randomized to either the Paleo diet or the Mediterranean diet. Baseline and post-intervention sonographic evaluations were performed alongside blood tests. Steatosis levels were assessed using Attenuation PLUS (Att PLUS) and Sound Speed PLUS (SSp PLUS) measurements, performed on the Aixplorer® MACH platform. A radiologist conducted additional assessments, and the liver parenchyma was compared to the kidney cortex using the B-mode Ratio tool.

Results: Both the radiologist's assessment and SSp measurements demonstrated a correlation with reductions in weight and BMI. Additionally, SSp correlated with changes in Hemoglobin A1C, GGT, and cholesterol levels. A significant correlation was found between radiologist-assessed steatosis (S2-S3) and both SSp and B-mode measurements (P 0.01), with an AUC of 0.769. No notable correlation was identified between fibrosis measurements and other parameters.

Conclusions: The use of non-invasive multiparametric ultrasound in the assessment and follow-up of NAFLD allows for effective quantification of changes in hepatic steatosis and may offer stronger correlations with metabolic syndrome parameters compared to conventional ultrasound methods.

BLADDER NECK POSITION DIFFERENCES ON CT IN PATIENTS WITH INCIDENTAL ASYMPTOMATIC URINARY BLADDER GAS: A COMPARATIVE RETROSPECTIVE STUDY

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Background: To investigate the potential link between differences in bladder neck position and the occurrence of incidental asymptomatic urinary bladder gas on computed tomography (CT) scans.

Methods: CT scans reports from January 2012 to December 2023 were analyzed in this retrospective study to identify adults presenting with bladder gas. Exclusion was based on factors such as prior urological procedures, urinary tract infections (UTIs), and other potential contributors to bladder gas. The distance between the bladder neck and the pubococcygeal line (B-PCL) was measured to assess bladder neck position. Patients without bladder gas, matched by age and sex, were selected as the control group. The B-PCL distances between the study and control groups were compared, and the reliability of the measurements was assessed through inter- and intra-reader agreement analysis.

Results: Out of 1322 initial patients, 66 satisfied the inclusion criteria, exhibiting a median age of 70.9 years (IQR: 64.3-78.0) and a female majority (93.9%). The median B-PCL distance was significantly shorter in the study group (6.9 mm) compared to controls (10.7 mm) ($p < 0.001$), suggesting a correlation between bladder neck position and bladder gas. Reliability measures indicated strong agreement among assessments (ICC 0.95).

Conclusions: Preliminary findings suggest a correlation between lower bladder neck position, a potential indicator for pelvic floor weakness, and the presence of bladder gas on CT scans. Critical relevance: This study highlights the possibility pelvic floor weakness as a cause for incidental bladder gas, suggesting that further examination for pelvic floor weakness may be warranted.

SONOGRAGHIC EVALUATION OF FUCOVITAL CONSUMPTION ON HEPATIC STEATOSIS AND TRIGLYCERIDE LEVELS IN PATIENTS WITH NAFLD

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Background: Fucoxanthin (FX) is a carotenoid primarily found in brown seaweed and diatoms, showing promise in addressing obesity and metabolic syndrome risk factors including non-alcoholic fatty liver disease (NAFLD). FucoVital is a FX derived from microalgae cultivated in a controlled environment and offers an alternative to seaweed sources. We aimed to evaluate the impact of FucoVital consumption on biochemical clinical markers and liver steatosis through ultrasound (US), which is an established tool for evaluating fatty liver, in a prospective double-blind placebo control clinical trial.

Methods: 32 adults with NAFLD were randomly received FucoVital or placebo for 12 weeks, followed by open label phase for 12 weeks with FucoVital. Consecutive US examinations, performed at screening, 12 and 24 weeks of treatment, aimed at demonstrating dynamics in Liver Steatosis. The grade of liver fat infiltration was scored as mild/moderate/severe according to the liver echogenicity and hepatorenal index were adapted to translate findings to a semiquantitative scoring system. Changes in liver enzyme levels, with secondary measures covering lipid profiles, glucose and inflammatory markers were evaluated as well.

Results: No changes noted in US score following consumption of FucoVital. Reduction of liver enzymes compared to placebo wasn't met either. However, a significant reduction in triglyceride levels was noted ($p=0.031$). there were non-significant trends toward improved insulin and glucose levels.

Conclusions: US is an efficient tool for diagnosis and follow-up of hepatic steatosis and have a central role in clinical evaluation of patient with NAFLD. FucoVital didn't demonstrate sonographic improvement in hepatic steatosis, nor did it reduce liver enzymes compared to placebo. However, mild reduction in triglyceride levels and a trend towards improved glucose and insulin levels was noted. High triglyceride blood levels are closely linked to liver health. These findings suggest that FucoVital may have utility in patients with metabolic syndrome.

OCTOBER 7 TERROR ATTACK: A ONE-DAY CASE SERIES OF IMAGING TRAUMA PATIENTS AT A SINGLE MEDICAL CENTER REMOTE FROM THE FRONT

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In this study, we analyzed computed tomography (CT) radiological findings from trauma treated at a single hospital remote from the front, in the aftermath of the terror attack in Israel on 7 October 2023. The study includes images from 34 consecutive patients, consisting of 33 males and 1 female, ranging in age from 19 to 68 years. The majority of these patients underwent both chest-abdominal-pelvic (76%) and head and neck CT scans (64.7%). Key findings highlight a high incidence of head and neck injuries (55.9%), chest trauma (44.1%), and various injuries such as soft tissue lacerations (100%), fractures (58.8%), particularly skull fractures (32.4%), and brain hemorrhages (23.5%). The limitations of this study include its single-center scope and the focus on stable patients, which may bias the representation of injury types. This case series provides critical insights into the radiological impacts of large-scale terror events, emphasizing the importance of comprehensive preparedness and research in the field of mass-casualty incident response.

BEYOND INTUITION: THE ROLE OF METACOGNITION IN RADIOLOGIC ACCURACY AND EFFICIENCY

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Background: This study aims to delve into cognitive dynamics to enhance diagnostic accuracy and patient care outcomes. We examine the role of metacognitive processes, including confidence and thinking time allocation, during medical imaging diagnosis.

Methods: Metacognitive processes are hypothesized to be pivotal for decision-making efficacy. In our study, 30 radiologists interpreted 48 bone radiographs, which included a high rate of challenging cases. We tracked each radiologist's diagnostic accuracy, confidence ratings, decision times, and choice of a next step: submit, consult a senior, or ask for additional tests. We analyzed the relationships among these metacognitive components and their impact on diagnostic accuracy and efficiency.

Results: Preliminary findings indicate a pivotal metacognitive effect on diagnostic accuracy. High confidence (90.85%) paralleled high accuracy (91.67%) in easier images, while more challenging images revealed a disparity between confidence (80.39%) and lower accuracy (47.14%). This discrepancy suggests overconfidence amidst complexity. Notably, the challenging cases, where success rates approach chance (50%), consume most of the radiologists' time. Response divisions by presence/absence of abnormalities and by the recommended next step shed light on the particular cases prone to confidence bias and waste of thinking time.

Conclusions: Identifying cases particularly prone to confidence bias and inefficient use of time holds potential for enhancing metacognitive awareness and optimizing radiologist work quality and efficiency. The study underscores the critical need for further research focused on medical decision-making, emphasizing metacognition as a key tool for understanding and improving diagnostic accuracy.

Clinical Relevance: Acknowledging Metacognitive pitfalls may enhance radiologists' ability to accurately assess their own knowledge and decision-making. By fostering metacognitive awareness, radiologists can better identify their diagnostic biases, particularly in complex cases.

PATIENT DOSES FROM COMMON CT EXAMINATIONS AT A TERTIARY MEDICAL CENTER -INITIAL AUDIT RESULTS

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Background: We aim to present the results of an internal audit of patient doses and image quality from three protocols and two CT scanners at Hadassah. We determine median doses and compare them to European diagnostic reference levels (DRLs) as a step towards identifying and implementing protocol optimization opportunities.

Methods: The audit was conducted for two CT scanners, Philips IQON located at Ein Kerem (EK) campus and Siemens Drive at Mount Scopus (MS) campus. Fifty adult examinations from each scanner for pulmonary embolism (PE) and abdomen/pelvis with contrast (A/P), and twenty for head without contrast were retrospectively reviewed. We recorded scanner-reported CTDIvol (mGy) and DLP (mGy.cm) and calculated their medians. The standard deviation (SD) was measured in uniform regions at specific locations in each scan as an indicator of image quality.

Results: Median doses were lower than European DRLs for PE and head examinations, and higher for A/P examinations, as shown in table 1. All protocols used dose modulation except head scans at EK, which had a fixed mAs/dose. Scans at MS had lower median doses and higher image quality (lower SD).

				CTDI vol mGy/DLP mGy.cm
	EK	MS	Hadassah	EU
PE	8.0/308	7.7/258	7.7/283	9.0/364
A/P	15.1/870	10.1/520	12.1/676	8.0/480
Head	54.1/1154	40.3/922	54.1/1086	48.0/1386

		Image SD
	EK	MS
PE	23.1	16.8
A/P	14.7	13.0
Head	4.4	3.4

Conclusions: Median doses were established for 3 common CT protocols at Hadassah hospitals. Generally, doses were lower than European DRLs, but not in all cases. There were differences in patient dose and image quality between the two scanners. As a result, opportunities for protocol optimization were identified.



Parallel Session 16: Neuro-Imaging



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RADIOMICS-BASED PREDICTION OF THYROID NODULE MALIGNANCY: A COMPARATIVE STUDY WITH CLINICAL AND SONOGRAPHIC FEATURES

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Background: Ultrasound (US) is used to assess suspicious thyroid nodules, using the Thyroid Imaging Reporting and Data System (TI-RADS) to provide recommendations on when to perform further tests. This approach has resulted in an increased workload and may not be specific enough to accurately identify thyroid cancer. Advancements in artificial intelligence and imaging techniques, such as radiomics, offer a potential solution to these issues. There is currently no clear radiomic data that can accurately identify signs of malignancy in thyroid nodules. The aim of this study was to develop a radiomics score using US images to predict thyroid malignancy and investigate its potential as a complementary tool to improve the performance of risk stratification systems.

Methods: A retrospective study of 217 thyroid nodules from 217 patients were investigated in this study. US and radiomics features were extracted from the nodules, and statistical analysis and machine learning algorithms were used to evaluate their diagnostic value.

Results: Among the sonographic features of thyroid nodules, the size, echoes, components, calcification, and TI-RADS score showed statistically significant differences between benign and malignant nodules (P<0.01). Multivariate logistic regression analysis identified four significant radiomics features, but these features became insignificant after adding the remaining cases (P>0.05). The random forest model trained on the radiomics features showed poor diagnostic performance, with an accuracy of 0.64 and an area under the curve (AUC) of 0.63 in the training group, and an accuracy of 0.57 and an AUC of 0.53 in the verification group.

Conclusions: Although some sonographic features showed significant differences between benign and malignant thyroid nodules, radiomics features extracted from ultrasound images did not provide a significant diagnostic value in this study. Further, larger studies and different imaging modalities are needed to validate the role of radiomics in the diagnosis of thyroid nodules.

FAST ACQUISITION FOR AUTOMATIC DT-MRI TRACTS SEGMENTATION

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Background: Diffusion tensor tractography is a powerful method for white matter mapping. Its implementation involves long scanning sessions, followed by tedious post-processing to generate accurate tracts. We aim at optimizing the whole workflow, from acquisition to tract segmentation.

Methods: We propose a collaborative neural framework for directionally encoded color (DEC) map denoising and tract segmentation. It generates high-quality white matter tracts using DWI acquired for a small number of diffusion gradient directions (GDs), thus minimizing acquisition and post-processing time.

Experiments: The proposed method is first validated on the high-angular resolution (270 GDs) HCP dataset. Further validation is provided for a prospective dataset of 10 cases acquired at both 16 and 64 GDs. The acquisition was performed on a 1.5T Philips scanner in a radiotherapy simulation setting. The 64 GDs protocol took 19 minutes, while the 16 GDs protocol took 4.5 minutes, making it nearly four times faster.

Results: Five-fold cross-validation yielded an average SSIM index of 0.681 for the denoised data compared to the 64 gradient directions (GD). Segmentation accuracy, measured by the average Dice index, was 0.70 for the denoised data, compared to 0.74 with 64 GDs and 0.60 with 16 GDs. In Fig. 1, a sample pair of denoised DEC maps is presented. Fig. 2 illustrates examples of the segmentation outputs across different scenarios.

Conclusions: Fast acquisition with high-quality tract segmentation is achievable. The proposed approach was successfully validated on a prospective dataset of 10 cases. Promising results suggest that this method may benefit oncological patient that currently suffer from long scanning time.

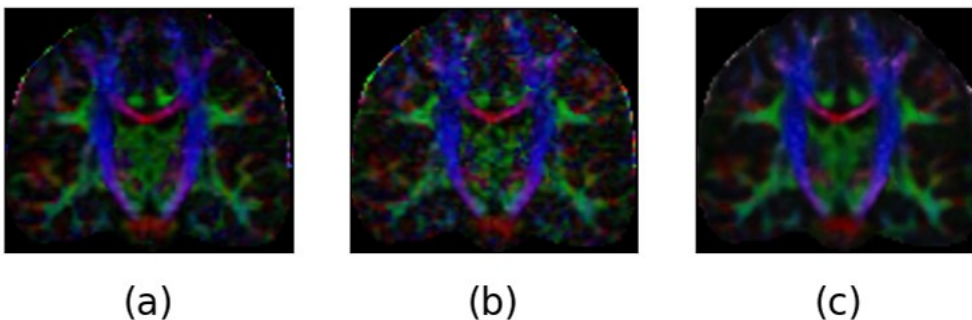


Fig.1: Sample denoising results for a DEC map reconstructed from: (a) GDs=64; (b) GDs=16; (c) GDs=16 denoised.

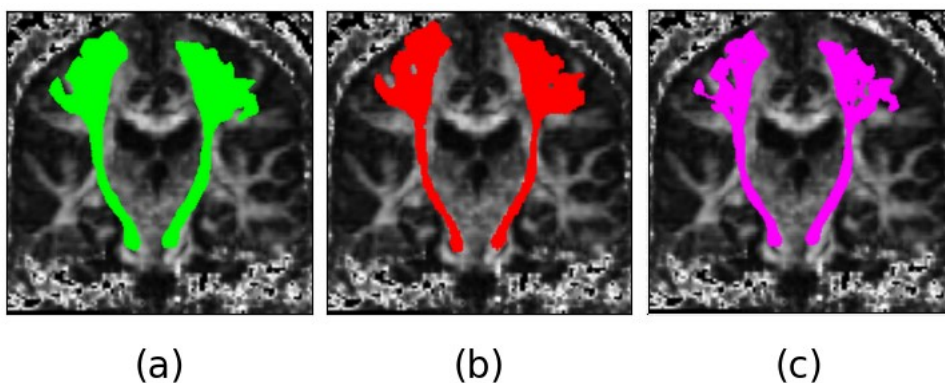


Fig. 2: Sample segmentation results for the motor tracts for: (a) GDs=64; (b) GDs=16 denoised; (c) GDs=16 without denoising.

CTP IN SEIZURES

Elena Tomashpolski^{1,2}, Ayelet Wandel^{1,2}, Sigal Tal^{1,2}, Inna Sagi^{1,2}

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Background: Nonconvulsive seizures (NCS), nonconvulsive status epilepticus (NCSE) and post-ictal state (PIS) are stroke mimics, and often present a diagnostic challenge. Identification and treatment of these entities is associated with better prognosis. CT-perfusion (CTP) provides valuable information on tissue viability in stroke patients but may also be utilized in the diagnosis of ictal and post-ictal states. This study aims to explore CTP imaging features in these patients.

Methods: A retrospective study interrogating medical files, and clinical data of patients who underwent CTP in the emergency room (ER) between January 2020 and May 2024 that eventually did not show any evidence of vascular occlusion and were suspected of suffering from focal seizures or generalized tonic-clonic seizures. We visually assessed CTP maps including CBF, CBV, MTT and TTD/Tmax in search of patterns incompatible with a vascular territory or other distinctive imaging patterns.

Results: 123 patients were included in the study. Abnormal CTP findings were detected in 51 (41%) patients, 27 individuals with Ictal and 24 with Postictal changes. In the remainder, non-specific focal changes or no changes were detected. 22 of 24 post ictal patients (91.6%) and 13 of 27 (48.1%) ictal patients showed focal hypoperfusion in the deep watershed area. In addition, all 11 (9%) intubated patients included in this study showed global hypoperfusion.

Conclusions: This study notes a hypoperfusion phenomenon in the deep watershed area in most ictal/postictal timeline states and therefore may assist differentiating NCS/NCSE/PIS from stroke in the acute setting. To our knowledge these findings have not been described in the literature and we suggest that the possibility of reduced perfusion volume in the watershed area in cases NCS, NCSE and PIS and intubated patients, should be considered and investigated further.

COMPARING DIAGNOSTIC ACCURACY OF TRAINEE INTERPRETATIONS IN BOTH CONVENTIONAL AND BONE REMOVAL IMAGES FROM HEAD CT SCANS

Noa Ben Harav, Eliel Ben David, Yigal Frank

Department of Radiology, Shaare Zedek Medical Center, The Faculty of Medicine, Hebrew University, Israel

Background: To evaluate the added value of a bone removal reconstruction in the interpretation of Head CTs for a trainee.

Methods: A retrospective study was performed using a case group of 46 patients with pathology detected by a senior radiologist. These scans were selected from a list of false negative results of an AI system designed to detect intracranial hemorrhage. 17 patients with normal CT scans were used as a control group. Each conventional CT scan had an accompanying bone removal reconstruction scan. A first-year radiology resident evaluated the head CTs in two sessions in a blinded fashion. The images of each patient were assigned randomly to each session, either the conventional CT or the bone removal series. The resident was required to identify four pathologies, including hemorrhage, lacunar or territorial strokes, and edema. Data was evaluated statistically using a paired Sign test.

Results: The bone removal images have statistically significant better sensitivity than the conventional images for all pathologies (92.5% and 56.6% respectively, $p=0.0001$). The improvement was most prominent for the identification of hemorrhage (88.6% and 40%, respectively). The increase in specificity was not significant. In addition, precision and accuracy were tested and demonstrated superiority of the bone removal images. Precision for detection of all pathologies increased from 47.6% to 69% and accuracy increased from 84.8% to 92.9%.

Conclusions: Using bone removal images on Head CT studies significantly increases sensitivity and precision in the detection of common pathologies by a first-year resident.

SUBARACHNOID SPACE MEASUREMENTS IN APPARENTLY NORMAL FETUSES USING MAGNETIC RESONANCE IMAGING

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Background: The fetal subarachnoid space (SAS) size serves as an indicator for normal brain development. SAS is commonly measured by an ultrasound examination. Introduction of magnetic resonance imaging (MRI) for fetal brain evaluation enables standardization of MRI-driven SAS parameters for a more accurate evaluation. This study aimed to determine the normal range of MRI-derived SAS size in fetuses according to gestational age (GA).

Methods: A cross-sectional study based on retrospective assessment of randomly selected apparently normal fetal brain-MRI scans performed between 2012 and 2020 at a large tertiary medical center was performed. Demographic data was collected from the mothers' medical records. SAS size was measured at 10 reference points using axial and coronal planes. Only MRI scans performed between weeks 28 to 37 of pregnancy were included. Scans with low quality images, multiple pregnancy and cases with intra-cranial pathological finding were excluded.

Results: Overall, 214 apparently normal fetuses were included (mean maternal age was 31.2 years, SD 5.4). Good inter-observer and intra-observer agreements were observed (intraclass correlation coefficient 0.75 for all but one parameters). For each gestational week, the 3rd, 15th, 50th, 85th and 97th percentiles of each SAS measurement were described.

Conclusions: MRI-derived SAS values at specific GA provide reproducible measurements probably due to the MRI's high resolution and adherence to the true radiological planes. Normal values for brain MRI could provide a valuable reference information for assessing brain development thus being an important tool in decision-making process of both clinicians and parents.

THE POTENTIAL OF CHATGPT AS AN AIDING TOOL FOR THE NEURORADIOLOGIST

Simon Nikola, Dan Paz

Radiology Department, Galilee Medical Center, Israel

Background: Artificial intelligence-based language processing has advanced significantly, enabling complex and coherent text generation by computers. In November 2022, ChatGPT, based on the Generative Pretrained Transformer (GPT) model, was introduced with a user-friendly interface. This study aims to evaluate ChatGPT's potential as an assistive tool for neuroradiologists in formulating differential diagnoses for central nervous system tumors.

Methods: This retrospective study included 50 patients aged 18-90 who underwent imaging and surgery at the Galilee Medical Center. ChatGPT was provided with patients' demographic and radiological information to generate differential diagnoses. We compared ChatGPT's performance with that of an experienced neuroradiologist, using pathology reports as the gold standard. Quantitative data were described using means, standard deviations, medians, and ranges. Qualitative data were described using frequencies and percentages. Inter-rater agreement was assessed using Fleiss' kappa coefficient. Statistical significance was set at $p < 0.05$, and analyses were performed using IBM SPSS Statistics version 27.

Results: ChatGPT demonstrated good performance, particularly in identifying common tumors such as glioblastoma and meningioma. However, its overall accuracy (48%) was lower than that of the neuroradiologist (70%). The AI tool showed moderate agreement with both the neuroradiologist ($\kappa = 0.445$) and pathology results ($\kappa = 0.419$). ChatGPT's performance varied across tumor types, being more accurate with common tumors but less so with rarer ones.

Conclusions: This study suggests that ChatGPT has potential as an assistive tool for neuroradiologists in establishing differential diagnoses for central nervous system tumors. However, its limitations and potential risks should be considered, and it should be used with caution.

LA PRIMA VOLTA

**Plenary Session 2:
La Prima Volta**



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BEYOND CONVENTIONAL IMAGING: IDENTIFYING LOBULAR BREAST CARCINOMA IN PREGNANCY

Ran Kedem Mashraki, Ahuva Grubstain

Department of Imaging, Breast Imaging Unit, Belinson Medical Center, Israel

Background: A 33-year-old BRCA2 carrier, 8 weeks pregnant patient presented with a right breast palpable lump. Evaluations with ultrasound (US) revealed infiltrative lobular carcinoma (ILC). Subsequent US and mammography detected bilateral axillary lymphadenopathy and an additional mass in her left axilla, but no signs of left breast involvement. ILC is notoriously challenging to detect using US and mammography.

Methods: Given the patient's refusal to terminate her pregnancy making contrast MRI impossible, an innovative approach was necessary to determine the extent of her disease. Research on breast cancer in pregnant women suggested using non-contrast MRI with diffusion tensor imaging (DTI) to identify areas of restricted diffusion in the breast.

Results: Restricted areas were detected in both breasts: the right breast's corresponded to the known cancer, while the left breast showed no corresponding lesion on US. By scanning with contiguous elastography in search for a stiff corresponding lesion, an area of reduced elasticity was biopsied and confirmed as an additional primary left breast ILC.

Conclusions: This case highlights the diagnostic challenges posed by ILC, especially in a pregnant patient, and demonstrates the successful use of innovative imaging techniques to overcome these challenges.

NAEGLARIASIS: THE BRAIN DEVOURING INFECTION, RADIOLOGICAL APPEARANCE OF ONE OF TWO RARE CASES IN ISRAEL

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Objectives: Describe the radiological findings in Naegleriasis: a very rare and fatal CNS infection. Highlight the radiological course of the disease.

Case presentation: A 10 years old child known for ADHD presented to the ER with headache, fever, photo and phono phobia for 3 days before his admission. In ER Brain CT showed no significant pathological findings. LP results: cloudy CSF with high WBC values. His clinical situation deteriorated very quickly in ER and soon he was intubated and hospitalized in the pediatric ICU.

Knowing that the child has been swimming on Gai Beach days before his complaints, a meningoencephalitis was suggested and sample of CSF for amoeba was sent for laboratory testing, and returned POSITIVE for Naegleria Fowleri. His MRI scan showed radiological features of meningitis and ventriculitis. Despite proper treatment with extended antibacterial drugs the patient situation kept worsening, second brain MRI and US Doppler was performed, and brain death was suggested.

Discussion: Our patient is one of two rare fatal cases who was diagnosed with this disease in the same period of time. With few information on the disease in literature, we highlighted the typical radiological course, manifestations and fast progression of the disease.

AN UNCOMMON PRESENTATION OF A PULMONARY ECHINOCOCCAL CYST IN A 10-YEAR-OLD FEMALE

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Background: A 10-year-old Bedouin girl, previously healthy, presented to the emergency department with a history of cough and dyspnea for several days. Vital signs revealed a decrease in oxygen saturation to 80% on room air, with other parameters being normal. Physical examination showed accessory muscle use for breathing and decreased air intake on the left side.

Methods: A chest X-ray revealed a left upper lobe thin-walled cavitory lesion with air and a serpentine-like structure. In addition, there was diffuse consolidation in the left lung, predominantly in the lower lobe. A computed tomography (CT) scan confirmed similar findings, with a connection to the bronchial tree. Lobar consolidation was observed in the lower lobe of the left lung, along with tree-in-bud changes in the upper and middle lobes of the right lung.

Results: The differential diagnosis included an echinococcal cyst due to serpentine structures in the cavity suggesting the “water lily sign” and bronchial tree involvement. Serological testing returned positive for Echinococcus.

Conclusions: No additional cysts were found on the abdominal CT. After a multidisciplinary consultation, albendazole treatment was initiated, and the patient was discharged to continue medication at home, with plans for re-evaluation and potential cyst removal surgery in the near future.

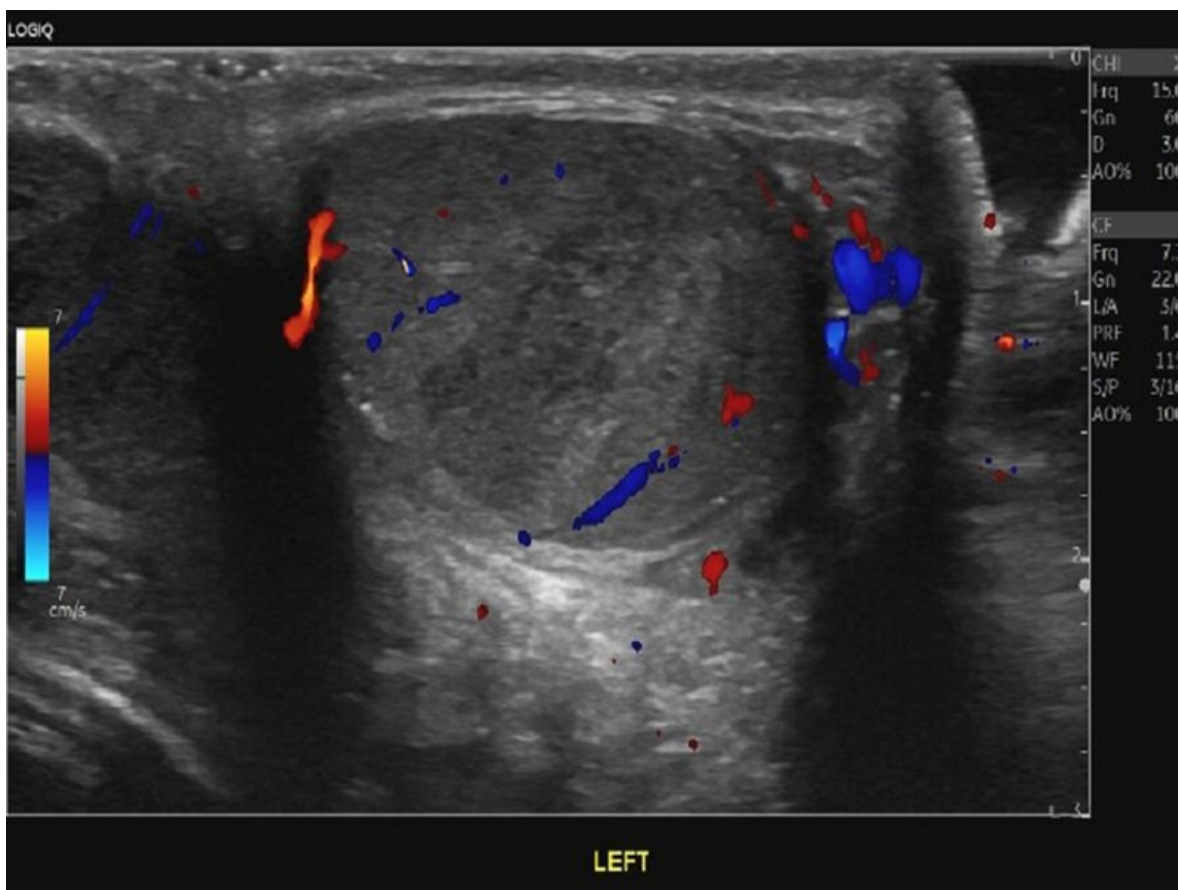
A SUDDEN ONSET OF TESTICULAR PAIN, AN INTRIGUING DIAGNOSTIC CHALLENGE

Alisa Barbarash, Ruth Cytter Kuint
Radiology Department, Shaare Zedek Medical Center, Israel

A fourteen-year-old male patient, was admitted to the emergency department with 2 days of left testicular pain. Ultrasound revealed minimal changes in the left epididymis. The pain persisted. A repeat ultrasound the next day showed mild enlargement of the left testicle with focal hypoechoic avascular lesion. The patient was operated. The testicle was edematous and pale, but the cord wasn't twisted. Both testicles were fixated. At discharge, the patient had elevated liver function tests and follow up was recommended.

Two days later, the patient readmitted with stomach pain, leg petechiae, hand ulcers, testicular pain, microhematuria and increased inflammatory markers. Abdominal ultrasound demonstrated small bowel mucosal thickening and infiltration of the mesenteric fat. Working diagnosis was of vasculitis and abdominal angiography was performed. Angiography findings included irregular small blood vessels and a small infarct in the right kidney. MRI and MRCP were performed for assessment of biliary system. Mild inflammatory changes were noted in the pancreas. In an ultrasound examination 2 months later, the hypoechoic region was smaller, and retraction of the capsule was seen, suggesting scar tissue.

Conclusions: Though testicular torsion is a diagnosis we should not miss, when ruled out, differential diagnosis of ischemic testicular lesions exist.



A RARE CASE OF PRIMARY RENAL EWING SARCOMA IN ADULT PATIENT

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Ewing sarcoma (ES)/primitive neuroectodermal tumor (PNET) is a malignant tumor that usually arises from bone and soft tissue in children and adolescents.

ES/PNET of the kidney is a rare neoplasm. Less than 150 cases have been reported in the literature so far. It usually presents with non-specific symptoms, laboratory data are usually unremarkable, and imaging studies do not reveal characteristic features.

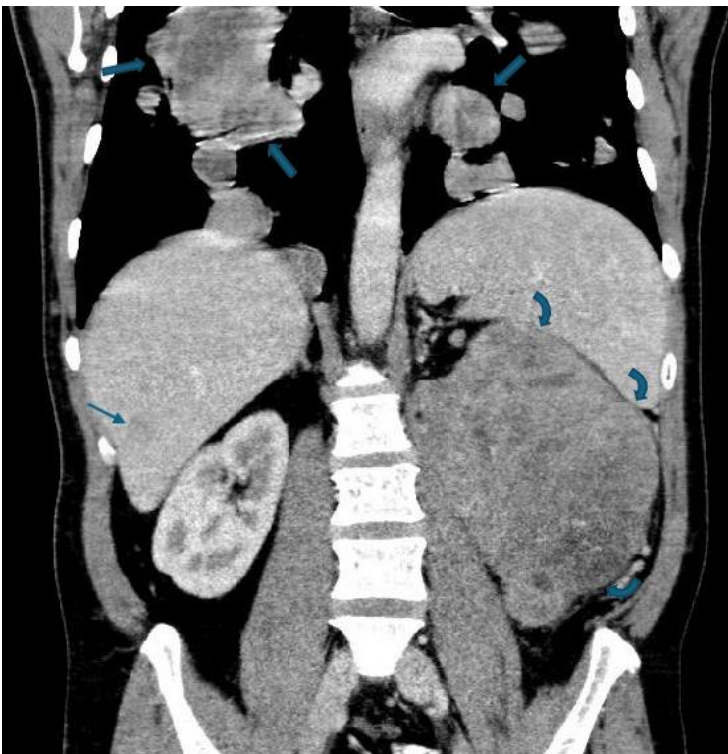
Biopsy with immunohistochemistry and molecular studies are the key to establishing a definitive diagnosis. In this case, a 44-year-old patient suffered from lower left abdominal pain radiating to the back for 3 months, lost 7 kg in two months.

CT scan (Figure) revealed a large heterogeneous lobular mass with a necrotic component arising from the left kidney, measuring 19.2 * 17 * 20 cm. Several hypodense foci were found in the liver, and several masses were found in the lungs.

Differential diagnosis included Primary renal carcinoma, Lymphoma, Leiomyosarcoma.

A biopsy of the left kidney was performed under ultrasound control: changes consistent with EWING'S SARCOMA were revealed, with a positive 1EWSR-FISH response.

The patient received 5 courses of chemotherapy according to the 1PNET protocol, but died 6 months after the first visit.



HEPATIC ADRENAL REST TUMOR (HART) – A RARE CASE FROM THE RADIOLOGIC POINT OF VIEW

Ben Caspy, Alex Pavlov, Natalia Goldberg
Department of Radiology, Carmel Medical Center, Israel

A healthy 41 y/o female presented to the ER with epigastric pain. An ultrasound examination revealed a round, well-defined liver mass measuring at 2.2 cm, most probable a hemangioma; with this diagnosis, the patient was discharged.

3 weeks later, she was referred to a CT scan, which revealed said mass at the liver's segment VII undergoing nodular enhancement following IV contrast administration, with no other findings, leading to a recommendation to perform a liver-oriented US and CT examinations, which the patient did not do.

Ten months afterwards, MRI scan demonstrated the oval lesion suspected to be HCC.

1.5 months later, the patient underwent a tru-cut biopsy, with a pathology report indicating it was HCC, leading to scheduling a partial hepatectomy.

During laparotomy, the surgical team found an exophytic adrenal mass present at the liver's segment VII, leading to a shift in approach, performing an adrenalectomy in addition to the hepatectomy, and an intraoperative US exam demonstrating the lesion has been removed with no remnants.

The pathology report from the laparotomy determined that the lesion was of adrenal origin, resulting in re-evaluation of the biopsy – revealing it was not HCC, but of adrenal origin: a hepatic adrenal rest tumor (HART).

DROPPED GALLSTONES MIMICKING MALIGNANCY ON PET CT

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¹Department Of Diagnostic Imaging, Meir Medical Center, Israel; ²Faculty of Medical and Health Sciences, Tel-Aviv University, Israel

Gallstones spillage is a common complication of laparoscopic cholecystectomy (LC) which may further complicate with abscess formation, that can mimic neoplastic disease on PET-CT.

Three patients, two men and one woman, aged between 50 and 78 years, 3 to 16 months after LC, were referred to our institution for a further investigation with diagnostic biopsy for suspected perihepatic hypermetabolic lesions on 18F-FDG PET-CT.

The PET-CT was performed as a routine follow up in two patients with known malignancy and to evaluate perihepatic and abdominal wall lesions described on US and CT in the last symptomatic patient.

Re-evaluating the various imaging modalities including US, CT, PET-CT and MRI in these patients, revealed the diagnostic hallmark of spilled stones within the lesions, best seen in US, and established the correct diagnosis of abscess around dropped gallstones (DG), obviated the need for further biopsy in two of them. In the last, symptomatic, patient an aspiration of purulent material from a perihepatic lesion confirmed the diagnosis and ruled out malignancy.

DG with abscess formation may mimic peritoneal implants on PET-CT.

Radiologists should be aware of this entity to prevent misdiagnosis and unnecessary further imaging and invasive procedures.

A RARE ENCOUNTER: A MEDIASTINAL MASS IN A 20-YEAR-OLD WOMAN

Yael Netanyahu Madar, Anat Ilivitzki

Radiology Department, Rambam Medical Center, Haifa, Israel

Ewing sarcoma family of tumors (ESFT) is a rare group of aggressive, small round cell tumors. There are four main subtypes, with bone Ewing sarcoma (BES) being the most common, accounting for approximately 90% of cases. While Askin tumor is the most frequent subtype of Extraskkeletal Ewing Sarcoma (EES), it remains a relatively rare diagnosis.

We present the case of a 20-year-old woman who initially presented with anterior mediastinal mass on chest x-ray. Chest CT revealed a heterogenous large, 22cm mass involving the chest wall and sternum, compressing surrounding vessels and the heart. An ultrasound-guided fine needle biopsy (FNB) was performed, and the pathology results confirmed a diagnosis of Ewing sarcoma. A subsequent PET-CT scan demonstrated intense tumor uptake without evidence of metastatic disease.

While the prognosis for Askin tumor, a subtype of Ewing sarcoma located in the chest, is somewhat more favorable than that of bone Ewing sarcoma, it remains generally poor.

The significance of this case lies in the unusual involvement of the sternum, a rare presentation occurring in less than 1% of Askin tumor cases, which is a scarce tumor of itself.



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OMENTAL INFARCTION: AN UNUSUAL CAUSE OF ACUTE ABDOMINAL PAIN IN CHILDREN

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Radiology Department, Sourasky Medical Center Tel Aviv, Israel

Background: Acute abdominal pain is the most common cause for referral of school-age children to emergency department. The differential diagnosis includes acute appendicitis, amongst other serious surgical pathologies. Omental infarction is uncommon and presents a diagnostic challenge. Early radiologic identification by ultrasound or CT may prevent unnecessary surgical intervention.

Clinical Case: A previously healthy 3-year-old girl with an abrupt onset of right lower quadrant abdominal pain was referred to the emergency department due to presumed diagnosis of acute appendicitis. An abdominal ultrasound revealed an increased echogenicity along the right paracolic gutter fat. However, the appendix was not visualized. A subsequent axial contrast-enhanced CT of the abdomen showed an irregular fatty mass centered in the right paracolic gutter, surrounded by soft-tissue stranding and free fluid, confirming the diagnosis of omental infarction. The patient improved clinically under conservative management. Follow-up sonographic scans have demonstrated progressive resolution of the findings.

Conclusions: This case underscores the importance of considering omental infarction in the differential diagnosis of pediatric acute abdominal pain, with imaging playing a crucial role in accurate diagnosis and management. Ultrasound is considered the imaging modality of choice, as it avoids the risk of ionizing radiation. CT should be reserved for inconclusive cases.

AN UNUSUAL CASE OF A SPINAL EPIDURAL ABSCESS

Shirley Shechter, Lital Pratt

Radiology Department, Sourasky Medical Center Tel Aviv, Israel

Background: Pediatric spinal epidural abscess (SEA) is rare, occurring in 0.2 to 3 cases per 10,000 hospital admissions. It often affects the posterior spine, where fat tissue is more prone to infection. Symptoms vary, but the classic triad of fever, back pain, and neurological deficits usually signals advanced disease. Treatment typically includes surgical decompression and drainage, followed by extended antibiotic therapy.

Clinical Case: We present a case of a 4-month-old male who came to the ER with a week of fever and diarrhea. He appeared ill with tachycardia and elevated inflammatory markers. Days later, he developed paraplegia, leading to an urgent MRI that revealed a spinal epidural abscess (SEA). He underwent thoracolumbar laminectomy and abscess drainage, followed by prolonged antibiotics. Despite initial improvement, follow-up imaging showed a growing lumbosacral mass, which was biopsied and diagnosed as a spinal atypical teratoid rhabdoid tumor (AT/RT), a rare, aggressive embryonic CNS tumor.

Conclusions: This case highlights the need to investigate underlying pathologies in spinal epidural abscess (SEA), especially when there is no improvement despite optimal treatment. Differential diagnoses should include spinal tumors like atypical teratoid rhabdoid tumors (AT/RT).

MRI REVEALS KEY CLUES IN DIAGNOSING RARE MEGACYSTIS CONDITION

Avner Merdler, Mika Shapira-Rootman
Radiology Department, Rambam Health Care Campus, Israel

Background: Megacystis-Microcolon-Intestinal Hypoperistalsis Syndrome (MMIHS) is a rare congenital disorder characterized by a dilated non-obstructive urinary bladder and hypoperistalsis of the gastrointestinal tract. Prenatal diagnosis is essential for optimal prenatal counseling and postnatal treatment. Although ultrasound is the primary imaging modality used in prenatal diagnosis, making a definitive diagnosis of MMIHS is challenging. MRI, with its multiplanar capabilities and large field of view, can provide additional insights and aid in the prenatal diagnosis.

Methods: We present the case of a 27-year-old pregnant woman. Antenatal sonography revealed an enlarged stomach and a distended urinary bladder. A fetal MRI scan was performed at 31 weeks and 5 days of gestation. The MRI findings included polyhydramnios, severe hydroureteronephrosis, an enlarged stomach, and a distended urinary bladder. Additionally, the colon was barely visible.

Results: Major differential diagnoses included Lower Urinary Tract Obstruction, Prune Belly Syndrome, and MMIHS. Key differentiating features were polyhydramnios, an enlarged stomach, and the fetus's gender. By integrating all imaging features, MMIHS was identified as the most likely diagnosis, which was subsequently confirmed after birth.

Conclusions: This case highlights the importance of fetal MRI in providing additional information that is crucial for the diagnosis of this severe and rare congenital disorder with a poor prognosis.



SUBPHRENIC ABSCESS IN 11-YEAR-OLD GIRL – A HAUNT FROM THE PAST

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¹Radiology Department, Rambam Health Care Campus, Haifa, Israel; ²Rappaport Faculty of Medicine, Technion- Israel institute of Technology, Haifa, Israel

Background: Subphrenic abscesses in children are rare, comprising 0.5-2% of abdominal infections. Causes include perforated organs, infections from neighboring organs, traumatic injuries, and post-surgical complications. Early imaging and prompt treatment are vital.

Methods: We present the case of an 11-year-old girl with a three-month history of abdominal pain, which prompted an Ultrasound and MRI in a community medical center that revealed a right subphrenic abscess, thus she was referred to our department for drainage. Further examination of the MRI revealed a calcified nidus within the abscess. Delving into her medical history, we discovered she had undergone an appendectomy two years earlier at another hospital. Abdominal x ray revealed a retained appendicolith in a position corresponding to the location of the abscess. this led to a probable diagnosis of a late abscess caused by a dropped appendicolith. The abscess was drained, at the end of the drainage the appendicolith was identified in us, and surgical intervention was planned.

Results: Appendicoliths, present in 30% of appendicitis cases, can lead to complications like infections, bowel obstruction, and delayed healing, although retained cases are rare.

Conclusions: This case emphasizes the importance of comprehensive medical history and the considering of uncommon causes in abscess diagnosis.

Plenary Session 11: La Prima Volta



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NEUROENDOCRINE TUMOR MASQUERADING ANOREXIA NERVOSA IN A TEENAGER

Raed Beshtawi, Ruth Cytter Kuint

Radiology Department, Shaare Zedek Medical Center, Israel

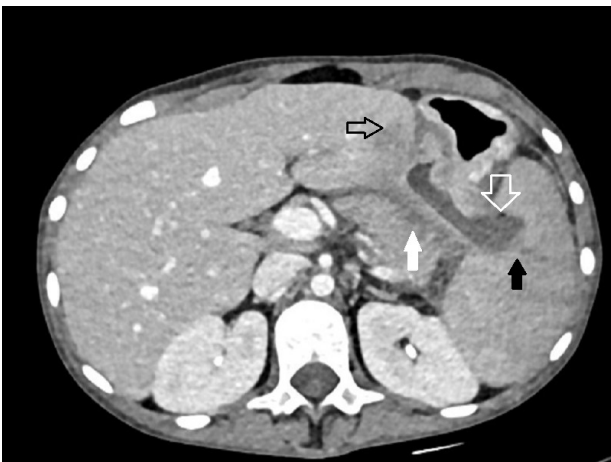
16-year-old female patient presented with two years of atypical anorexia nervosa and anemia of 3.6 g/dl. Ultrasound demonstrated gastric ulcer involving the spleen, splenomegaly and thickening of the tail of the pancreas.

A CT scan was performed. Thickened gastric wall with narrowing of the lumen, and multiple fistulas into adjacent organs (Spleen, Liver, Pancreas) were visualized. Splenic vein thrombosis and gastric collaterals were seen as well.

Further workup included gastroscopy and EUS. In both, large ulcer in greater curvature was seen. Biopsies of its margins showed no malignancy and were positive for *H. pylori*. EUS showed replacement of all gastric layers by infiltrative tissue, with involvement of the spleen, pancreas and the left lobe of the liver.

Histological examination revealed tiny fragments of a well-differentiated neuroendocrine tumor. The tumor cells were negative for both "major general" markers (cytokeratins and vimentin), thus the differential diagnosis included epithelial neuroendocrine neoplasm ("carcinoid") or paraneuron-derived nonepithelial neuroendocrine neoplasm (paraganglioma).

Conclusions: Though eating disorders are common in teenagers, any atypical feature should warrant further investigation.



HEPATIC INVOLVEMENT IN UNDIAGNOSED BEHCET`S DISEASE MIMICKING HEPATIC ABSCESS

Johan Matta¹, Suzan Faranesh Aboud²

¹Radiology Department, Bnai Zion Medical Center, Israel; ²The Ruth and Bruce Rappaport Faculty of Medicine, Bnai Zion Medical Center, Israel

We report a case of a healthy 18-year-old male presenting to the ER with fever, abdominal pain, and diarrhea. Laboratory workup showed mild leukocytosis and elevated CRP. Initial CT imaging revealed multiple hypodense liver lesions without other significant findings. Suspicion of abscess was high due to the infectious clinical presentation. Malignancy was considered in the differential diagnosis. Ultrasound confirmed multiple hepatic lesions.

Further history revealed significant but intentional weight loss and recurrent oral and genital aphthous ulcers. Due to an elevated INR, a biopsy was delayed, and a trial of antibiotics was initiated. A subsequent MRI demonstrated stable fluid-filled hepatic lesions with enhancing walls. Given the lack of improvement with antibiotics and the patient's ulcer history, inflammatory pseudotumor was strongly suspected on MRI alongside a clinical suspicion of Behcet`s disease. A liver lesion biopsy showed acute inflammatory exudate without microbial growth, consistent with inflammatory pseudotumor. Behcet`s disease was diagnosed as the underlying cause. Following steroid therapy, follow-up CT showed significant resolution of hepatic lesions.

This case highlights the complexity of achieving an accurate imaging diagnosis. Imaging findings alone could not differentiate between abscesses, malignancy or inflammatory pseudotumor. Clinical suspicion and multidisciplinary discussion were crucial in making the correct diagnosis.

TRIAD OF INTRACRANIAL COMPLICATIONS IN PEDIATRIC SINUSITIS: A CASE OF VENOUS THROMBOSIS, OSTEOMYELITIS, AND ARTERITIS

Kanar Bader, Dan Paz

Radiology Department, Galilee Medical Center, Israel

Background: Pediatric rhinosinusitis is a common condition that can lead to rare intracranial complications such as sinus vein thrombosis, carotid artery narrowing, and skull base osteomyelitis.

Methods: A 2.5-year-old boy presented with a three-day history of fever, vomiting, and poor appetite. Examination revealed neck stiffness, right eye ptosis, and eyelid swelling. Laboratory tests showed elevated neutrophils and C-reactive protein, with cerebrospinal fluid analysis confirming bacterial meningitis. Imaging revealed skull base osteomyelitis, right internal carotid artery narrowing, and sinus vein thrombosis. The patient received broad-spectrum antibiotics and anticoagulation therapy, with significant improvement by day 70.

Results: This case highlights the potential for pediatric sinusitis to progress rapidly to severe complications like sinus vein thrombosis and skull base osteomyelitis, which can be challenging to diagnose due to their subtle early signs. Carotid artery narrowing, particularly in the context of cavernous sinus thrombosis, is especially concerning in children.

Conclusions: Although pediatric sinusitis is common, it can lead to devastating outcomes. Radiologists play a crucial role in identifying these complications and ensuring prompt treatment.



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NEONATAL TESTICULAR TORSION

Elena Tomashpolski^{1,2}, Ayelet Wandel^{1,2}, Sigal Tal^{1,2}

¹Faculty of Medicine, Tel Aviv University; ²Department of Diagnostic Radiology, Shamir (Assaf Harofeh) Medical Center, Israel

Neonatal testicular torsion is a rare diagnosis of unknown origin, occurring prenatally and up to 30 days after delivery.

The rotation of the testis around the axis of the spermatic cord results in tissue ischemia.

Ultrasound (US) is not sensitive enough to detect intrauterine testicular torsion but it's a well-established tool for diagnosis of torsion in adolescents and young adults.

We represent two cases of neonatal torsion in which soon after birth testicular torsion was clinically suspected and US had a central role in the diagnosis.

Collaboration between clinicians and the US unit promote early diagnosis and treatment.

Clinicians and radiologists should be familiar with this rare entity.

TOMBSTONE COMPLEX- AN UNUSUAL ETIOLOGY FOR BILE DUCT OBSTRUCTION

NASEEM MTANAS, Yehonatan Bar Moshe

Department of Radiology, Hadassah Medical Center, Israel

A 63-year-old woman after laparoscopic cholecystectomy in 2013. A decade later, she was presented to the ED with painful jaundice. Laboratory results revealed elevated levels of leukocytes, bilirubin, diastase and cholestatic liver enzymes. Abdominal and pelvic CT scan demonstrated a rare “tombstone” complex composed of a surgical clip which migrated into the CBD lumen and created a nidus for intraluminal stone formation obstructing the bile ducts. The “tombstone complex” was removed in ERCP with stent insertion and patients` clinical symptoms have resolved. We will discuss the pathophysiology and imaging findings of this rare post cholecystectomy complication and review the literature.



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Plenary Session 13: La Prima Volta



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WHEN LIGHTNING STRIKES TWICE

Jawad Abu Nassar, Anat Ilivizki

Radiology Department, Rambam Health Care Campus, Haifa, Israel

Background: Fibrosing mediastinitis is a rare benign disorder characterized by chronic inflammation resulting in diffuse fibrosis of the mediastinum, potentially compromising airways and great vessels. Empyema Necessitans is an uncommon complication of untreated empyema, primarily caused by *Mycobacterium tuberculosis*.

Methods: We present a case of a 55-year-old man experiencing shortness of breath, dry cough, and weight loss. Chest X-ray revealed an ill-defined homogeneous opacity in the upper and middle zones of the right lung. A subsequent CT chest scan identified a right pleural lesion invading the chest wall, and biopsy confirmed Empyema Necessitans.

Results: From his previous history it's known, that at age of 33, he was diagnosed with superior vena cava syndrome. Biopsy at that time confirmed fibrosing mediastinitis. The diagnosis of Empyema Necessitans can be challenging. While the empyema may be curable, this case underscores the importance of recognizing this rare, aggressive condition. Additionally, imaging of these two rare diagnoses will be presented, along with a theory potentially linking them.

Conclusions: Both conditions involve chronic inflammation. Fibrosing mediastinitis can lead to scarring and structural changes that might predispose the tissues to secondary infections.

RADIOLOGIC FINDINGS OF NAIL PATELLA SYNDROME

Diab Saba¹, Saher Srour^{1,2}

¹Radiology, Ziv Medical Center, Israel; ²The Azrieli Faculty of Medicine, Bar-Ilan University, Israel

Objective:

- Describe the radiological appearance of nail patella syndrome with highlight on clinical manifestations.
- Highlight the role of the radiologist in early diagnosis.

Case Presentation: We present a case of a 55-year-old patient with history of elbows arthralgia and physical examination showing dystrophic fingernails, was incidentally diagnosed with NPS based on the following radiological findings:

A hip CT scan revealed iliac horns, x-ray imaging of the knees demonstrated hypo plastic patellae. followed by elbow MRI that revealed deformation and subluxation of the radial head.

These objective findings raised the suspicion for the full tetrad of NPS.

A Nail Patella Syndrome (NPS), previously referred to as Fong Disease, is a rare genetic disorder with distinctive radiological findings that encompasses the classic clinical tetrad of changes that include nail hypoplasia, hypo-plastic patellae, elbow dysplasia, and the presence of iliac horns. In addition to the characteristic physical examination, various imaging modalities, such as X-Ray images, Computed Tomography scans and Magnetic Resonance Imaging can provide us with a detailed visualization of these features and make the diagnosis .

Conclusions: The case we present here raises the awareness of Nail Patella Syndrome as rare genetic syndrome.

TORSION OF WANDERING ACCESSORY SPLEEN

George Hallaso, Samar Michael Salame
Radiology Department, Galilee Medical Center, israel

Introduction: Accessory spleen torsion is a rare condition, with fewer than 50 cases reported in medical literature. It occurs when the accessory spleen twists on its own pedicle, leading to compromised blood supply.

Case Presentation: An 88-year-old woman was admitted to ED with diffuse abdominal pain but no fever. Her complete blood cell count was unremarkable, except for an elevated serum C-reactive protein level. A CT abdominal exam revealed a large accessory spleen in the right lower quadrant, which had been previously located in the left upper quadrant according to a 2007 CT scan. The accessory spleen appeared hypodense and heterogeneous compared to the previous study, raising suspicion of wandering accessory spleen torsion. The patient underwent exploratory laparoscopic surgery the same day, which revealed an ischemic accessory spleen with a long twisted vascular pedicle, leading to an accessory splenectomy.

Discussion: Most cases of accessory spleen torsion occur spontaneously; some can be caused by trauma or pregnancy. The long vascular pedicle of the accessory spleen predisposes it to torsion, especially when the spleen is large.

Conclusions: Wandering accessory spleen torsion is a rare entity that is difficult to diagnose. Failure to detect significant pedicle torsion on CT may lead to complications.

NOT THE USUAL CASE OF PREGNANCY CONSTIPATION

Hagar Olshaker Reuveni, Dana Brin, Orith Portnoy, Olga Saukhat
Radiology Department, Sheba Medical Center, Israel

A 32-year-old woman, 34+4 weeks pregnant, presented with one week of constipation and abdominal discomfort. On physical examination her abdomen was tender, distended, and tympanic. Fetal examination was normal. Blood work revealed an elevated WBC count of 23,000. An abdominal US was normal. MRI suggested bowel obstruction due to sigmoid volvulus, with free fluid indicating possible bowel ischemia. Reduction of the volvulus was performed during sigmoidoscopy, but an ischemic 8 cm section was detected. To avoid surgery, a rectal tube was placed, and follow-up was planned. Despite this, her condition worsened, with increasing WBC and CRP levels. A repeat sigmoidoscopy the following day showed no new findings. Consequently, Hartmann's procedure combined with a cesarean section was performed the same day.



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EXTRAHEPATIC PORTAL CAVERNOMA CHOLANGIOPATHY (EHPCC)

Nizar Hanna, Alex Pavlov, Natalia Goldberg
Radiology Department, Carmel Medical Center, Israel

A 33-year-old male with a medical background of Systemic Lupus Erythematosus (SLE) secondary to Acquired Hemolytic Anemia (AIHA), primary hypercoagulable state, antiphospholipid anti-bodies syndrome (APLA), Deep Vein Thrombosis (DVT), Portal and superior mesenteric vein thrombosis, splenectomy, Sinus Vein Thrombosis (SVT), pseudotumor cerebri, cerebrovascular accident (CVA), vasculitis, epilepsy and depression arrived at the emergency room for evaluation.

The patient was presented with recurrent episodes of pain in the upper right quadrant, along with fever and jaundice, leading to a diagnosis of cholangitis. Computerized Tomography (CT) scans and Magnetic resonance cholangiopancreatography (MRCP) showed narrowing of the distal common bile duct and dilation of the intrahepatic ducts, as well as the presence of curved collateral hepatic veins indicating cavernous transformation due to chronic portal vein thrombosis. The condition was further complicated by portal cholangiopathy and CBD stricture due to compression from the curved collateral hepatic veins.

Portal cavernoma cholangiopathy (PCC) refers to changes in the biliary system resulting from external vascular compression and ischemic damage in patients with chronic portal vein obstruction outside the liver (EHPVO).

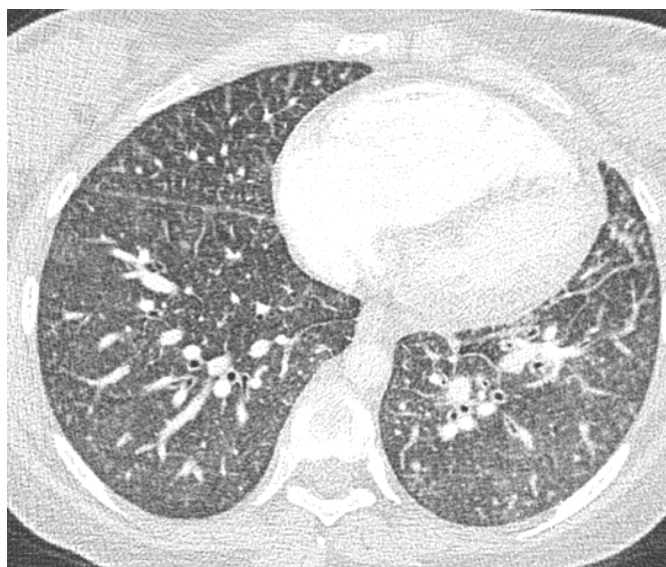
TUMORAL PULMONARY HYPERTENSION

Talar Silvi Hagopian¹, Naama Bogot¹, Olga Pichkhadze¹, Ofer Benyaminov¹, Hava Azulai²

¹Department of Radiology, Shaare Zedek Medical Center, Israel; ²Department of Internal Medicine, Pulmonology, Shaare Zedek Medical Center, Israel

We present a case of a 21-week pregnant 21-year-old female with a 2-month history of shortness of breath and syncope. ECG showed sinus tachycardia and signs of RV strain. CT pulmonary angiogram demonstrated signs of severe RV strain, with RV/LV ratio of two and straightening of the interventricular septum but no PE. Diffuse centrilobular nodules with thickened septal lines and enlarged lymph nodes were also seen. Diagnoses considered were metastatic and lymphangitic spread of tumor, pulmonary venocclusive disease or hemangioendothelioma. Cervical lymph node biopsy revealed metastatic adenocarcinoma from a primary pulmonary origin. The patient was admitted for treatment. But within 8 days of admission developed DIC, miscarried and passed away.

A variety of conditions lead to elevated pulmonary arterial pressure, amongst them a spectrum of tumor-related pathophysiologies, resulting in direct or indirect tumoral pulmonary HTN, including pulmonary tumor microembolism and pulmonary tumor thrombotic microangiopathy with further activation of coagulation pathways, vascular remodeling and subsequent pulmonary hypertension. Prognosis is often poor with fatal right ventricular failure.



AORTOENTERIC FISTULA FOLLOWING EVAR IN A PATIENT WITH EXTENSIVE VASCULAR HISTORY

Emily Radovici, Dr Rivka Kessner

Radiology Department, Sourasky Medical Center, Tel Aviv, Israel

Background: Aortoenteric fistulas (AEFs) are rare but serious complications of Endovascular Aneurysm Repair (EVAR), occurring in 0.5% to 2% of patients. They result from graft erosion into the gastrointestinal tract, leading to severe bleeding and infection. Early detection is crucial due to high mortality rates.

Case Presentation: A 78-year-old male with ischemic heart disease and hypertension underwent EVAR in June 2020 for an asymptomatic 55 mm infrarenal AAA. Postoperative imaging revealed sac enlargement to 60 mm due to a type II endoleak, which increased to 90 mm by 2022. He underwent IMA embolization, but lumbar branches contributing to the endoleak could not be accessed. In 2023, direct puncture embolization via a translumbar approach was performed.

In 2024, a recurrent endoleak required open abdominal surgery with sac neck banding and sacotomy. The patient was discharged but later readmitted with fever, weakness and elevated CRP. CT showed a mesenteric collection connected to the transverse colon. Emergency surgery included partial transverse colectomy. One month later, he developed an aorto-duodenal fistula, requiring duodenal resection and a new colostomy. Despite these interventions, the graft remained infected, and the patient passed away on September 4, 2024.

Conclusions: This case highlights the need for rigorous surveillance and prompt intervention for EVAR complications to prevent severe outcomes.

BRIDGING THE DIAGNOSTIC DIVIDE: OSTEOPETROSIS AND RICKETS

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We present the case of a 10-month-old infant, born to healthy parents, who was admitted with symptoms including nystagmus, failure to thrive (FTT), persistent rhinorrhea, and hypotonia. Laboratory investigations revealed leukocytosis, thrombocytopenia, anemia, and hypophosphatemia, with normal calcium levels. Skeletal X-rays demonstrated two conflicting radiologic patterns: diffuse bone density suggestive of osteopetrosis and splaying, fraying and cupping of metaphysis in addition to rachitic rosary indicative of rickets.

Genetic exome sequencing revealed a homozygous TCIRG1 mutation, the pathogenetic mechanism of which has been elucidated in recent case reports, as a potential etiological factor for osteopetrosis with concurrent rickets.

Stem cell transplantation is currently the only treatment for this life-threatening condition, and its success depends on effectively managing concurrent rickets beforehand. Therefore, understanding the imaging characteristics of these two contrasting pathologies and being aware of their potential coexistence are crucial for accurate management of such complex cases.

WHO'S NAGGING MY BRAIN?

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An 88-year-old patient, otherwise healthy with preserved cognitive function, presented with confusion three days after a head injury from a fall. Neurological examination showed right-sided weakness and dysphasia. A head CT scan identified a left temporal intra-axial lesion with an amorphous shape and enhancing rim, accompanied by vasogenic edema. There was no evidence of traumatic insult. These findings, along with the patient's age, raised suspicion of a potential primary or secondary brain malignancy. Further evaluation, including a brain MRI and total body CT (TBCT), was performed. The brain MRI revealed significant central diffusion-weighted restriction, suggestive of an abscess, with a cavernous-like inner structure featuring multiple intersecting tunnels. Stereotactic biopsy confirmed a *Listeria monocytogenes* abscess, which was treated with gentamicin and trimethoprim-sulfamethoxazole (Resprim). This case highlights a rare instance of *Listeria* brain infection in an immunocompetent individual, with an almost pathognomonic coral-like shape.

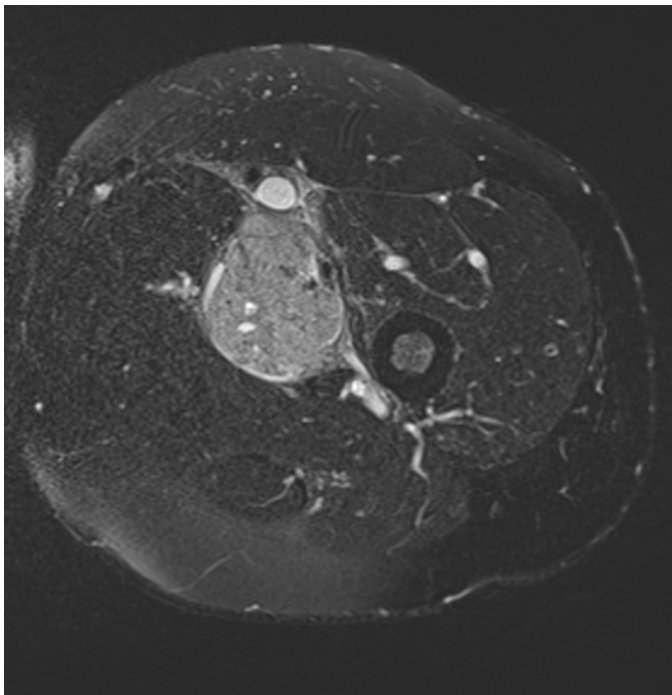
MESENCHYMAL CHONDROSARCOMA. EXTREMELY RARE CASE, OF INTEREST BOTH TO RADIOLOGISTS AND PATHOLOGISTS

Artem Khaes¹, Yaakov H Applbaum¹, Saed Kalouti¹, Ofer Benjaminov¹, Victoria Doviner²,
Ariel Erental³, Ifat Levy³, Netanel Berko¹

¹Radiology, Shaare Zedek Medical Center, Israel; ²Pathology, Shaare Zedek Medical Center, Israel;

³Pathology, Ichilov Medical Center, Israel

We present a rare case of mesenchymal chondrosarcoma in a 29-year-old male with a several-month history of shortness of breath and leg swelling. Initial CT imaging revealed bilateral pulmonary emboli. Further investigation using ultrasound of the lower limbs identified a large mass within the left femoral vein. The mass, measuring nearly 17 cm, showed heterogeneous characteristics and blood flow on imaging. CT and MRI confirmed a lobulated, enhancing mass with irregular calcifications and heterogeneous signal intensity, raising concerns of malignancy. PET-CT demonstrated focal pathological uptake, indicating the mass was the primary source without widespread disease. A differential diagnosis considered vascular tumors such as angiosarcoma and hemangioendothelioma. Histological examination revealed a highly cellular neoplasm with high mitotic activity but inconclusive immunostaining results. Molecular testing identified a HEY1-NCOA2 fusion, confirming mesenchymal chondrosarcoma. This case is notable for its clinical presentation, large soft-tissue component, and the absence of chondroid tissue typical of chondrosarcoma. The detection of the HEY1 fusion was pivotal for diagnosis. The patient responded to neoadjuvant chemotherapy, followed by surgical resection and adjuvant therapy, with no metastases and stable condition at one-year follow-up. The case highlights the importance of comprehensive diagnostic approaches in rare malignancies.



POSTERS



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CT FINDINGS OF COMBAT CASUALTIES DURING THE 2023-2024 ISRAEL GAZA ARMED CONFLICT

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¹The Department of Diagnostic Imaging, Sheba Medical Center, Israel; ²The Division of Data-Driven and Digital Medicine (D3M), Icahn School of Medicine at Mount Sinai, NY, USA; ³ARC Innovation Center, Sheba Medical Center, Israel

Background: On October 7, 2023, an armed conflict erupted between Hamas and Israel, leading to numerous combat casualties. This study aims to describe computed tomography (CT) findings in combat casualties at a tertiary medical center during the first three months of the conflict.

Methods: A retrospective observational study was conducted on trauma patients admitted between October 7, 2023 and January 7, 2024. Patients over 18 years old with conflict-related trauma who underwent chest, abdomen, and pelvis (referred to as body) trauma protocol CT were included. Data were extracted from electronic health records.

Results: Of the 272 patients who underwent body trauma protocol CT, 112 adult combat-related patients were included, with a mean age of 27 years and only one female. Among them, 82 (73%) also underwent additional CT scans of either the head and neck or extremities. Limb injuries were the most common (37 patients, 33%), prompting an update to the trauma protocol. Fractures were observed in 53 patients (47%), vascular injuries in 40 patients (35%), and head and neck injuries in 21 patients (18%). Lung injuries were the most common in body CT, affecting 30 patients (27%), followed by abdominal organ injuries in 22 patients (20%). Multisystem trauma was present in 24 patients (21%). Eighty-three patients (74%) underwent surgery, with the majority being orthopedic/soft tissue (70 patients, 63%). Fifteen patients (13%) underwent abdominal surgery, with bowel injuries confirmed in eight.

Conclusions: The study underscores the importance of CT in conflict trauma management. Frequent limb injuries necessitated protocol adjustments. Lung injuries were most common body injury. The majority of patients required surgery.

RADIOMICS-BASED MACHINE LEARNING CLASSIFICATION OF BREAST LESIONS USING ULTRAFAST DCE-MRI

Kfir Cohen¹, Miri Sklair-Levy^{1,2}, **Debbie Anaby**^{1,2}

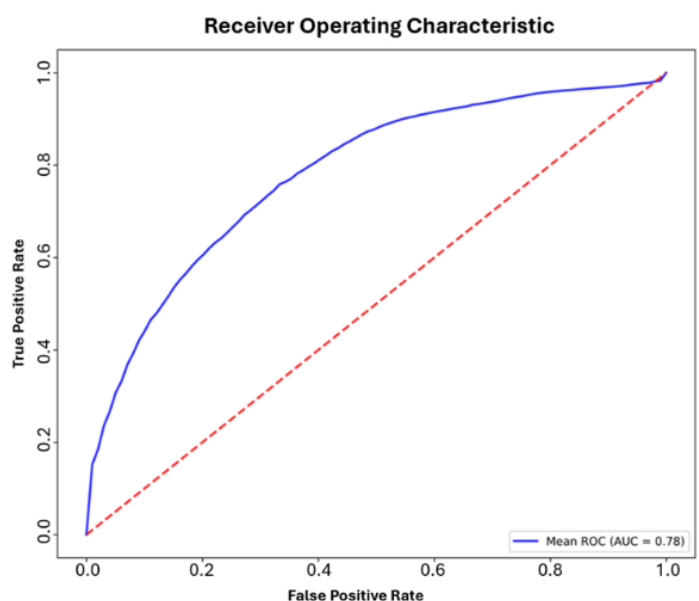
¹Diagnostic Imaging, Sheba Medical Center, Israel; ²Sackler Faculty of Medicine, Tel Aviv University, Israel

Background: Ultrafast (UF) Dynamic Contrast-Enhanced (DCE) Magnetic Resonance Imaging (MRI) has emerged as a promising technique for breast lesion characterization due to its high temporal resolution. In this study, the potential of UF DCE-MRI-derived radiomic features for distinguishing between malignant and benign breast lesions was investigated.

Methods: A total of 227 biopsy-proven breast lesions from 194 patients were analyzed, comprising 93 malignant (Mean size of 19.76 ± 18.35 mm) and 133 non-malignant (Mean size of 9.10 ± 8.28 mm). All lesion slices were manually delineated across 11 time-points using prototype software (MR DCE; Siemens Healthcare). Ultra-fast (UF)-derived Maximum Slope (MS), Area Under the Curve (AUC), and Time-to-enhancement (TTE) metrics were extracted per slice. Mean, median, maximum, and minimum values were computed from the extracted radiomic features of each delineated volume. These values, along with the volume of each delineated region, were subjected to Principal Component Analysis (PCA), reducing the feature set to 4 principal components. These components served as input for a Logistic Regression algorithm to evaluate its classification accuracy.

Results: The classification model achieved an Area Under the Receiver Operating Characteristic Curve (AUC-ROC) of 0.78, with a sensitivity of 0.77 and a specificity of 0.72. Analysis of misclassified malignant cases revealed that 60% were subcentimeter lesions, and approximately 66% exhibited low KI67 expression. Only two cases exhibiting high KI67 were misclassified.

Conclusions: This study explores the use of radiomic features derived from UF DCE-MRI metrics, combined with machine learning, to differentiate between malignant and non-malignant breast lesions. The results indicate that incorporating lesion size and UF-derived metrics could enhance breast lesion classification in MRI. However, further research is necessary to improve the model's performance, particularly in accurately classifying subcentimeter and those with low KI67 expression, which represented a significant portion of the misclassified cases.



MAMMOGRAM RESULTS IN THE GENERATIVE AI ERA: CLARITY OR CONFUSION?

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Division of Diagnostic Imaging, Sheba Medical Center, Israel

Background: Generative AI models have become a game changer in our daily routine with more than a 100 million users worldwide. They are utilized for a myriad of tasks, from cooking recipes to medical advice and recommendations. These tools continue to gain influence on humanity that has the potential to resolve or exacerbate the challenges in the medical world. Our objective was to evaluate the explanations and recommendations offered by these models when prompted with mammogram results in two different languages.

Methods: We assessed two free publicly available chatbots, ChatGPT3.5(OpenAI) and Bard1.0.2(Google). We utilized the anonymized results of 15 mammograms with different BIRADS (Breast Imaging Reporting and Data System) scores (0-6) to compare the models' performance. We employed the original reports in Hebrew and their corresponding translations by a radiologist into English.

Results: ChatGPT generated "word salad", a jumble of words that do not form coherent sentences when prompted with the Hebrew reports. Despite supporting Hebrew, Bard, mostly responded inadequately to the Hebrew reports. Both models, particularly Bard, demonstrated enhanced performance on the translated versions of the same inputs with less out of vocabulary responses. Inaccurate explanations of the BIRADS categories were prominent for both models, mostly with BIRADS 0 and 6. Both models exhibited verbosity, generating unnecessarily long responses in their explanations and recommendations, particularly ChatGPT.

Conclusions: In the era of generative AI these models have become a major source of information. Patients often turn to chatbots to clarify results written in complicated medical terms. The effects of inaccurate and sometimes completely wrong answers presented in human-like response may have a devastating result. This was especially prominent for the Hebrew reports compared to their paired English translations. These life-changing models have become an integral part of our lives, however, the seemingly clear but incorrect answers they sometimes generate pose a hazard. Thus, a clear explanation from a medical professional cannot be replaced by a bot, at least not yet.

The image displays a comparison between a professional medical report and AI-generated responses. On the left, labeled 'A', is a structured mammogram report in English. It includes sections for 'Findings' (Right and Left Breast), 'Impression' (Bilateral gynecomastia), 'Note' (finding on PET CT scan not visualized), 'BIRADS Assessment: BIRADS 3', and 'Recommendations' (short-term follow-up with mammography and ultrasound). On the right, labeled 'B' and 'C', are screenshots of AI chatbot responses. Response 'B' (Bard) provides a general recommendation to follow a doctor's advice and lists lifestyle tips like maintaining a healthy weight and exercising. Response 'C' (ChatGPT) provides a more detailed but somewhat repetitive and verbose explanation of the findings, such as 'There is a small amount of fibroglandular tissue behind the nipple area, which is consistent with a condition called gynecomastia...'. The caption below the images states: 'The translation of a mammogram report (1A) alongside the responses generated by Bard (1B) and ChatGPT (1C) when provided with the translation prompt.'

Findings:
 The breast composition is mostly fatty with sparsity of fibroglandular tissue (BIRADS A)

Right breast: mid central a solid lobular spiculated mass and several subtle and coarse calcifications, 3.3 cm in size.
 On oblique view asymmetric opacity 0.7cm in size
 Near the mass, behind the nipple, in the anterior third of the breast subtle calcification in a linear distribution.
 A dense prominent axillary lymph node, 1.4 cm in size.

Left breast: Upper central dense irregular mass, 1 cm in size
 In the anterior third of the breast subtle scattered and grouped calcifications.

In summary:
 Right breast-a dominant mass as described involving the skin and subcutaneous tissue with two satellites. At the breast tail a differential diagnosis between a satellite lesion and a thickened lymph node. Axillary lymph nodes with pathological appearance.
 In addition, subtle calcifications.
 BIRADS 5
 Left breast: Mass as described, calcifications in an extensive area.

Recommendations:
 Surgical consult
 Ultrasound guided biopsy from the right breast (dominant mass and axillary lymph nodes)
 And left side mass
 According to the findings consider a stereotactic biopsy to the calcifications on the left

A

its. A BIRADS 5 rating means that there is a high suspicion of breast cancer

Your test results show that you have a solid lobular spiculated mass in your right breast. This is a type of mass that is often associated with cancer. The mass is also associated with subtle and coarse calcifications, which are also known as microcalcifications. Microcalcifications can be a sign of cancer, but they can also be caused by other things, such as benign breast changes.

You also have a dense prominent axillary lymph node in your right breast. Axillary lymph nodes can be enlarged due to infection, but they can also be enlarged due to cancer.

In your left breast, you have a dense irregular mass and subtle scattered and grouped calcifications. These findings are less concerning than the findings in your right breast, but they still warrant further evaluation.

Based on your test results, your doctor recommends that you have a surgical consult and ultrasound-guided biopsies of the masses in both breasts. The doctor may also recommend a stereotactic biopsy of the calcifications in your left breast.

I know that these test results can be concerning, but it is important to remember that a BIRADS 5 rating does not mean that you definitely have cancer. However, it is important to have the masses evaluated further to rule out cancer.

I hope this explanation is helpful. Please let me know if you have any other questions.

B

The translation of a mammogram (2A) is presented, accompanied by Bard's output, which includes the term "cancer" six times, despite the mammography report not mentioning it even once.

THE DEVELOPMENT OF A NOVEL METABOLIC MRI METHOD TO DETECT MALIGNANT TUMORS

Michal Rivlin^{1,2}, **Rotem Sivan-Hoffmann**³, Vivian Hadar⁴, Stephanie Sukhotnik⁴, Noemi Weisenberg-Cusnir⁴, Olga Shmain-Naydenov⁴, Moritz Zaiss^{5,6}, Simon Weinmüller⁵, Gil Navon¹

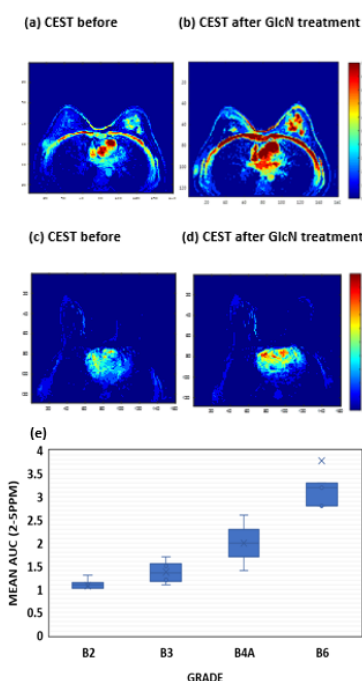
¹School of Chemistry, Tel Aviv University, Israel; ²Department of Bio-Medical Engineering, Tel Aviv University, Israel; ³Department of Radiology, Meir Medical Center, Israel; ⁴Department of Radiology, Breast imaging unit, Meir Medical Center, Israel; ⁵Institute of Neuroradiology, Friedrich-Alexander-Universität, Germany; ⁶Department Artificial Intelligence in Biomedical Engineering, Friedrich-Alexander-Universität, Germany

Background: Cancer cells are well documented in their increased rate of glucose uptake (Warburg effect). This is also true for glucosamine (GlcN), a safety food supplement, which is transported by GLUT transporter system. Chemical exchange saturation transfer (CEST) MRI has emerged as an attractive molecular imaging approach for providing valuable metabolic information. Our goal is to develop an innovative molecular imaging modality based on CEST-MRI of GlcN to visualize and measure breast tumors while also distinguishing between benign and malignant tumors based on GlcN and its metabolic products accumulation in tumors.

Methods: This study included seven patients with breast tumors (median age, 49 years) and nine healthy volunteers. GlcN CEST-MRI scans were performed on a 3T scanner (VIDA, Siemens, Germany) using breast coil after a minimum of a 4 hour fast. The patients were scanned with the CEST MRI protocol before and two hours after drinking a solution of GlcN (184 mg/kg). The data were evaluated using magnetization transfer asymmetry ratio (MTR_{asym}) and area under curve (AUC) analysis. The routine clinical protocol included T1W-DCE with gadolinium injection.

Results: GlcN treatment resulted in higher CEST values in tumor regions of interest (ROIs), with maximum net MTR_{asym} signal (at 2 ppm from the water signal, originating from hydroxyls protons effects) of $6.3 \pm 2.6\%$ and averaged AUC (2-5 ppm) increase ratio of $3.3 \pm 2.1\%$ (n=7). Yet, no significant GlcN CEST signal enhancement was detected in healthy volunteers. Furthermore, GlcN CEST signal values were highly correlated with the BI-RADS category.

Conclusions: The findings of this preliminary study suggest that GlcN CEST MRI technique can detect breast cancer in the clinic while also providing molecular-level diagnostic tools for discriminating between benign and malignant breast tumors. These findings may pave the way for future study on GlcN uptake in breast tumors.



RIGHT PULMONARY ARTERY TO SUPERIOR VENA CAVA FISTULA – A RARE COMPLICATION OF PROLONGED ECMO: CT AND MRI FINDINGS

Muhammad Ali, Alex Pavlov, Natalia Goldberg

Radiology, Carmel Medical Center, Israel

We present a case of a 43-year-old male who was admitted with exertional dyspnea. He had a history of severe COVID-19 infection three years previously requiring extracorporeal membrane oxygenation (ECMO) for 3 months, with full recovery.

Echocardiography showed a dilated right ventricle (RV) with good contraction.

Computed tomography (CT) revealed a large fistula between the right main pulmonary artery (RMPA) and superior vena cava (SVC). MRI scan showed the direction of the flow from RMPA to SVC and allowed for quantification of the right to left shunt, which was moderate to large,

Previous CT during the ECMO treatment showed one of the ECMO cannulas in the SVC adjacent to RMPA.

We believe that the prolonged presence of the ECMO cannula within the SVC caused an erosion which led to fistula creation between the two structures, which over the years led to massive RMPA to SVC shunt and RV volume overload.

This is the first time reporting such a complication of prolonged ECMO treatment, and should be taken into account when a patient previously treated with ECMO presents with unexplained shortness of breath.

PENILE FRACTURES: A SONOGRAPHIC TAKE ON A UROLOGICAL EMERGENCY

Yousef Ishtay¹, Liat Applebaum²

¹Radiology Department, Hadassa Medical Center, Israel; ²Radiology, Hadassah Medical Center, Israel

A 38-year-old patient came to the emergency room complaining of unbearable penile pain and enlargement for a few hours after he woke up in bed with an erection then rolled over suddenly. He heard the sound of snapping, with terrible pain following.

The patient was referred to the ultrasound department and upon the first look, the penis looked swollen with the descriptive eggplant sign. An ultrasound examination showed disruption of the tunica albuginea with associated large penile and scrotal hematoma. The patient was taken to the OR for evacuation of the hematoma, and repair of the tear.

Another 41-year-old patient presented with penile pain and enlargement after he fell on an erected penis. An ultrasound examination was done and a large tear in tunica albuginea was seen with associated penile hematoma. A urological exploration was done with hematoma evacuation and tear repair.

Both patients were diagnosed and treated in a timely manner, and thus preventing long-term sequelae illuminating the importance of sonographic evaluation in these cases. In this presentation we explore penile fractures as rare emergencies and the tailored use of ultrasound in aiding the diagnosis process.



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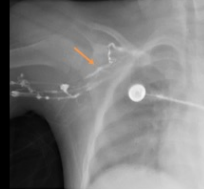
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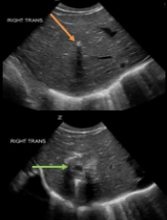



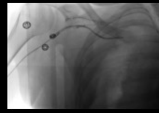

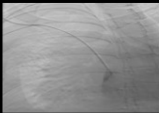
INTRAVASCULAR CATHETERS IN PEDIATRICS: METHODS, IMAGING AND COMPLICATIONS

Larisa Gorenstein, Michalle Soudack, Oshry Mozes
Division of Diagnostic Imaging, Sheba Medical Center, Israel

Case Presentation:

1. Intravascular catheter insertion in the pediatric population can be challenging, especially in infants.
2. The radiologist must be familiar with the imaging appearance of intravascular catheters, and recognize catheter malposition as well as other complications. In selected cases, a linogram may be diagnostic.
3. Pediatric patients may experience unique complications such as thrombosis of the portal vein associated with umbilical vein catheterization.
4. In some complications, such as malposition, it may be possible to perform an 'over-the-wire exchange.' However, in other cases, the only option may be to insert a new catheter.

Same Line, Same Patient, Different Modalities				What can go wrong? Late complications		
						
Hickman catheter AP and lateral X-rays	Hickman catheter coronal non-enhanced chest CT	Hickman catheter coronal non-enhanced T1 weighted MRI	Hickman catheter coronal non-enhanced T1 weighted MRI	X-Ray: Hickman catheter malpositioned upstream into right jugular vein instead of SVC	Linogram: Contrast extravasation of contrast from a ruptured Hickman catheter	Angiography for line exchange: Complete obstruction of right axillary vein and collateral flow

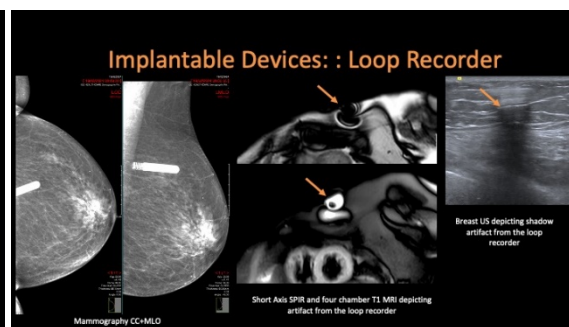
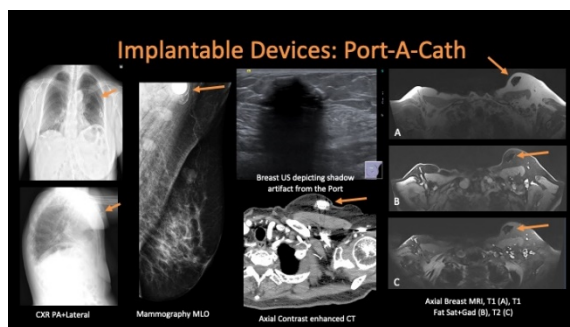
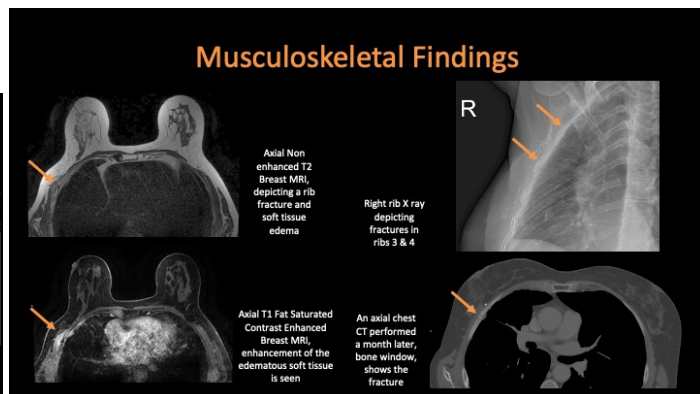
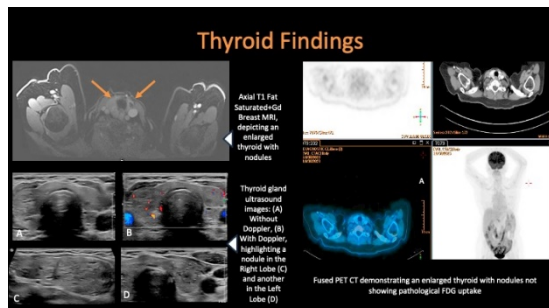
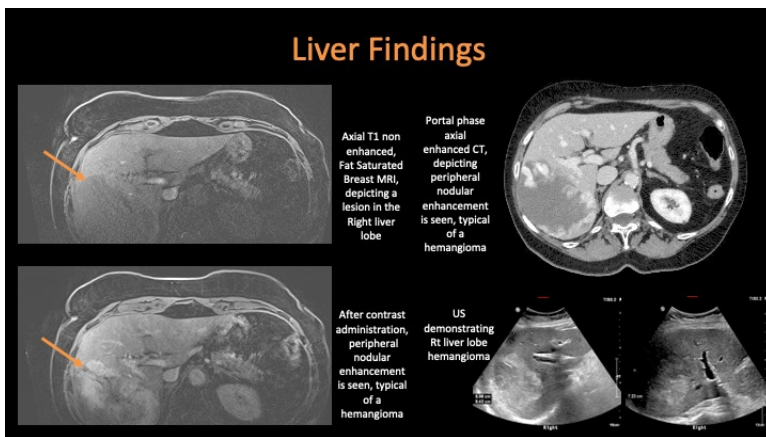
Neonatal lines: Pitfalls and Complications			Troubleshooting		
					
Venous umbilical catheter tip in the right atrium	Venous umbilical catheter malpositioned in right portal vein with portal gas	Fluid and gas around a malpositioned venous umbilical catheter tip	Problem: Subclavian and superior cava veins narrowed by mediastinal mass: PICC would not advance Contrast enhanced CT: mediastinal mass	XA: Catheter in subclavian vein	US: Sluggish flow surrounding the catheter
			Solution: "over-the-wire" exchange		
					
			Diagnostic linogram	A wire is advanced	Catheter is advanced to the SVC

BEYOND THE BREAST IN BREAST IMAGING

Larisa Gorenstein, Renata Faermann, Osnat Halshtok, Miri Sklair Levy
Division of Diagnostic Imaging, Sheba Medical Center, Israel

Case Presentation

- Breast imaging often contains findings outside the breast tissue itself.
- Navigating extra-breast findings: As the extra-breast findings are often only partially captured and are not in the main field of view the radiologist must exert extra caution in the interpretation of these findings.
- Further diagnostic work-up of incidental breast imaging findings is pivotal.
- Implantable devices: The radiologist must also be familiar with the imaging appearance of implantable devices, commonly encountered in breast imaging.



INTRAORAL ULTRASOUND FOR DIFFERENTIATING BETWEEN BENIGN AND MALIGNANT ORAL MUCOSAL LESIONS

Ragda Abdalla-Aslan¹, Diana Gaitini², Adi Rachmiel¹, Goni Merhav², Sharon Akrişh³, Marica Javitt⁴, Dekel Shilo¹, Omri Emodi¹, Yotam Shkedy⁵, Nira Beck-Razi²

¹Oral and Maxillofacial Surgery, Rambam Health Care Campus, Israel; ²Medical Imaging, Rambam Health Care Campus, Israel; ³Pathology, Rambam Health Care Campus, Israel; ⁴Medical Imaging, University of Miami Miller School of Medicine, United States; ⁵Otolaryngology, Rambam Health Care Campus, Israel

Background: To the best of our knowledge, no prior research has investigated intraoral ultrasound (US) for reliable differentiation between benign and malignant soft tissue tumors in the oral cavity. Our primary aim was to assess the correlation between pre-operative intraoral US variables and malignancy of oral lesions.

Methods: This is a cross-sectional prospective study of consecutive patients attending Oral and Maxillofacial Surgery Department in Rambam Health Care Campus, over the age of 18 years from both genders, with a clinical diagnosis of a soft tissue lesion in the oral mucosa. Within a 2-weeks interval, patients who are scheduled for biopsy and histopathological examination underwent high-resolution intraoral US obtained using a 7-15 MHz-L15-7io-linear-ultrasound-transducer-‘hockey stick-probe’ on a Philips-Epiq-5, 7 machines (Philips Medical, Netherlands). Sonographic variables included: size in 3-dimensions, echogenicity, presence of cystic areas, presence of calcifications, margins and vascularity. The sonographic findings were compared with histopathology.

Results: Full data was available for 52 patients with 53 tumors. Included were 24 females and 28 males, with a mean age 60.11±16.7 years [range 18-90]. Following histopathological results, 22 patients with 23 tumors were diagnosed with squamous cell carcinoma (SCC), 3 patients with dysplasia (1 mild, 1 moderate and 1 severe), and the remaining 26 patients with benign lesions.

Sonographic variables of maximal diameter (a cutoff of 12 mm with 0.76 sensitivity and 0.77 specificity), margins (ill-defined, p0.001) and vascularity (high, p=0.002) proved to be significantly correlated to SCC group, compared to benign lesions group.

Conclusions: The utility of intraoral US in the differential diagnosis of benign and SCC tumors in the oral cavity is demonstrated by this prospective clinical study, using sonographic features of margins, maximal diameter and vascularity. We anticipate that other centers will be able to replicate our findings and use intraoral US in the preoperative assessment of oral tumors.

CHARACTERIZATION OF THE RADIOLOGICAL MARKERS IN RELATION TO THE TIME ELAPSED BETWEEN THE APPEARANCE AND THE VENTRICULOPERITONEAL SHUNT PLACEMENT

Sana Maroun¹, Itai Pillar², Dan Paz¹

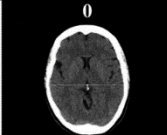
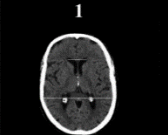
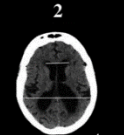
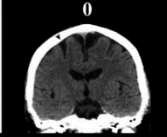
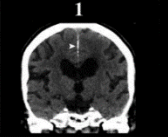
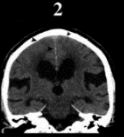

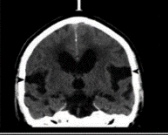
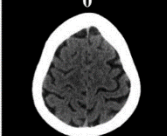


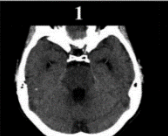


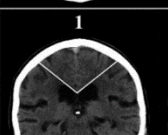
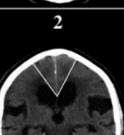



¹Radiology, Galilee Medical Center, Israel; ²The Azrieli Faculty of Medicine, The School of Medicine in the Galilee Bar-Ilan University, Israel

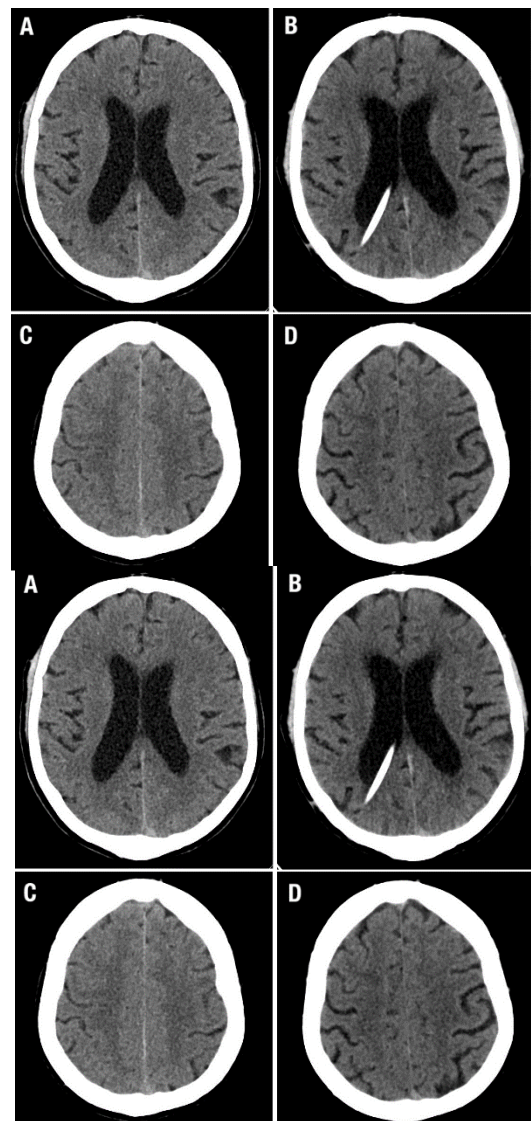
Background: This study was conducted to find the time gap between earliest head CT with a significant Radscale score and VP shunt placement.

Methods: The study is a retrospective observational analytic study. The study population includes iNPH patients treated with a VP shunt in a single center between the years 2016 and 2022 and have at least 2 CTs, one in proximity to diagnosis and another obtained at an earlier time point. The correlation among the parameters will be tested with statistical analysis software.

Results: 34 patients (mean age 72.32 years (SD ± 7.24), 27 men were evaluated. Based on the diagnostic CT: 94.1% of patients had high Evans index score, 79.4% had enlarged sylvian fissures and 85.3% had enlargement of the temporal horns. 79.4% had normal structure of sulci. The median time duration between the earliest CT with a significant Radscale score and VP shunt placement was 9.2 months, IQR 1.9 - 27.2 months.

Conclusions: Evans index, enlarged sylvian fissures and enlargement of the temporal horns have been observed in the majority of diagnostic CTs. The median diagnosis time of iNPH since appearance of the radiological markers is 9.2 months, making the awareness and the communication between the referral and the radiologist crucial.

Evans' index 0 = ≤0.25 1 = >0.25-0.3 2 = >0.3			
Narrow sulci 0 = Normal 1 = Parafalcine 2 = Vertex			
Sylvian fissures 0 = Normal 1 = Enlarged			
Focally enlarged sulci 0 = Not present 1 = Present			
Temporal horns 0 = <4 mm 1 = 4 to <6 mm 2 = ≥6 mm			
Callosal angle 0 = >90° 1 = 90° to >60° 2 = ≤60°			
Periventricular hypodensities 0 = Not present 1 = Frontal horn caps 2 = Confluent areas			



THE EFFECTIVENESS OF LANGUAGE ADJUSTED PHONE REMINDERS ON THE ATTENDANCE RATE OF PEDIATRIC ARAB PATIENTS FOR ULTRASOUND EXAMINATIONS IN A TERTIARY MEDICAL CENTER IN JERUSALEM

Habib Najjar, Ruth Cytter-Kuint
Radiology, Shaare Zedek Medical Center, Israel

Background: no-show to medical appointments is a problem impacting healthcare quality and patient outcomes. Ethnic minorities are at higher risk for no-show due to various barriers, including language barriers. This study aims to assess the impact of language adapted call reminders on the attendance of pediatric Arab outpatients referred to ultrasound examinations at Shaare Zedek Medical Center.

Methods: Arab families with scheduled ultrasound appointments were included, with phone reminders conducted in Arabic, by a native speaker. Examination information sheets in Arabic were sent by email. The post-intervention no-show rate was compared to the no-show rate of 15.9% (from an internal study conducted in 2021).

Results: The study enrolled 55 pediatric patients, resulting in a 16.3% overall no-show rate (11.1% before October 6, 2023, 26.3% after October 8, 2023). The study identified a positive trend in reducing the no-show rate post-intervention, particularly in the pre-war period. Although not statistically significant, this trend underscores the importance of exploring factors affecting appointment adherence.

Conclusions: This study underscores the potential of language adapted strategies to improve attendance, advocating for culturally sensitive healthcare services. Due to the major implications of no-shows both on patient's health and the health system, further research is required, identifying populations at higher risk for no-shows and strategies to reduce it. Simultaneously, appointment reminder system should be adjusted to the populations it targets.

PREVALENCE OF INCIDENTAL DENTAL CARIES AND PERIAPICAL LUCENCY FINDINGS ON HEAD CT IN A COMPREHENSIVE MEDICAL CENTER

Nayef Towafra¹, Eli Logoboy², Dan Paz¹

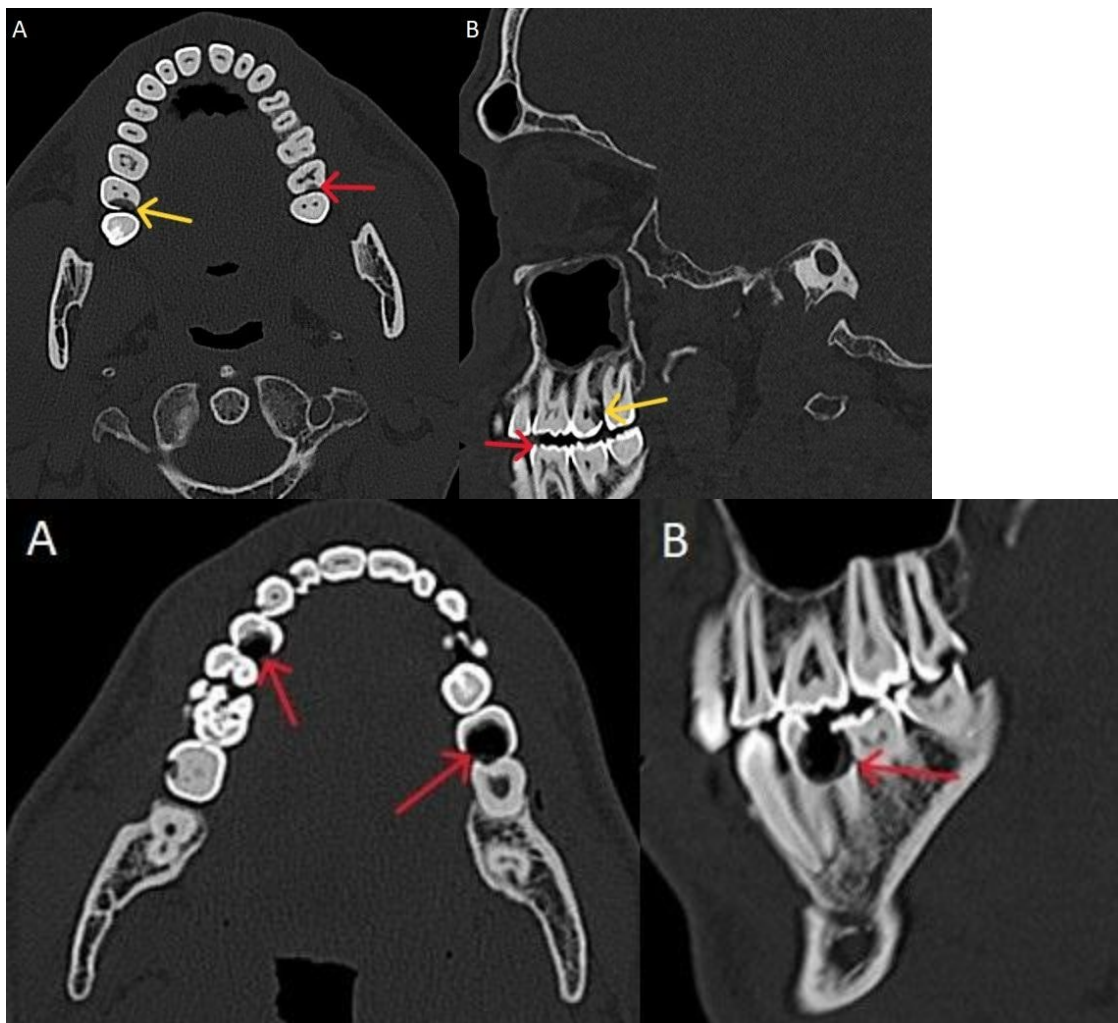
¹Radiology, Galilee Medical Center, Israel; ²Azrieli Faculty of Medicine, Bar-Ilan University, Israel

Background: Dental caries represents the most prevalent dental pathology and the leading noncommunicable disease on a global scale. Despite their ubiquity, both patients and healthcare providers often fail to report dental caries. This study aims to assess the prevalence of dental caries and periapical lucency and their reporting rate by radiologists. We hypothesized that radiologists may be overlooking this condition when evaluating head CT scan.

Methods: This study utilized a comprehensive review of head CT scans from patients aged 18 and older, conducted between May 2022 to November 2023, in the Galilee Medical Center's (GMD), Nahariya, Israel. A thorough documentation process was employed to identify dental caries and periapical lucency and their radiological report rate. Statistical analysis, incorporated patient age, gender, ethnic origin and socioeconomic index.

Results: A total of 185 CT scans of 185 patients (92 male, 93 female), one per patient, were examined. Dental caries was identified in 132 patients (71.3%), with 57 patients (30.8%) displaying multiple caries. Additionally, 58 patients (31.3%) exhibited at least one dental caries involving the root and 23 patients (12.4%) presented with at least one periapical lesion. Notably, none of the radiologists reported on dental findings.

Conclusions: There is a significant gap between the prevalence of dental caries and the attention radiologists give to the issue. The GMD patients show higher rates of dental caries compared to global and regional averages. These findings highlight the need for focused research on this topic and a multidisciplinary approach to enhance healthcare professionals' management of the issue.



POSTERIOR SUPERIOR ALVEOLAR ARTERY CANAL (PSAA) AND SINUSITIS

Ala Srouji, Ahmad Mahagneh, AYELET ERAN

Radiology, Rambam Health Care Campus, Israel

Background: Literature suggests a correlation between the thickness of the Posterior Superior Alveolar Artery (PSAA) canal and sinus mucosal thickening. This research aims to determine whether a relationship exists between sinusitis and PSAA canal thickness.

Methods: This retrospective study compared two groups: one with sinusitis and one without.

Results: We analyzed the correlation between sinusitis and PSAA canal thickness in 73 patients with sinusitis, who had CT brain scans within a month of diagnosis, and 131 control patients who underwent non-contrast CTs and had no facial injuries or sinusitis, though 50% showed mucosal thickening. The PSAA was identified in 70% of patients with mucosal thickening and 50% of those without. The PSAA canal was seen in 59% of sinusitis patients and 63% of controls. PSAA visibility was higher in men (66%) compared to women (54%).

Conclusions: Our research confirmed a significant association between PSAA canal thickness and mucosal thickening, consistent with previous studies. However, no significant correlation was found between sinusitis and PSAA canal thickness.



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מיון
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