

**16th Symposium of the Japanese Scandinavian Radiological Society
and 19th Nordic Japan Imaging Informatics Symposium**



**June 2-4, 2026
Copenhagen
Denmark**

Program and abstract book

Dear Colleagues,

March 21, 2024. Denmark

We are delighted to extend a warm invitation to all of you to join us at the upcoming 16th Symposium for the Japanese Scandinavian Radiological Society (JSRS) and the 19th Nordic Japan Imaging Informatics Symposium. The event will be held in the captivating city of Copenhagen, Denmark, from June 2 to June 4, 2026, providing an ideal opportunity to immerse yourselves in the charm of Copenhagen during this splendid season. Copenhagen stands as the capital and most populous city of Denmark, boasting a vibrant urban area with a population of approximately 1.4 million.

Our chosen venue for the conference in the center of the town is the Tivoli Hotel & Congress Center, where the Progress in Radiology symposium will be held in collaboration with the Icelandic Radiological Society. Notably, Copenhagen Airport (CPH) offers convenient connections to Haneda (HND), Tokyo, and 14 other Nordic cities.

The local organizing committee has already embarked on preparations for this event, with a keen focus on crafting an enriching and memorable experience for all attendees. The symposium will cover a range of topics including Oncological Imaging, Interventional Radiology, Nuclear Imaging, and the application of Artificial Intelligence in Radiology. The program will be shaped by abstracts submitted by participants, thus we encourage you to submit your abstracts well in advance. On the final day, a visit to Herlev University Hospital is scheduled for the morning. Additionally, there will be leisure time allocated for a scenic boat trip along the city's canals, offering a delightful opportunity to admire landmarks such as the iconic Little Mermaid statue.



Having a documented abstract submitted for JSRS 2026 is likely to facilitate your financing. We eagerly anticipate your presence at this esteemed gathering and look forward to fostering productive discussions and collaborations in the field of radiology.

On behalf of the local committee. Best regards,

Professor Søren Rafaelsen

The Symposium is organized by:

VEJLE HOSPITAL

Department of Radiology
University Hospital
Beriderbakken 4
DK- 7100 Vejle
Denmark

HERLEV HOSPITAL

Department of Radiology
Herlev Hospital
Herlev Ringvej 75
DK-2730 Herlev
Denmark

RIGSHOSPITALET

PET & Cyclotron Unit 3982
University Hospital
Blegdamsvej 9
2100 Copenhagen
Denmark

The Symposium is supported by:



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University of Southern Denmark

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- Professor Ingfrid Salvesen Haldorsen, Norway, President JSRS 2018
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- Professor Masamitsu Hatekenaka, Japan, President JSRS 2021
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PROGRAM: Japanese Scandinavian Radiological Society Symposium and Nordic Japan Imaging Informatics Symposium 2026

📍 Copenhagen, Denmark

📅 June 2–4, 2026

Venue: Hotel Tivoli, Copenhagen, Arni Magnussons Gade 2, 1577 København

Day 1 – Tuesday, June 2, 2026

Time	Session
09.00-10.00	Registration & Welcome Coffee Light breakfast served
10.00-10.10	Opening Remarks Søren Rafaelsen, President, Vejle SLB, Denmark Moderators: Yoshito Tsushima, Gunma, JP Ingfrid S. Haldorsen, Bergen, N
10.10-10.30	History and future of the Japanese Scandinavian Radiological Society and Nordic Japan Imaging Informatics Symposium Finn Mathiesen, Vejle SLB, Denmark
10.30-10.40	Interpretative Responsibility in Oncologic Imaging: Preserving the Core Value of Diagnostic Radiology Yoko Satoh, Fujita Medical Innovation Center Tokyo, Japan
10.40- 11.00	Imaging Anal Cancer – Staging and follow-up Søren Rafaelsen, Vejle SLB, Denmark
11.00- 11.10	Predictive Modeling of Oral Squamous Cell Carcinoma Outcomes Using PET Texture Analysis and Machine Learning <u>Mai Kim</u> , Yasuhiro Fukushima, Keisuke Suzuki, Masaru Ogawa, Souma Kumasaka, Azusa Tokue, Tetsuya Higuchi, Yoshito Tsushima, Satoshi Yokoo. Radiology and Nuclear Medicine, Gunma University, Japan
11.10- 11.20	Preoperative MRI and IHC-based biomarkers define an endometrial cancer patient-subgroup where POLE sequencing adds clinically relevant information <u>Kristine E. Fasmer</u> , Hege F. Berg, Marta E. Hjelmeland, Jone Trovik, Kathrine Woie, Ingfrid S. Haldorsen, Camilla Krakstad Department of Radiology, Haukeland University Hospital, Bergen,Norway

11.20- 12.00	MRI Radiomic Tumor Profiling in Uterine Cancers Prognosis, staging, and molecular profiling. Includes update on gynecological cancer imaging Ingfrid S. Haldorsen, Haukeland University Hospital, Bergen, Norway.
12.00-13.00	 Lunch Break GI - cancer Moderators: Masafumi Kanoto, Yamagata, JP Søren Rafaelsen, Vejle, DK
13.00-13.45	Rectal Cancer: Advances in Imaging & Treatment Future perspectives on clinical practice Regina Beets-Tan, Maastricht University & Maastricht Radiation Oncology Institute, The Netherlands
13.45-14.15	Optimising Radiotherapy for Organ Preservation in Early Rectal Cancer Ane Appelt, Rigshospitalet, Copenhagen, Denmark
14.15-14.30	Quantitative MRI T1 Relaxation Time as a Biomarker of Complete Response in Rectal Cancer Six Weeks after Neoadjuvant Therapy: A Prospective Study Mathias Byriel, University Hospital of Southern Denmark, SLB
14.30-14.40	Automated CO₂ insufflation and Image Quality in CT-Colonography: Results from a Retrospective Study <u>Josefine Magdalene Jensen</u> , Ditte Marie Toft, Søren Rafael Rafaelsen, Svea Deppe Mørup, Torben Frøstrup Hansen, Helle Precht, Malene Roland Pedersen. Department of Radiology, University Hospital of Southern Denmark, SLB Vejle, Denmark
14.40-14.50	Imaging Features, Cyst Growth and Malignant Outcomes in Intraductal Papillary Mucinous Neoplasms: A large Cohort Study <u>Bahareh Abdolalizadeh</u> , Samir Jawad, Thomas Skaarup Kristensen, Caroline Ewertsen. Department of Radiology, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark
14.50- 15.00	Discussion
15.00-15.45	 Coffee Break
15.45-16.00	 Photo Session

Afternoon Scientific Session

Moderators: Yoshito Tsushima, Gunma, JP

Hauke Bartsch, Bergen, N

16.00- 18.00

✕ Radiographers in the Age of AI

Sigurd Lauvsnes Sundland, Lise-Lott Lundvall, Håkan Gustafsson, Tomas Bjerner, Johan Kihlberg

Linköping University, Linköping, Sweden

✕ Monitoring Image AI Systems in Radiology: Norwegian Hospitals Taking on a Major Challenge in Using Image AI

Hauke Bartsch, Haukeland University Hospital, Bergen, Norway

✕ Effects of Virtualization and High-Capacity Flash Memory on Electronic Medical Record and PACS Servers in the Era of Healthcare DX

Hiroshi Kondoh, Tottori University, Japan

✕ Computed tomography derived imaging biomarkers of Diabetic Kidney Disease

Trine Balschmidt, Tine Willum Hansen, Mikael Boesen, Charlotte Mehlin Sørensen, Michael Brun Andersen, Felix Christoph Müller. Copenhagen University Hospital, Herlev, Denmark

✕ Delayed 60-min 18F-flutemetamol PET acquired on digital SiPM PET/CT

Koji Sohara, Hiroshi Matsuda, Sunao Mizumura, Yujiro Nakaoka, Shogo Imai, Masaya Suda, Hiroyuki Tajima, Hiromitsu Hayashi, Shinichiro Kumita

Department of Radiology, Nippon Medical School Hospital, Tokyo, Japan

✕ Survival in incidentally discovered amyloid cardiomyopathy

T. Bach-Gansmo. PET centre and Nuclear Medicine, University Hospital North Norway, Tromsø.

✕ Disseminated varicella zoster (VZV) with abdominal pain and widespread vesicles in a patient undergoing treatment for Hodgkin lymphoma

Ayako Taketomi-Takahashi, Haruka Machida, Hiromi Hirasawa, Yoshito Tsushima.

Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Hospital, Japan

✂ **Thyroid Foramen: A CT-Based Analysis of Prevalence, Morphology, Size, and Association with the Superior Laryngeal Artery**

Soma Kumasaka, Yuka Kumasaka, Yasuhiro Fukushima, Daisuke Ozaki, Yusuke Sato, Tomokazu Takeuchi, Yoshito Tsushima

Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine, Japan

✂ **Diffusion-Weighted Magnetic Resonance Imaging of the Gallbladder in Acute Cholecystitis: Diagnostic Performance Compared to Histopathological Findings**

Ivan Arsic, Søren Rafael Rafaelsen, Konstantina Foufa, Rasa Mikalone, Lotte Skeldal, Martina Kuga, Marie Skrydstrup, Samuel Kilian Rodriguez Dreis, Michael Festersen Nielsen, Jens Brøndum Frøkjær.

✂ **Impact of an auxiliary attachment for protective eyewear on operator lens radiation dose**

Yuko Seki, Tomokazu Takeuchi, Soma Kumasaka, Takayuki Suto, Ayako Taketomi-Takahashi, Yoshito Tsushima

Department of Radiology, Gunma University Hospital, Japan

18.00

Networking & drinks

Day 2 – Wednesday, June 3, 2026

📍 *Hotel Tivoli, Copenhagen*

08.00- 09.00	Morning Scientific Session and Liver Lecture Moderators: Masafumi Kanoto, Yamagata,JP Yoshito Tsushima, Gunma, JP
08.00- 08.10	Herpes Zoster Ophthalmicus with Oculomotor Nerve Palsy; A Case Report with literature review <u>Yusaku Yokoyama</u> , Yasuhiro Sugai, Toshitada Hiraka, Masafumi Kanoto Department of Radiology, Division of Diagnostic Radiology,Yamagata University Faculty of Medicine, Yamagata, Japan
08.10- 08.20	Impact of deep learning reconstruction on the accuracy of automated hippocampal subfield segmentation in high-resolution T2-weighted turbo spin echo imaging <u>Tomokazu Takeuchi</u> , Yasuhiro Fukushima, Soma Kumasaka, Daisuke Ozaki, Yusuke Sato, Ayako Taketomi-Takahashi, Takayuki Suto, Yoshito Tsushima Department of Radiology, Gunma University Hospital, Japan
08.20- 08.30	Incidence of Iodide Mumps Associated With Iodinated Contrast Media: A Retrospective Analysis <u>Hiromi Hirasawa</u> , Ayako-Taketomi-Takahashi, Sosei Yamanouchi, Hiroaki Sakai, Soma Kumasaka, Yuka Kumasaka, Aya Takase, Yoshito Tsushima Gunma University Hospital, Japan
08.30- 09.00	Contrast-enhanced MRI for focal liver disease Nils Dahlström Department of Radiology, Linköping University, Sweden
09.00-10.00	☕ Coffee Break Moderators: Masafumi Kanoto, Yamagata, JP Jakob Møller, Vejle & Kolding, DK
10.00-10.30	Imaging of Glioblastoma Jonathan Carlsen, Copenhagen, Denmark
10.30-10.45	Differential image diagnosis demyelinating disease Masafumi Kanoto, Yamagata, Japan

10.45-11.00	Choosing Wisely in Radiology Jakob Møller, Lillebælt Hospital, Denmark
11.00-12.00	Scientific Session Moderators: Helle Precht, Lillebælt Hospital, DK Roberto Blanco Sequeiros, Turku, Fin
11.00-11.10	IVUS-Guided Recanalization for Central Vein Occlusion in Hemodialysis Patients: Two Case Reports Tomoyasu Sato, Tsuchiya General Hosp., Hiroshima, Japan
11.10- 11.20	Short-Term Outcomes of Tailored Endovascular Therapy Strategies for Acute Superior Mesenteric Artery Occlusion Based on Thrombus Location <u>Tatsuo Ueda</u>, Fumie Sugihara, Hidemasa Saito, Toko Takagi, Misa Iwasaki, Ryutaro Fujitsuna, Sayaka Shirai, Takahiko Mine, Hiroyuki Tajima, Hiromitsu Hayashi, Shin-ichiro Kumita. Department of Radiology, Nippon Medical School Hospital, Tokyo, Japan
11.20- 11.30	Magnetic Resonance Imaging Features of Aneurysm Walls and Intraluminal Thrombus Associated with Sac Shrinkage after Endovascular Aortic Repair <u>Takahiko Mine</u>, Teppei Nakagomi, Tetsuro Sekine, Masashi Abe, Seigoh Happoh, Shimpei Ikeda, So Ueshima, Takahiro Tomoda, Masahiro Fujii, Tatsuo Ueda, Koji Sohara, Misa Iwasaki, Toko Takagi, Hiroyuki Tajima, Hiromitsu Hayashi, Shin-ichiro Kumita Department of Radiology, Nippon Medical School Chiba Hokusoh Hospital, Japan
11.30- 11.40	Ultrasound-enhanced Fine-Needle Biopsy Improves Yield Human Thyroid Yohann Le Boulout, Jetta Kelppe, Katri Aro, Heikki J. Nieminen, <u>Roberto Blanco Sequeiros</u> Department of Radiology, University of Turku, Turku University Hospital, Turku, Finland
11.40- 11.50	Long Term Effects of Low Dose Radiation in Healthcare Professionals - protocol Karen Brage, <u>Helle Precht</u>, Ditte Eklund Nygaard, Anders Ravnsborg, Beierholm, Jens Peter Bangsgaard, Henrik Frederiksen, Tina Jensen, Oliver Brage, Hanne Waltenburg, Dennis Lund Hansen, Pernille Lund Hansen Department of Radiology, Sygehus Lillebælt, Kolding, Denmark
11.50- 12.00	Mobile X-ray for patients with dementia <u>Helle Precht</u>, Pica Andersen Radiology Department, Lillebelt Hospital, University Hospitals of Southern Denmark

12.00-13.00  Lunch Break

Afternoon session

Moderators: Nils Dahlström, Linköping, S

Jarmo Reponen, Oulu, Fin

13.00-13.45 **ctDNA and RECIST in Oncology**

Karen-Lise Spindler, Aarhus University, Denmark

13.45-14.00 **The Editorial Journey: From Submission to Publication in Acta Radiologica**

Lars Lönn, Rigshospitalet, Copenhagen University, Denmark

14.00-14.10 **Dynamic Gd-EOB-DTPA Enhancement analysis in Liver MRI using a Data-Driven Approach for Relating Voxel-Level Dynamics to Histopathological Fibrosis Stage**

Nils Dahlström, Shan Cai, Alexander Persson, Wolf Bartholomä, Christian Simonsson, Simone Ignatova, Patrik Nasr, Mattias Ekstedt, Stergios Kechagias, Magnus Borga, Peter Lundberg

Department of Radiology, Linköping University, Sweden

14.10-14.30 **Green Radiology: Recycling of Iodinated Contrast Media**

Yoshito Tsushima, Gunma, Japan

14.30- 14.40 **Embracing motion with LIVE imaging**

Yunyang Cui, Rotterdam, NL United Imaging

14.40-15.00 **AI for Imaging Phenotype Evaluation in Digital Breast Tomosynthesis**

Jarmo Reponen, Oulu, Finland

15.00-16.00  Coffee Break

16.00-17.00  **JSRS Board Meeting**

17.40-19.00  Canal Boat Tour (10 min walking from Hotel Tivoli)

Departure: Hotel Tivoli, Trekanten, Kalvebod Brygge h 17.50 → Langelinje Pavillonon via Nyhavn h18.50.

19.00-22.00  **Gala Dinner at the Langelinje Pavillonon (Fee included)**

Day 3 – Thursday, June 4, 2026

📍 Herlev Hospital, Copenhagen

Time	Session
08.45-09.15	🚗 Transport: Hotel Tivoli h: 9.00 → Herlev Hospital
09.30-09.45	Welcome & Introduction Gina Al-Farra, Dept. of Radiology, Herlev Hospital, Copenhagen University Moderators: Gina Al-Farra, Herlev, DK Masafumi Kanoto, Yamagata, JP
09:45 – 10:15	Imaging in Pulmonary Oncology: Herlev Hospital Experience Pulmonary side effects of antineoplastic treatment Gina Al-Farra, Herlev Hospital, Denmark
10:15 – 10:45	Integrating Radiology and Oncology: A Multidisciplinary Approach MRI in prostate cancer , Vibeke Løgager, Herlev Hospital, Copenhagen University
10:45 – 11:15	☕ Coffee Break
11:15 – 12:15	PET imaging in CNS tumors - Ian Law, Rigshospitalet, Copenhagen University Implementation of Dual-energy/Spectral CT in Clinical Practice - Michael Bruun Pancreatic Imaging with Photon Counting CT Erik Gudmann Steuble Brandt
12:15 – 13:00	🍽️ Networking Lunch at Herlev Hospital
13:00 – 13:20	Interactive Case Presentations from Clinical Practice Residents & Fellows, Herlev Radiology Dept. Denmark
13.20 – 13.30	Assessment of high-resolution CT images with and without spectral information and its aid in determining need for additional imaging John Valtersson, Rune Fuglø, Weronika Elzbieta Olech, Thomas Hartvig Lindkær Jensen, Zaigham Saghir, Michael Brun Andersen, Felix Christoph Müller Department of Radiology, Copenhagen University Hospital, Herlev, Denmark
13:30 – 14:00	Trends in contrast media research - a historic perspective Yousef Wirenfeldt Nielsen, Herlev Hospital, Copenhagen University
14:00 – 14:15	Closing Remarks & Welcome to JSRS 2028 Yamagata, Japan Masafumi Kanoto, Yamagata, Japan
14:15 – 15:00	🚗 Return Transfer to Hotel Tivoli

E-Posters

Combined Inflow and Outflow Control Using a Vascular Plug and Balloon for Embolization of a Left Coronary Artery Fistula with Giant Aneurysms

Misa Iwasaki, Tatsuo Ueda, Hidemasa Saito, Ryutaro Fujitsuna, Fumie Sugihara, Sayaka Shirai, Takahiko Mine, Hiroyuki Tajima, Hiromitsu Hayashi, Shin-ichiro Kumita

Department of Radiology, Nippon Medical School Hospital, Tokyo, Japan

Massive Rectal Hemorrhage via a Collateral Pathway from the Profunda Femoris Artery Successfully Treated with Transcatheter Arterial Embolization

Toko Takagi, Tatsuo Ueda, Misa Iwasaki, Keima Ueda, Sayaka Shirai, Hidemasa Saito, Fumie Sugihara, Takahiko Mine, Hiroyuki Tajima, Hiromitsu Hayashi, Shin-ichiro Kumita

Department of Radiology, Nippon Medical School Hospital, Tokyo, Japan

Review of Brown Adipose Tissue/Beige Fat Cell Cases Diagnosed by FDG PET

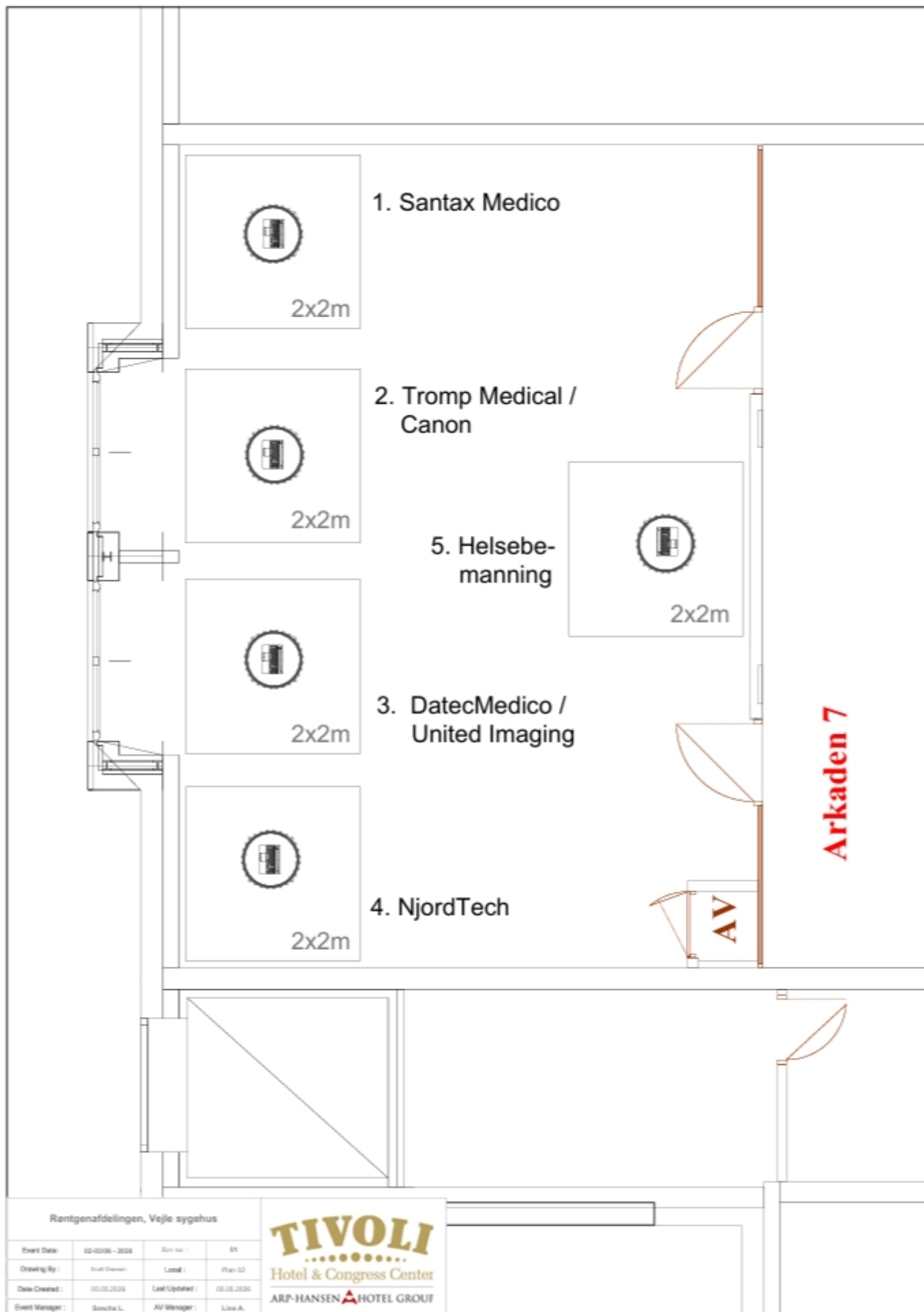
Tsuyoshi Yoshida, Masayuki Sasaki

Koga Hospital 21 PET Imaging Center, Japan

A Study on the Clinical Significance of Compressed Breast Thickness in Mammography and Breast Cancer: Considerations for Reconstructing Breast Cancer Screening in Japan

Megumi Kuchiki, Atsuko Oda, Tamami Shirakawa, Yusaku Yokoyama, Yasuhiro Sugai, Masafumi Kanoto

Department of Radiology, Tohoku Central Hospital and Yamagata, Japan



**Abstracts in
chronological order
according to the
program**

Title

History and future of the Japanese Scandinavian Radiological Society and Nordic Japan Imaging Informatics Symposium.

Author

Finn Kristian Mathiesen

Affiliation

Department of Radiology, Vejle Hospital, Denmark (Retired)

Abstract

The Japanese Scandinavian Radiological Society (JSRS) was established 40 years ago to promote scientific and educational collaboration between Japan and the Nordic countries. Following Sven Ivar Seldinger's introduction of modern catheterization techniques in 1953, Sweden became a key center for development of interventional radiology. This was further accelerated by Torsten Almén's development of a low ionic contrast media in 1970 and a non-ionic contrast media in 1982. Pioneer academic exchanges between Japanese and Scandinavian radiologists fostered professional networks that led to the formal founding of the Scandinavian-Japanese Radiological Society in 1986 with an active exchange program for younger radiologists. The majority have been Japanese radiologists training in Nordic institutions, supported by institutional and industrial sponsorship. Since 1993 JSRS have arranged bi-annual congresses alternating between Japan and the Nordic countries.

The Nordic Japan PACS Symposium, initiated in 1990, started as a forum to develop useful PACS solutions and strengthen the use of digital radiology and teleradiology. Following the global acceptance of the DICOM standard for medical imaging and widespread implementation of PACS systems, the forum has evolved into a broader image informatics forum reflecting advances in digital radiology, big data, and artificial intelligence.

Purpose

To describe the historical development, organizational structure, and scientific impact of the Japanese Scandinavian Radiological Society and Nordic Japan Imaging Informatics Symposium.

Methods

Historical review based on archival records, society documents, and personal involvement in JSRS governance and activities from 1992 to 2026.

Results

JSRS established sustained bilateral exchange programs, recurring scientific symposia, and collaborative initiatives in radiological technology and informatics. The society has supported generations of radiologists through academic exchange and professional networking.

Conclusion

Over four decades JSRS has remained an active platform for academic exchange, technological collaboration, and professional development in radiology in Japan and the Nordic countries.

Title

Interpretative Responsibility in Oncologic Imaging: Preserving the Core Value of Diagnostic Radiology

Author

Yoko Satoh

Affiliation

Imaging Center, Fujita Medical Innovation Center Tokyo, Japan

Abstract**Purpose**

The Japanese healthcare system provides broad public insurance coverage, including advanced imaging, and allows patients to receive care with relatively low out-of-pocket cost. While this ensures rapid access to imaging, it also increases reporting workload for radiologists. In busy reporting environments, the depth of interpretation and professional responsibility may be challenged. We examined our institutional effort to preserve interpretative responsibility in oncologic imaging within this high-access environment.

Methods

At our university hospital, we introduced a consultation-centered imaging practice in a self-pay model. The approach involved reducing patient volume to concentrate clinical resources per patient. This enabled direct patient explanation and the preparation of comprehensive reports integrating multimodality imaging findings with relevant clinical and laboratory information in representative oncologic scenarios.

Results

In conventional high-throughput workflows, reports often relied on cautious or non-committal wording. With concentrated clinical resources, interpretations became more tailored, providing clearer risk stratification and management-oriented conclusions. Selected illustrative cases will demonstrate differences between throughput-driven and responsibility-based interpretation. Advantages included improved communication and strengthened professional engagement, while challenges included additional patient cost and limited scalability.

Conclusion

In oncologic imaging, interpretative responsibility remains an essential determinant of patient safety. Maintaining the core professional value of radiology is therefore directly linked to sustaining patient-centered and high-quality care, even within a highly accessible healthcare system.

Title

Primary staging of anal cancer

Author

Søren Rafaelsen

Affiliation

Department of Radiology, University Hospital of Southern Denmark, Vejle (part of SLB), Denmark

Abstract

T staging of anal cancer is based on the maximum tumour size. T1 tumours are ≤ 2 cm; T2 tumours are >2 to 5 cm; T3 tumours are >5 cm; and tumours that invade adjacent structures are classified as T4. Tumour extension into neighbouring organs is classified as T4 disease, including invasion of the prostate, urethra, seminal vesicles, vagina, uterus/adnexa, piriformis muscle, obturator muscles, or bone. However, direct invasion of the rectal wall, perineal skin, perianal subcutaneous tissue, the internal and/or external sphincter, puborectalis, and levator ani muscles is not classified as T4. The use of 18F-FDG PET/CT is not relevant for T staging.

N staging is classified as N0, N1a, N1b, and N1c. N1a includes lymph nodes in the inguinal, internal iliac, obturator, and mesorectal regions. N1b includes external iliac lymph nodes. N1c refers to the presence of both N1a and N1b nodal involvement.

M staging follows the TNM classification, where M0 indicates no distant metastases and M1 indicates the presence of distant metastasis(es). Approximately 6–10% of patients present with distant metastases at diagnosis, most commonly in the liver and/or lungs. Lymph node metastases along the common iliac arteries and/or the aorta are classified as M1.

Conclusion

MRI should be performed for T staging. 18F-FDG PET/CT with intravenous contrast, or contrast-enhanced CT of the thorax and abdomen, should be used for N and M staging. If malignancy in inguinal lymph nodes remains uncertain after 18F-FDG PET/CT and/or MRI, ultrasound with fine-needle aspiration of suspicious nodes may be performed.

Title:

Predictive Modeling of Oral Squamous Cell Carcinoma Outcomes Using PET Texture Analysis and Machine Learning

Authors:

Mai Kim¹⁾, Yasuhiro Fukushima²⁾, Keisuke Suzuki¹⁾, Masaru Ogawa¹⁾, Souma Kumasaka²⁾, Azusa Tokue²⁾, Tetsuya Higuchi²⁾, Yoshito Tsushima²⁾, Satoshi Yokoo¹⁾

Affiliations:

1. Department of Oral and Maxillofacial Radiology, Gunma University Graduate School of Medicine, Gunma, Japan
2. Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine, Gunma, Japan

Abstract:

Purpose: To develop and validate a prognostic machine-learning model using pretreatment ¹⁸F-FDG PET texture (radiomic) features in oral squamous cell carcinoma (OSCC), and to compare its utility with a clinical-covariate-only Cox model.

Methods: In this single-center retrospective study, 120 patients with OSCC who underwent definitive surgery and preoperative ¹⁸F-FDG PET/CT were included. The primary endpoint was disease-free survival (DFS), with overall survival (OS) as an exploratory endpoint. Tumor VOIs were segmented using a fixed threshold (40% of SUV_{max}), and IBSI-compliant PET radiomic features were extracted. ComBat harmonization was applied to reduce scanner effects. A radiomics-based survival model was constructed using XGBoost (survival:cox) after repeated LASSO-Cox feature selection. Model explainability was assessed using SHAP.

Results: In the independent test set, the clinical-covariate-only Cox model significantly stratified DFS (log-rank $p=0.0022$) and OS ($p=0.00055$). The PET radiomics-only machine-learning model also significantly stratified DFS ($p=0.0026$). SHAP analysis identified GLCM correlation as the most influential feature, followed by histogram and GLSZM-derived heterogeneity features.

Conclusion: Pretreatment ¹⁸F-FDG PET radiomics enabled significant DFS risk stratification in OSCC. Explainable machine learning highlighted intratumoral metabolic heterogeneity as a key prognostic factor, supporting PET texture analysis as a promising imaging biomarker for risk-adapted management.

Title

Preoperative MRI and IHC-based biomarkers define an endometrial cancer patient-subgroup where *POLE* sequencing adds clinically relevant information

Authors

Kristine E. Fasmer^{1*}, Hege F. Berg^{2,3*}, Marta E. Hjelmeland^{2,3}, Jone Trovik^{2,3}, Kathrine Woie³, Ingrid S. Haldorsen^{1,4}, Camilla Krakstad^{2,3}

Affiliation

¹Mohn Medical Imaging and Visualization Centre, Department of Radiology, Haukeland University Hospital, Bergen, Norway

²Centre for Cancer Biomarkers, Department of Clinical Science, University of Bergen, Norway

³Department of Gynecology and Obstetrics, Haukeland University Hospital, Bergen, Norway

⁴Section of Radiology, Department of Clinical Medicine, University of Bergen, Norway

*Shared first author

Abstract

Purpose

POLE sequencing is integrated into molecular risk stratification of EC patients and is encouraged for all patients to identify excellent survivors, but sequencing is resource demanding and costly. We recently developed a pragmatic molecular classification algorithm, excluding *POLE* status, with higher prognostic value than the conventional algorithm. Herein, we aim to integrate MRI with the pragmatic classifier to refine risk stratification and propose a strategy for selective *POLE* sequencing.

Methods

EC patients were classified based on preoperative MRI parameters, immunohistochemical protein markers and histology. Immunohistochemical markers included p53, MMRs and HRs (estrogen- and progesterone receptors). MRI parameters included depth of myometrial infiltration (DOI), lymph node involvement (LN) and anteroposterior tumor diameter (APD). Log-rank (Mantel-Cox) was used to compare differences between groups and Cox proportional hazard analysis to calculate probability of disease-specific survival (DSS).

Results

MRI risk class predict DSS when stratified for pragmatic molecular class (HR, 2.3; 95% CI, 1.3-4.1; $p = 0.006$). Integrating MRI risk and pragmatic molecular class identifies a subgroup of 120/412 (29%) patients with excellent outcomes (DSS, 99%; $p = 0.006$). Excluding this very low risk group and all patients with low-risk histology that are not in need for adjuvant chemotherapy ($n=172$), identifies a subgroup of 120/412 (29%) patients that could benefit from *POLE*-driven de-escalation of adjuvant chemotherapy.

Conclusion

Integrating preoperative histology and MRI with the pragmatic classifier refines EC risk stratification and identifies excellent survivors. We propose selective *POLE* sequencing for higher risk patients to reduce cost- and resources.

Title

Quantitative MRI T1 Relaxation Time as a Biomarker of Complete Response in Rectal Cancer Six Weeks after Neoadjuvant Therapy: A Prospective Study

Authors

Mathias Byriel ^{a, e, f}, Torben F Hansen ^{b, e, f}, L Henrik Jensen ^{b, e, f}, Hans B Rahr ^{c, e, f}, Signe Timm ^{e, f}, Jan Lindebjerg ^{d, e, f}, Søren R Rafaelsen ^{a, e, f}

Affiliations

^a Department of Radiology, University Hospital of Southern Denmark, Vejle, Beriderbakken 4, 7100 Vejle, Denmark, ^b Department of Oncology, University Hospital of Southern Denmark, Vejle, Beriderbakken 4, 7100 Vejle, Denmark, ^c Department of Surgery, University Hospital of Southern Denmark, Vejle, Beriderbakken 4, 7100 Vejle, Denmark, ^d Department of Pathology, University Hospital of Southern Denmark, Vejle, Beriderbakken 4, 7100 Vejle, Denmark, ^e Institute of Regional Health Research, University of Southern Denmark, Odense, Campusvej 55, 5230, Odense M, Denmark, ^f Danish Colorectal Cancer Group South

Abstract

Purpose

The purpose of the study was to investigate the performance of quantitative magnetic resonance imaging (MRI) T1 relaxation time for early identification of complete response (CR) following neoadjuvant therapy in patients with rectal cancer.

Materials and methods

We prospectively included patients with rectal cancer selected for neoadjuvant therapy. We used a 1.5 T MRI unit. T1 relaxation time was measured at baseline and six weeks after completion of neoadjuvant therapy. Endpoints were pathological CR confirmed by the surgical specimen in operated cases or clinical CR determined by three-month follow-up MRI combined with endoscopy in non-operated (watch-and-wait) cases. Data were analysed using paired t-test.

Results

We included 44 patients (27 male, mean age 63 years (36 – 83)). At baseline, patients with and without CR had similar T1 relaxation times with means of 1370 ms (95% CI 1294 – 1446 ms) for the CR-group and 1419 ms (95% CI: 1365 – 1473 ms) for the incomplete response (iCR)-group, $p=0.22$. At six weeks follow-up, the CR-group decreased to 632 ms (95% CI 542 – 723) and the iCR-group remained at 1301 ms (95% CI 1165 – 1437). We found a cut-off value of 1088 ms with a sensitivity at 88.5%, specificity at 100% and an area under the curve of 0.94 (95% CI: 0.82 – 1.00). Positive predictive value for CR was 100% and the negative predictive value 85.7%.

Conclusion

Quantitative MRI T1 relaxation time shows a strong performance for identification of CR six weeks after neoadjuvant therapy in rectal cancer and may support response-adapted treatment strategies.

Title

Automated CO₂ insufflation and Image Quality in CT Colonography: Results from a Retrospective Study.

Authors

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Title Automated CO₂ insufflation and Image Quality in CT Colonography: Results from a Retrospective Study.

Purpose The aim of this retrospective study was to evaluate the volume of automated CO₂ insufflation, radiation dose, and diagnostic image quality in patients undergoing CT colonography.

Methods This single-center study included patients referred to CT colonography after incomplete colonoscopy or when colonoscopy was contraindicated. CT colonography was performed in both supine and prone positions. Colonic distention and bowel cleansing were assessed in the radiology reports by four experienced radiologists on a five-point Likert scale. Statistical analyses included descriptive methods to assess the relationship between automated CO₂ insufflation volume and image quality.

Results A total of 243 patients' CT colonography (188 women and 55 men, median age 71 years) were evaluated. The median of CO₂ distention volume administered was 6 liters (L) (range 1.5-16 L) per patient. The total DLP for CT colonography had a median value of 594 mGy·cm (IQR: 438.8–866.1). According to the four radiologists, 222 CT colonography examinations (91.4%) were suitable for diagnostic interpretation, while 21 (8.6%) were not. In the radiology reports, colonic distention was assessed as excellent in 131 cases (53.9%), good in 25 cases (10.3%), sufficient in 41 cases (16.87%), suboptimal in 35 cases (14.4%), and poor in 11 cases (4.43%).

Conclusion An average of 6 L of CO₂ was used to achieve diagnostic colonic distention, with a mean radiation dose of 8.9 mSv. Most examinations in the study achieved an image quality score of 4 or higher, sufficient for accurate interpretation.

Title

Imaging Features, Cyst Growth and Malignant Outcomes in Intraductal Papillary Mucinous Neoplasms: A large Cohort Study

Authors

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Abstract

Purpose

To evaluate the relationship between imaging features, cyst growth, and malignant outcomes in patients with intraductal papillary mucinous neoplasms (IPMN).

Methods

This cohort study included all patients referred to the weekly IPMN multidisciplinary team conference between 2019 and 2023. Imaging findings, including baseline and newly developed worrisome features and cyst growth patterns, were recorded. Histopathological outcomes were obtained for surgically treated patients. Malignancy was defined as high-grade dysplasia or adenocarcinoma.

Results

A total of 1082 patients with IPMN were included, with branch duct IPMN as the predominant subtype (95.3%). Worrisome features were present in 19.1% at baseline, and 4.1% developed new features during follow-up. Rapid cyst growth was observed in 10.3% of patients.

Surgical resection was performed in 62 patients (5.7%), with malignant transformation or high-grade dysplasia confirmed in 31 patients (2.9%). Surgery was most commonly indicated due to worrisome features (59.7%), followed by main duct IPMN (25.8%) and solid tumor (14.5%).

Histopathological analysis showed that 14 patients had mucinous adenocarcinoma. Gastric subtype was most frequent, while intestinal and pancreatobiliary subtypes demonstrated higher malignant potential, particularly in mixed epithelial subtypes.

Conclusion

Malignant transformation in IPMN was uncommon. Imaging features, including worrisome features and cyst growth, showed limited predictive value when considered individually. These findings support a more individualized, risk-based approach to surveillance and surgical decision-making.

Title

Phase-contrast tomography and synchrotron X-ray phase contrast imaging of surgically removed tongue tumors

Authors

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Abstract

Inadequate surgical margins after oral cancer surgery significantly increase the risk of local recurrence and the need for additional treatment. Recent studies have found that phasecontrast tomography (micro-CT) can predict margin status in breast cancer surgery. This study therefore aims to explore the potential of advanced X-ray imaging in three-dimensional visualization of surgically removed tongue tumors.

Method: Patients with oral squamous cell carcinoma of the tongue were invited to participate in a prospective clinical trial. Following surgery, surgical specimens were formalin-fixed and transported to the Technical University of Denmark for micro-CT imaging using the Polaris by Exiscope scanner. Scans were performed on both whole-specimen blocks and paraffin blocks. After histological workup, the paraffin blocks were scanned at the MAX IV synchrotron scanner in Lund.

Results: Five patients were included in this pilot project. Micro-CT imaging of whole tumors revealed only limited morphological differences between healthy and tumor tissue, whereas micro-CT imaging of FFPE blocks clearly delineated morphological differences. Synchrotron scans revealed even further detail, visualizing tumor characteristics such as keratinization, amorphous cells, and debris. After optimising scans by removing excess paraffin and optimizing scan parameters, cell nuclei could be visualized, allowing the differentiation between tumor cells and lymphocytes.

Conclusion: This pilot project demonstrates that advanced X-ray imaging modalities can provide rapid, indepth three-dimensional visualization of tumor tissue. Visualization of tumor invasion patterns and the possibility of three-dimensional reconstruction of histology may prove crucial in assisting surgeons in tumor margin assessment and pathologists in laboratory workup. These findings lay the foundation for future studies on this topic.

Title

Radiographers in the Age of AI: *A Qualitative Comparative Multi Case Study*

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Abstract

Purpose

Artificial intelligence is increasingly integrated into radiology workflows, supporting tasks such as image reconstruction, patient positioning, and administrative processes. While these developments promise efficiency and improved diagnostic quality, their impact on radiographers' professional roles remains unclear, particularly in Sweden, where formal AI training is absent, and staffing shortages persist.

This study explores how Swedish radiographers working at university hospitals are affected by AI implementation and its influence on their current and future responsibilities.

Methods and materials

A qualitative multi-case study was conducted across three Swedish university hospitals. Semi-structured interviews were held with 18 strategically selected participants, including section leaders, radiographers, researchers, and department managers.

Results

The participants acknowledged AI's presence in clinical workflows, most lacked structured education and relied on informal sources for knowledge. AI was viewed both as a facilitator to work processes, and as a potential threat to core tasks, raising concerns about deskilling and loss of professional autonomy. Informants emphasized maintaining responsibility for patient safety and expressed mixed feelings toward delegating tasks to AI or other professionals. Opportunities for role expansion were identified, including involvement in AI implementation and oversight of outputs, provided that inclusive planning and structured training are prioritized.

Conclusion

AI adoption in radiology introduces both opportunities and challenges for Swedish radiographers. Without clear strategies and profession-specific education, there is a risk of marginalization and reduced job satisfaction. Conversely, thoughtful implementation could strengthen the profession by enabling advanced responsibilities. Future research should quantify these findings and examine their relevance across Sweden.

Monitoring Image AI Systems in Radiology: Norwegian Hospitals Taking on a Major Challenge in Using Image AI

Hauke Bartsch, Haukeland University Hospital, Bergen, Norway

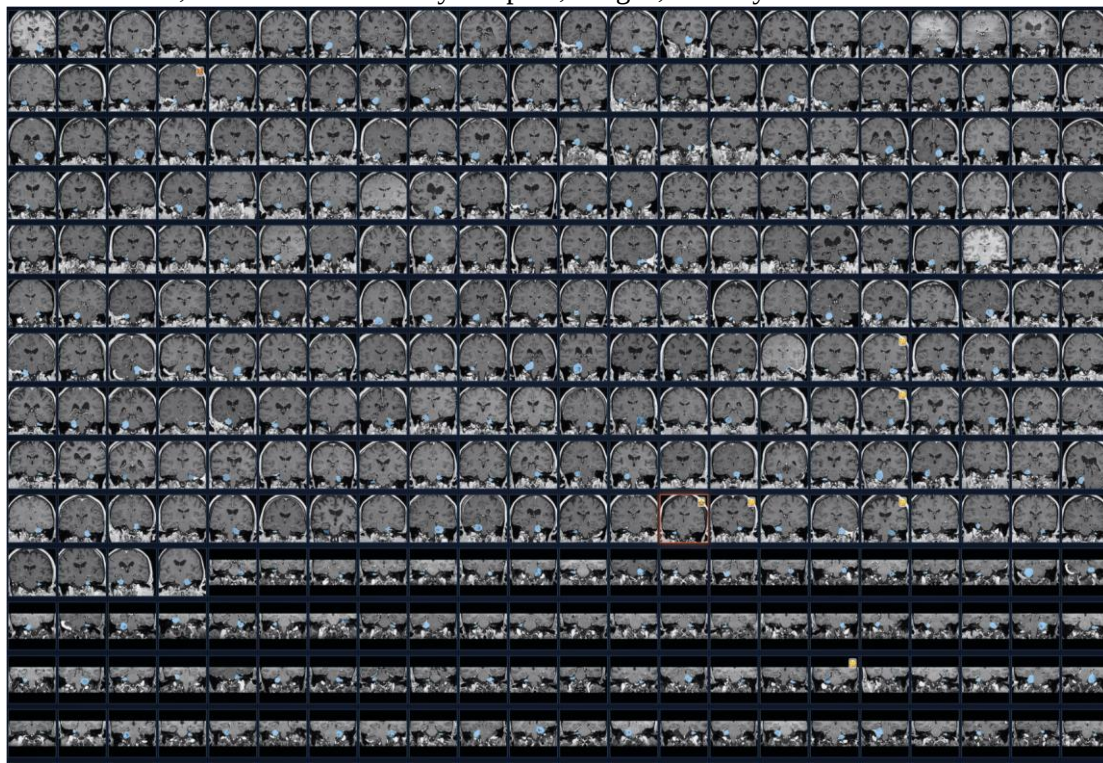


Figure 1. Monitoring cohort-level image segmentation performance for cancer imaging.

Purpose Integration of AI in clinical radiology is complex and requires significant expertise and resources throughout the lifetime of an AI model. Norwegian hospitals are addressing this challenge by developing monitoring and maintenance systems for image AI as part of strategic initiatives for AI supported services (ASIS).

Methods We present a monitoring tool for image segmentation AI systems designed to assess both training data quality and model performance. The tool combines 2d (fused image and masks) and 3d surface-based renderings of segmentation masks. We evaluate the tool using a detection and quantification task for peripheral nerve tumors (vestibular schwannoma) from T1-weighted contrast MRI (CrossMoDA 2021 challenge, $N = 105$; Queen Square Radiosurgery Center, $N = 224$).

Results Visual inspection of all training data using the tool revealed segmentation quality issues in the segmentation masks from both the CrossMoDA 2021 challenge ($N = 1$) and the Queen Square Radiosurgery Center ($N = 10$). Discrepancies included edge definition (over and under-segmentation) and artifacts caused by serial 2d segmentation for 3d tumor volumes. Using censoring, model-assisted labelling and appropriate data augmentation a U-Net segmentation AI (pytorch) trained on the improved dataset performed well (avg. Dice 0.90). Both generalization performance and individual case performance could be assessed using the tool.

Conclusion By emphasising training data quality and model performance, a visual image-inspection tool supports radiologists in the monitoring of human expert generated labels and in assessing AI performance for both patient cohorts and individual examinations.

Title

The Effects of Virtualization and High-Capacity Flash Memory on Electronic Medical Record and PACS Servers in the Era of Healthcare DX

Author

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Affiliation

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Abstract

Purpose Tottori University hospital introduced EMR starting in 2003. In 2016, virtualization and high-capacity flash memory were introduced to the regional medical collaboration platform server, achieving significant speed improvements. To realize similar improvement in hospital, during the 2020 update of the university hospital's EMR and PACS systems, the EMR and PACS servers were outsourced to a local nonmedical vendor, who implemented virtualization and high-capacity flash memory.

Method Performance comparisons were conducted before and after the 2020 renewal. Additionally, the PACS server migration and VNA implementation were performed on the new infrastructure.

Results Due to Oracle DB licensing costs, the EMR departmental systems required deployment on two types of virtual servers: Oracle server clusters and non-Oracle server clusters. Both were configured as all-flash servers to achieve high speed. Two PACSs served the Radiology Department and the entire hospital. During operation, migration from FMS Synapse to Synapse-VNA was performed for connecting PSP terminals with WADO. Image data could be displayed on PSP without using QIDO, as the database of PSP server covers it of Synapse-VNA. Display time for the ICU monitoring system was reduced to about 60% of the pre-update time. Image display time was reduced to an immeasurably short.

Conclusion Rental costs remained the same before and after the upgrade. Storage capacity increased fivefold to 1.9PB. The introduction of 400TB of flash memory enabled the significant speedup.

Title

Computed tomography derived imaging biomarkers of Diabetic Kidney Disease: scoping review

Authors

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Abstract

Purpose

Diabetic kidney disease (DKD) is a major complication of diabetes associated with substantial morbidity and mortality. Current clinical markers such as albuminuria and elevated creatinine typically appear only after significant kidney damage, limiting opportunities for early intervention. Imaging biomarkers of DKD have been described across modalities, but their ability to predict clinically meaningful outcomes remains uncertain. This scoping review assessed whether CT-relevant imaging biomarkers of DKD satisfy the European Society of Radiology (ESR) criteria for clinical relevance, focusing on technical validation and clinical validation.

Methods

A PubMed search was conducted, with a large language model assisting in abstract screening. Eligible studies included human participants with diabetes and used MRI, ultrasound, or CT to evaluate kidney changes. Biomarkers were assessed for precision, accuracy, and clinical validation.

Results

Eleven distinct imaging biomarkers were identified. The resistive index was the most frequently studied, showing acceptable precision and associations with clinically relevant outcomes; however, its diagnostic accuracy was not evaluated.

Conclusion

No biomarker fulfilled all ESR validation criteria, largely due to absent accuracy assessments, and none currently meet ESR standards for clinical relevance.

Title

Delayed 60-min 18F-flutemetamol PET acquired on digital SiPM PET/CT

Authors

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Abstract

Purpose

To determine whether delayed 60-min 18F-flutemetamol PET acquired on digital SiPM PET/CT preserves visual assessment (VA) and quantitative Centiloid (CL) agreement with the conventional 90-min protocol.

Methods

In this single-center within-subject study, 63 participants underwent paired 20-min static acquisitions at 60–80 and 90–110 min post-injection.

Analysis 1: Three experienced readers independently performed blinded VA at both time points. Inter-reader agreement was assessed using Fleiss' and Cohen's κ statistics. Between-time-point agreement of majority VA was evaluated using concordance rate and McNemar's test.

Analysis 2: Quantitative analysis was performed using whole-cerebellum–referenced SUVR and Centiloid (CL) scaling. CL values derived from 60-min images were converted to the conventional 90-min scale using Deming regression. Agreement between converted and measured CL90 was assessed using Deming regression, Bland–Altman analysis, Pearson correlation, and Lin's concordance correlation coefficient (CCC).

Results

Majority VA was concordant in 62/63 examinations (98.4%; $\kappa = 0.968$). Inter-reader agreement was high at both time points (Fleiss' $\kappa = 0.92$ at 60 min; 0.85 at 90 min). Quantitatively, converted CL values demonstrated excellent agreement with measured CL90 (Deming slope 1.003; Pearson $r = 0.997$; CCC = 0.997) with minimal bias (−0.01 CL).

Conclusion

A shortened 60-min delayed acquisition on digital SiPM PET/CT demonstrates highly concordant visual interpretation and Centiloid quantification after appropriate conversion, supporting potential clinical implementation with caution near positivity thresholds.

Title

Survival in incidentally discovered amyloid cardiomyopathy

Author

T. Bach-Gansmo.

Affiliation

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Abstract**Purpose**

All patients referred for bone scintigraphy during a ten-year period were reviewed to identify the prevalence and time to death/survival of patients with cardiac uptake on bone scintigraphy.

Methods

All patients above 50 years were included. Cardiac uptake was scored according to Perugini (1), and together with time to death or survival were recorded. Censored Kaplan-Meier data were used to compare Perugini and gender related survival.

Results

The analysis included 3168 patients with 72 patients showing cardiac uptake.

Thirty patients were still alive at the end of study. Median survival was 34 months. Censored data show highest mortality in the Perugini 1 group, closely followed by Perugini 3. For Perugini grade 1 patients the initial two years after diagnosis was defined by a high mortality, with a subsequent substantial decrease in mortality.

Conclusion

The prognosis was worse for Perugini grade 1 patients than for Perugini grade 2 and 3 patients. The prevalence of positive bone scans consistent with amyloid CM was 2,3%, highest in men, reaching 12% in men above 90 years. However, amongst patients aged 50-79 years with Perugini grade 1, the incidence was the same for men and women. Together with high initial mortality, this indicates that many of our Perugini grade 1 patients suffered from other amyloid deposits, probably immunoglobulin short chain cardiomyopathy.

Title

Disseminated varicella zoster (VZV) with abdominal pain and widespread vesicles in a patient undergoing treatment for Hodgkin lymphoma

Authors

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We report a case of disseminated visceral varicella-zoster virus (VZV) infection in a 37-year-old woman with relapsed classical Hodgkin lymphoma undergoing chemotherapy. She presented with severe abdominal pain, nausea, and diaphoresis. Laboratory evaluation revealed elevated inflammatory markers and liver enzymes, with normal serum amylase. Contrast-enhanced CT demonstrated periarterial fat stranding around the celiac artery and superior mesenteric artery and enlargement of the left celiac ganglion, without pancreatic or arterial wall abnormalities. Upon admission, the patient stated a rash had appeared 2–3 days prior, and dermatologic evaluation confirmed herpes zoster. Intravenous acyclovir was initiated, resulting in resolution of abdominal pain, rash, and imaging abnormalities.

1. Early Recognition: Abdominal pain may precede skin eruptions in disseminated visceral VZV, especially in immunocompromised patients.
2. Imaging Clues: Periarterial fat stranding and celiac ganglion enlargement on CT are characteristic findings that may allow early diagnosis.
3. Pathophysiology: VZV can reactivate in autonomic ganglia, causing ganglionitis and periarterial inflammation, which can explain visceral pain.
4. Management Implications: Initiation of antiviral therapy prior to skin eruption potentially improves outcomes.
5. Anatomical Considerations: Knowledge of celiac ganglion anatomy enhances accurate interpretation of imaging and procedural planning.

Recognition of the combination of periarterial fat stranding and celiac ganglion enlargement can increase diagnostic confidence and facilitate timely antiviral therapy, reducing morbidity and mortality associated with disseminated visceral VZV infection

Title

Thyroid Foramen: A CT-Based Analysis of Prevalence, Morphology, Size, and Association with the Superior Laryngeal Artery

Authors

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3. Department of Radiology, Gunma University Hospital, Japan

Abstract

Purpose:

The thyroid foramen (TF) is an anatomical variation of the thyroid cartilage that is not routinely assessed on CT. The superior laryngeal artery (SLA) may pass through the TF, potentially influencing surgical planning. This study evaluated the prevalence of TF and its relationship with SLA course on CT.

Methods:

We retrospectively reviewed 414 thin-slice neck CT examinations with non-contrast and arterial-phase images. TF was defined as a distinct opening in the posterior thyroid cartilage and assessed in consensus by two radiologists. TF presence was evaluated per patient, and morphology and size were analyzed per side. Associations between TF characteristics and SLA passage were examined using chi-square and Mann–Whitney tests.

Results:

TF was identified in 139 of 414 patients (33.6%). It was more frequent in males (37.2% vs. 27.0%, $p = 0.035$) and in younger patients ($p < 0.001$). A total of 177 TFs were detected. Mean long and short axes were 3.1 ± 1.4 mm and 2.6 ± 1.0 mm. Among evaluable sides ($n = 167$), SLA passed through the TF in 63.5%. Both long and short axes were significantly larger in the passage group (3.9 ± 1.1 mm vs. 1.9 ± 0.6 mm; 3.2 ± 0.8 mm vs. 1.7 ± 0.5 mm; both $p < 0.001$). Passage rates differed by TF morphology ($p = 0.014$).

Conclusion:

TF is a common anatomical variation detectable on CT. SLA passage is associated with TF size and morphology. Recognition of TF may assist in anticipating vascular anatomy in the laryngeal region.

Title

Diffusion-Weighted Magnetic Resonance Imaging of the Gallbladder in Acute Cholecystitis: Diagnostic Performance Compared to Histopathological Findings

Authors

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Abstract

Purpose

To evaluate the diagnostic accuracy and reproducibility of gallbladder (GB) wall diffusion restriction on diffusion-weighted imaging (DWI) for acute cholecystitis (AC), using histopathology as the reference standard, and to compare its performance with GB wall thickness and ultrasound (US).

Materials & Methods

In this retrospective multicentre study, 270 consecutive patients underwent MRCP including DWI followed by cholecystectomy within seven days. Three blinded abdominal radiologists independently assessed GB wall diffusion restriction and wall thickness. Diagnostic performance metrics, ROC analysis, logistic regression, and interobserver agreement (κ , ICC) were calculated. Subgroup analyses evaluated MRI–surgery interval, magnetic field strength, and DWI versus US.

Results

GB wall diffusion restriction demonstrated a sensitivity of 94%, specificity of 84%, PPV of 77%, NPV of 96%, and AUC of 0.89. Sensitivity reached 100% when surgery occurred within 24 hours. Wall thickness alone showed lower performance (optimal cut-off 4.3 mm; sensitivity 84%, specificity 72%). A combined model did not significantly outperform DWI alone (AUC 0.92 vs 0.89; $p = 0.76$). Interobserver agreement for DWI was substantial ($\kappa = 0.63$). DWI sensitivity was significantly higher than US (95% vs 54%, $p < 0.001$).

Conclusion

GB wall diffusion restriction on DWI is a reproducible and highly sensitive imaging biomarker for AC, outperforming wall thickness and ultrasound. DWI may strengthen diagnostic confidence and support time-sensitive surgical decision-making.

Title

Impact of an auxiliary attachment for protective eyewear on operator lens radiation dose

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Abstract

Purpose While lead glasses are common for IVR procedures, their shielding against lateral scattered radiation is often insufficient. This study evaluated the dose reduction effect of an auxiliary attachment on the operator's lens dose.

Methods Measurements were conducted using the Artis zee i ceiling ICT system (Siemens Healthineers) simulating hepatic transcatheter arterial chemoembolization (TACE) and CT fluoroscopy (CTF)-guided procedures. The operator's position was simulated at a height of 150 cm from the floor and 50 cm from the isocenter. Measurements were taken at bilateral eye lenses and inside/outside the protection glasses with radiophotoluminescent glass dosimeters. The attachment was fixed to the left side of the glasses, and doses were compared between configurations with and without the attachment.

Results In the TACE simulation, the left eye dose decreased from 47.3 to 42.3 μSv (10.6% reduction). Notably, the dose inside the left lateral attachment dropped from 40.7 to 16.7 μSv (59.0% reduction). Under CTF-guided conditions, the dose inside the left lateral shield was reduced by 47.0% (from 164.0 to 87.0 μSv); however, no significant change was observed in the actual left eye dose.

Conclusion The auxiliary attachment significantly reduced lateral radiation exposure by 59.0% in TACE and 47.0% in CTF-guided procedures. While it achieved a 10.6% dose reduction for the left eye in TACE, it showed almost no protective effect for the eye itself during CTF-guided interventions.

Herpes Zoster Ophthalmicus with Oculomotor Nerve Palsy; A Case Report with literature review.

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Abstract

Herpes zoster ophthalmicus (HZO) is caused by the reactivation of latent varicella–zoster virus involving the ophthalmic division of the trigeminal nerve. Although uncommon, HZO may cause ocular motor nerve palsies, with oculomotor nerve palsy being the most frequently reported. Contrast-enhanced MRI has been recommended for the assessment of ocular involvement and neurologic complications of HZO; however, detailed descriptions of the temporal imaging changes of the oculomotor nerve remain limited.

We report a case of 83-year-old man with the oculomotor nerve palsy. Contrast-enhanced MRI revealed enhancement of the affected oculomotor nerve after the improvement of HZO symptoms. In addition, we performed a literature-based case review of the oculomotor nerve palsy of HZO complication. In several reported cases, oculomotor nerve palsy presented as ptosis and ophthalmoplegia in a delayed fashion after the onset of cutaneous lesions. Out of them, oculomotor nerve enhancement on contrast-enhanced MRI was observed.

The oculomotor nerve is a small structure. Thus, the abnormalities are likely to be overlooked, and careful evaluation of the oculomotor nerve on contrast-enhanced MRI is important in patients with HZO.

Purpose

To describe a case of herpes zoster ophthalmicus (HZO) with oculomotor nerve palsy, focusing on the oculomotor nerve enhancement on contrast-enhanced MRI, and to review the clinical and imaging features based on the literature.

Methods

A 83-year-old man presented with headache, right eyelid swelling, and vesicular eruptions in the ophthalmic division of the trigeminal nerve and he was diagnosed as HZO. Following initial treatment, clinical symptoms were improved; however, oculomotor nerve palsy was observed after improvement of periorbital swelling.

Contrast-enhanced MRI revealed focal enhancement of the ipsilateral oculomotor nerve, consistent with oculomotor neuritis associated with HZO. Additional treatment resulted in clinical improvement and complete resolution of oculomotor nerve enhancement on follow-up MRI.

A literature review was performed using the PubMed database to identify reported cases of HZO with oculomotor nerve palsy.

Results

Thirteen cases were obtained. The literature review revealed the oculomotor nerve palsy occurred following the appearance of skin eruptions in most cases. Enhancement of the oculomotor nerve was seen in several cases.

Conclusion

We present a case of herpes zoster ophthalmicus with oculomotor nerve palsy. This case shows the diagnostic value of contrast-enhanced MRI in detecting oculomotor nerve involvement in HZO. The oculomotor nerve is a small structure. Thus, it is important to evaluate the contrast-enhanced MRI for the purpose of accurate diagnosis and assessment of disease activity.

Title

Incidence of Iodide Mumps Associated With Iodinated Contrast Media: A Retrospective Analysis

Authors Hiromi Hirasawa, Ayako-Taketomi-Takahashi, Sosei Yamanouchi, Hiroaki Sakai, Soma Kumasaka, Yuka Kumasaka, Aya Takase, Yoshito Tsushima

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Abstract

Iodide mumps is described as a transient salivary gland enlargement occurring after iodinated contrast administration; however, its true incidence remains unclear. The frequently cited rate of approximately 1% is based on a 1989 postal questionnaire survey and may be subject to selection bias. Prompted by a case of marked parotid enlargement identified on imaging the day after contrast administration, we aimed to determine the incidence of iodide mumps based on imaging findings.

Methods We retrospectively reviewed CT and MRI examinations performed between January 1, 2015, and August 31, 2019, obtained the day following iodinated contrast administration (for CT, angiography, or other procedures). Studies were included if $\geq 50\%$ of one or both parotid or submandibular glands were depicted. To assess contrast-associated enlargement, gland size on imaging obtained the day after contrast administration was compared with CT or MRI performed within the preceding three months. In patients with multiple examinations, only studies separated by more than two days were analyzed as separate cases; examinations performed within a two-day interval were excluded.

Results A total of 896 examinations were included (mean age, 63.1 ± 17.1 years; range, 3–93 years). Salivary gland enlargement was identified in three cases, yielding an incidence of 0.33%.

Conclusion The incidence of iodide mumps in this imaging-based cohort was lower than previously reported. Larger studies are needed to establish a more precise estimate

Title

The Assessment of Lower Extremity Residual Thrombosis Using Compression Ultrasonography

Authors

Izzet Altintas¹, M.D., PhD fellow and Maja Hartmann Rasmussen Eriksen, M.D.¹

¹Functional and Imaging Diagnostic Unit, Amager and Hvidovre Hospital

Abstract**Purpose:**

To determine whether residual thrombosis at the end of anticoagulant therapy—identified by repeat compression ultrasound—can serve as a new baseline for guiding treatment duration and help predict the increased risk of developing post-thrombotic syndrome (PTS).

Methods:

This prospective, single-center cohort study enrolls patients presenting to the emergency department with a first time lower-extremity deep vein thrombosis (DVT). The enrollment of patients began on March 13, 2023. Treatment duration is determined by specialist staff at the Hvidovre Hospital anticoagulant clinic, following current guidelines. Based on sample-size calculations, 152 participants will be enrolled and undergo follow-up compression ultrasonography with Doppler 3–6 months after diagnosis. The examinations will be performed by experienced staff from the Functional and Imaging Diagnostic Unit at Hvidovre Hospital. Residual thrombosis is defined as persistent loss of venous compressibility or the presence of an intraluminal mass.

Results:

To date, a total of 101 patients with a first-time DVT have been enrolled. Of these, 93 patients have undergone follow-up ultrasound examination at 3–6 months, and 30 patients (32%) had residual thrombus at follow-up on the same side where thrombosis was initially diagnosed at inclusion.

Conclusion:

Compression ultrasonography of patients with residual thrombosis suggests that guideline-recommended anticoagulation may not always achieve full thrombus resolution. Clinicians should identify potential causes to residual thrombosis and adjust management as needed. This could reduce the risk of complications regarding residual thrombosis, such as the development of PTS.



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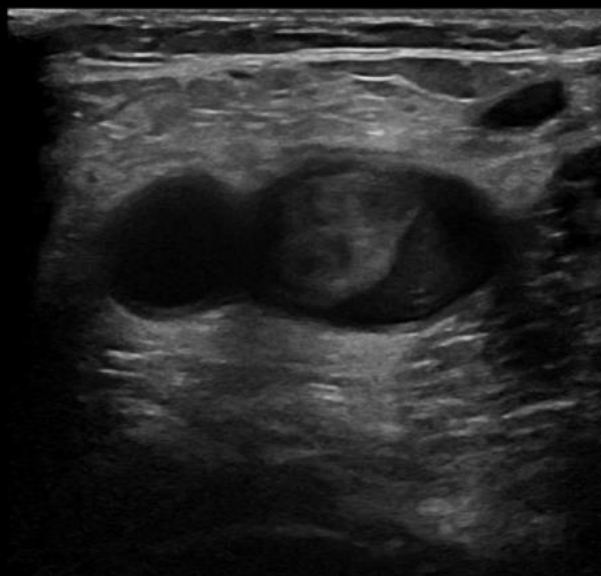
ADM

MI 1.4

TIs 0.9

ML6-15
UEV

FR 30



LOGIQ
E10

CHI X
Frq 15.0
Gn 55
S/A 2/3
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D 5.0
DR 63
AO% 100



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Title

IVUS-Guided Recanalization for Central Vein Occlusion in Hemodialysis Patients: Two Case Reports

Author

Tomoyasu Sato

Affiliation

Tsuchiya General Hosp. Hiroshima, Japan

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Abstract

Central vein occlusion (CVO) is a major complication in patients undergoing long-term hemodialysis and may lead to venous hypertension, access dysfunction, and loss of arteriovenous (AV) access. Endovascular recanalization is considered the first-line treatment; however, chronic total occlusion of the subclavian or brachiocephalic vein can be technically challenging due to dense fibrosis, long-segment obstruction, and ambiguous vessel anatomy. In such cases, conventional fluoroscopy-guided wire techniques may fail. Intravascular ultrasound (IVUS)-guided techniques have recently been adopted in coronary and peripheral chronic total occlusion interventions, allowing real-time visualization of vessel architecture and wire position. Nevertheless, their application in central venous occlusive disease remains limited. We report two hemodialysis patients with symptomatic central vein occlusion in whom standard endovascular recanalization techniques were unsuccessful. IVUS was utilized to delineate the occluded venous segment and guide wire manipulation across the obstruction. Under IVUS guidance, the guidewire was successfully advanced through the true lumen of the occluded segment, enabling subsequent balloon angioplasty and restoration of central venous outflow. Both procedures were completed without major complications, and adequate venous flow of the AV access was achieved. These cases highlight the potential utility of IVUS-guided recanalization as an adjunctive technique for complex central venous occlusions, particularly when conventional approaches fail. IVUS may improve procedural success by providing detailed intraluminal visualization and facilitating accurate guidewire navigation in challenging lesions.

Title

Short-Term Outcomes of Tailored Endovascular Therapy Strategies for Acute Superior Mesenteric Artery Occlusion Based on Thrombus Location

Authors

Tatsuo Ueda¹, Fumie Sugihara¹, Hidemasa Saito¹, Toko Takagi¹, Misa Iwasaki¹, Ryutaro Fujitsuna¹, Sayaka Shirai¹, Takahiko Mine², Hiroyuki Tajima³, Hiromitsu Hayashi¹, and Shin-ichiro Kumita¹.

Affiliations

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³Department of Radiology, Saitama Medical University International Medical Center, Saitama, Japan

Abstract

Purpose

To evaluate the short-term outcomes of endovascular therapy (EVT) for acute superior mesenteric artery occlusion (ASMAO) using tailored EVT strategies based on thrombus location.

Methods

This single-center retrospective study included 33 consecutive patients (mean age 76.0 ± 8.9 years; 20 male) with ASMAO who underwent EVT using a single or combined approach, including aspiration embolectomy, local thrombolysis, antegrade stenting, and balloon angioplasty, with or without necrotic bowel resection, between January 2007 and December 2024. The thrombus location was classified as proximal, middle, or peripheral based on angiographic findings, and EVT strategies were selected according to thrombus location. The initial EVT technique was selected based on this classification: aspiration embolectomy or antegrade stenting for proximal thrombus; aspiration embolectomy for middle thrombus; and local thrombolysis for peripheral thrombus. Outcomes included technical success, procedure-related adverse events, bowel necrosis, bowel resection, all-cause 30-day mortality, and ASMAO-related 30-day mortality.

Results

The technical success rate was 100%. Procedure-related adverse events occurred in 15.2% of patients ($n = 5$). Bowel necrosis was observed in 36.4% ($n = 12$), with 33.3% ($n = 11$) requiring necrotic bowel resection. All bowel necrosis cases were associated with peripheral thrombus. All-cause 30-day mortality and ASMAO-related 30-day mortality rates were 15.8% ($n = 5$) and 9.3% ($n = 3$), respectively. Extensive thrombus involving the peripheral region was significantly associated with bowel necrosis ($P < 0.05$). All ASMAO-related deaths were linked to extensive bowel necrosis.

Conclusions

Tailored EVT strategies based on thrombus location may contribute to favorable clinical outcomes in patients with ASMAO.

Title

Magnetic Resonance Imaging Features of Aneurysm Walls and Intraluminal Thrombus Associated with Sac Shrinkage after Endovascular Aortic Repair

Authors

Takahiko Mine¹, Teppei Nakagomi², Tetsuro Sekine², Masashi Abe¹, Seigoh Happoh¹, Shimpei Ikeda¹, So Ueshima¹, Takahiro Tomoda¹, Masahiro Fujii³, Tatsuo Ueda², Koji Sohara², Misa Iwasaki², Toko Takagi², Hiroyuki Tajima⁴, Hiromitsu Hayashi², and Shin-ichiro Kumita²

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ABSTRACT

Purpose

Delayed aneurysmal rupture caused by persistent endoleaks (ELs) remains a major cause of long-term mortality, but the prognostic features of ELs are not fully understood. This study investigated the relationships among EL morphology, intra-aneurysmal thrombus (IAT) signal organization, aneurysmal wall enhancement (AWE), aneurysmal wall thickness (AWT), and aneurysmal sac volume change ratio (VCR) after endovascular aneurysm repair (EVAR) using magnetic resonance imaging (MRI).

Methods

Fifty patients who underwent gadolinium-enhanced MRI before and approximately 6 months after EVAR were retrospectively analyzed. EL morphology, IAT signal characteristics, AWE, and AWT were evaluated on MRI. VCR was calculated using computed tomography volumetry performed immediately after EVAR and at approximately 12 months. Associations between imaging findings and VCR were analyzed.

Results:

Patients without ELs (n=29) showed greater sac shrinkage than those with ELs (n=21) (median VCR, 85.6% vs. 106.7%, $p<0.001$). Among ELs, Clear-EL (n=5) was associated with lower VCR than Unclear-EL (n=16) (88.7% vs. 118.3%, $p=0.021$). The homogeneous IAT group (n=25) showed greater sac shrinkage than the heterogeneous group (n=25) (88.7% vs. 104.0%, $p=0.008$). Within heterogeneous IAT, Concentric-IAT (n=7) was associated with sac shrinkage, whereas Non-concentric-IAT (n=18) was associated with sac enlargement (75.8% vs. 117.7%, $p<0.001$). Increased AWE and AWT were also associated with greater sac shrinkage (90.3% vs. 103.8%, $p=0.016$; 85.6% vs. 103.6%, $p<0.001$).

Conclusion:

Sac shrinkage after EVAR was associated with absence of ELs, Clear-EL morphology, homogeneous or concentrically organized IAT signal patterns, and increased AWE and AWT. Comprehensive MRI assessment integrating EL morphology, thrombus organization, and wall characteristics may provide clinically meaningful imaging biomarkers of sac remodeling after EVAR.

Title

Ultrasound-enhanced Fine-Needle Biopsy Improves Yield in Human Thyroid

Authors

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3. Department of Radiology, University of Turku, Turku University Hospital, Turku, Finland

Abstract

Purpose

To demonstrate the benefits of the Ultrasound-enhanced fine-needle biopsy (USeFNAB) for treatment decisions in cancer management.

Methods

USeFNAB uses a transducer coupled to a hypodermic needle to induce flexural motion at its tip, enhancing biopsy sample yield ($f \approx 30$ kHz, Fig. A). Human ex vivo thyroid tumors (<3h post-excision, N=10, patient consent and ethics approval obtained) were sampled in a randomized order using fine-needle aspiration biopsy (FNAB, 21G, n=10), core needle biopsy (CNB, 18G, n=10), and USeFNAB (21G, n=10). Biopsy specimen mass, histological tissue area and sample quality were assessed.

Results

USeFNAB demonstrated an average tissue mass of 2.1x and 10.6x (Fig. B) and tissue area increase on the histological slide of 2.9x and 3.2x as compared to FNAB and CNB, respectively (Fig. C). Moreover, no damage or tissue artifacts caused by USeFNAB were observed by the pathologist, and the samples were considered adequate for diagnosis (Fig. D).

Conclusion

This preliminary study suggests USeFNAB's potential for thyroid applications, providing increased tissue for improved sample representativeness and better-informed therapy decisions. This could be achieved via additional pathological tests with improved diagnostic sensitivity, thereby improving diagnosis accuracy and offering greater treatment options for the patients, which represent our future research directions.

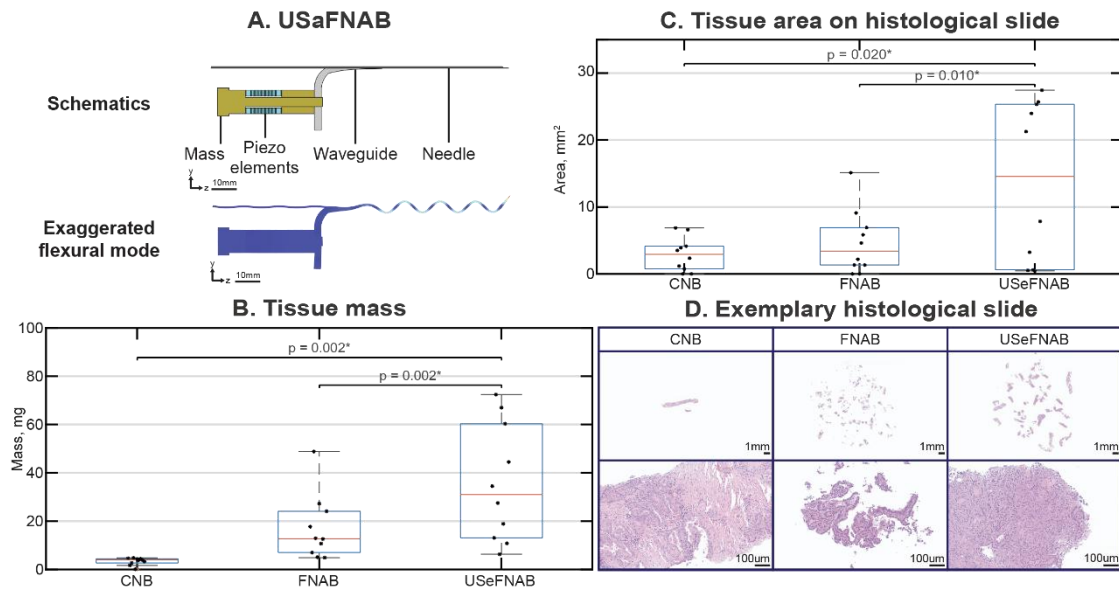


Figure: **A.** USaFNAB device schematic and exaggerated representation of flexural displacements. **B.** Biopsy specimen mass (median, 25th–75th percentile, $n=10$). **C.** Histological slide tissue area measured with QuPath ($n=10$). **D.** Exemplary histological slide obtained with the different methods (H&E staining).

Title

Long Term Effects of Low Dose Radiation in Healthcare Professionals - protocol

Authors

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Affiliations

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3 Odense Universitetshospital, Odense, DK;
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5 School of Medicine, University College Cork, IE;
6 Københavns Professionshøjskole, Kbh., DK;
7 Sundhedsstyrelsen - Strålebeskyttelse, Kbh., DK;
8 Københavns Universitet, Kbh., DK.;
9 Rigshospitalet, Kbh., DK.

Abstract

Purpose

Some healthcare professionals are exposed to low-dose ionizing radiation. While high-dose radiation is an established carcinogen, uncertainty remains regarding long-term cancer risks associated with sustained low-dose occupational exposure. This study aims to quantify the association between cumulative occupational radiation dose and cancer incidence among healthcare professionals, as well as other selected non-malignant outcomes.

Methods

This nationwide register-based cohort study includes healthcare professionals who have carried personal radiation dosimeters since 1967, identified through the Danish Health Authority's Registry of Personal Dosimetry. Individual cumulative dose histories are linked via the Danish Civil Registration Number to national registries, including the Danish Cancer Registry, National Patient Register, and socioeconomic databases.

Three comparator cohorts are established: (1) non-exposed healthcare professionals matched on education/specialty, age, and sex; (2) general population controls matched on education, age, and sex; and (3) general population controls matched on age and sex. Pathology incidence and site-specific risks will be analysed using hazard ratios and competing risk models, with dose-response analyses based on cumulative exposure.

Results

Data linkage and cohort construction are ongoing. Planned analyses will describe exposure distributions and estimate disease risks associated with cumulative occupational radiation exposure.

Conclusion

By linking long-term individual dosimetry data with comprehensive national registries, this study will provide robust evidence on cancer risk and broader health effects related to occupational low-dose radiation exposure, informing radiation protection and occupational health policies.

Title

Mobile X-ray for patients with dementia

Authors

Helle Precht, Pica Andersen

Affiliation

Radiology Department, Lillebelt Hospital, University Hospitals of Southern Denmark

Abstract

Background/aims

Patients with dementia are hospitalized two to three times more often than other people. In hospitals, unfamiliar surroundings and transport can lead to distress, anxiety, or disorientation for these patients and are a significant burden for the individual patient. The aim of this project was to optimize patient care for frail dementia patients by rethinking radiographers' work and examining patients at home.

Methods

Mobile x-ray equipment enables imaging of dementia patients at home. To make this possible, numerous considerations are required. Several aspects have been studied, covering:

- Image quality (Visual Grading Analyses and technical image quality)
- Patient experience (*observations of patient reactions and interviews with the caregivers*)
- Radiographer work-satisfaction (*interview with radiographers in the team and others in the same department*)

Results

Our results show that patients benefit from mobile X-ray, especially when focusing on dementia patients' experiences and behaviors in their usual environment. The radiographers working with the mobile X-ray unit have acquired new competencies, such as improved communication and creative positioning skills. The image quality of the mobile X-ray equipment on the technical phantom was rated superior, while a higher Visual Grading Analysis score was obtained with the stationary hospital equipment.

Conclusion

Mobile X-ray has a great impact on patients with dementia.

Title

Dynamic Gd-EOB-DTPA Enhancement analysis in Liver MRI using a Data-Driven Approach for Relating Voxel-Level Dynamics to Histopathological Fibrosis Stage

Authors

Nils Dahlström^{1,2,9}, Shan Cai^{1,9}, Alexander Persson¹, Wolf Bartholomä^{1,2,9}, Christian Simonsson^{1,3,4}, Simone Ignatova^{5,6}, Patrik Nasr^{1,7,8,9}, Mattias Ekstedt^{1,7,9}, Stergios Kechagias^{1,7,9}, Magnus Borga^{4,9}, Peter Lundberg^{1,3,9}

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⁹ Center for Medical Image Science and Visualization (CMIV), Linköping University, Linköping, Sweden

Abstract

Purpose Applying a quantitative data-driven analysis of Liver MRI using a hepatocyte-specific contrast agent to noninvasively assess impaired parenchymal function, compared to histopathology.

Methods Eighty-five patients referred for liver biopsy, due to suspected liver disease, underwent dynamic contrast-enhanced liver MRI (DCE-MRI). The hepatocyte-specific contrast agent gadoxetate (Gd-EOB-DTPA) was injected intravenously, and a 3D T1-weighted Dixon sequence was acquired at multiple timepoints. After temporal co-registration of the Water-Only images from 3–35 min, a Convolutional Neural Network model was used for segmentation into 4D liver datasets. Enhancement time curves were extracted per voxel. Using radiologist-labeled ROIs representing normal/abnormal liver contrast uptake, clustering was applied to the voxel time curves. A risk score (S) was computed for each voxel, according to its alignment with labeled data. Histopathological fibrosis stage F0-F4 was used as reference.

Spearman correlations were computed for risk score S vs fibrosis stage and for Liver-to-Spleen ratio (LSR) vs fibrosis stage, where LSR is calculated from manually placed ROIs in all Couinaud liver segments and the spleen.

Results Seventy-six patients were included in the analysis. The cluster risk score correlated significantly with fibrosis stage ($\rho = 0.33$, $p = 0.004$) while Liver-to-Spleen ratio showed no significant correlation ($\rho = -0.02$, $p=0.84$). Findings were robust to restriction to an ROI matching the biopsy location.

ROC analysis of risk score S showed moderate diagnostic performance distinguishing significant (F2-F4) from nonsignificant fibrosis (AUC=0.67; CI:0.53-0.80).

Conclusion

This data-driven DCE-MRI analysis describes quantitative dynamic liver-specific enhancement at the voxel level that correlates with fibrosis stage.

Practical Considerations for Developing AI Use in Mammography

Jarmo Reponen¹, Antti Isosalo^{1,2}

¹Research Unit of Health Sciences and Technology, Faculty of Medicine, University of Oulu, Finland;

²Center for Wireless Communications, Faculty of Information Technology and Electrical Engineering, University of Oulu, Finland

Several medical image analysis approaches have been utilized over the years for segmentation, classification, and localization tasks in mammography. The potential benefits of identifying suitable computational methods are increasingly significant, given the large number of mammography studies conducted annually. In human interpretation, tissue characteristics such as lesion density, shape, and texture constitute the cornerstones of evaluation. In computer-based image analysis, texture, together with volume- and shape-based features, is commonly referred to as radiomics or radiomic phenotypes.

Deep learning has more recently become a dominant paradigm in mammography image analysis due to its ability to learn image representations directly from data. These methods rely on representation learning across multiple levels of abstraction, often supported by transfer learning, which introduces prior knowledge from related tasks or domains.

Experience from the literature and applied research highlights that model performance and generalization are strongly influenced by a range of biases. These include biases in data collection, population sampling, imaging devices and protocols, institutional practices, and annotation procedures. Screening mammography further poses challenges related to intrinsic class imbalance and hidden stratification, where clinically meaningful subgroups may be underrepresented. Ambiguities in reference standards can further complicate both training and evaluation.

Mitigating these issues requires careful dataset curation, transparent evaluation strategies, and well-designed annotation workflows. While increasing dataset size can improve representation learning, the quality, relevance, and consistency of the data are critical factors. Expert annotation remains indispensable, despite its cost, and institutional systems should be designed to support the efficient production of high-quality learning material.

This talk synthesizes methodological lessons learned from prior work and cumulative research experience, emphasizing common challenges, sources of bias, and practical considerations relevant to mammography image analysis.

References:

Isosalo, Antti. Medical image analysis and computing in breast cancer evaluation using mammography data. Academic dissertation. Acta Universitatis Ouluensis. Series D, Medica (1811), 2014. URL: <https://urn.fi/URN:NBN:fi:oulu-202410106255>

University of Oulu. (2021). Oulu dataset of screening mammography. URL: <http://urn.fi/URN:NBN:fi:att:30ebfbd2-8f95-4945-bc28-066b6f4a9cbd>

Title

Assessment of high-resolution CT images with and without spectral information and its aid in determining need for additional imaging

Authors:

John Valtersson, MD, PhD student¹ Rune Fuglø Mortensen, MD¹, Weronika Elzbieta Olech, BSc¹, Thomas Hartvig Lindkær Jensen, MD, PhD², Zaigham Saghir, MD, PhD³, Michael Brun Andersen, MD, PhD, Clinical Associate Professor¹ Felix Christoph Müller, MD, PhD¹

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³ Department of Pulmonology, Copenhagen University Hospital, Herlev and Gentofte Hospital, Gentofte Hospitalsvej 1, 2900 Hellerup, Denmark.

Abstract

Purpose

Lung cancer remains the most frequently diagnosed cancer and the leading cause of cancer-related death worldwide. Today, patients referred to hospital typically undergo a standard-resolution computed tomography (CT) scan. Due to the widespread and increasing use of CT, many incidental findings are detected, resulting in additional radiological and clinical examinations. With a shortage of radiologists and a growing number of scans, workflow optimization is needed. To improve classification of pulmonary lesions and incidental findings, dual-energy CT has emerged as a promising technique, offering improved tissue characterization through material decomposition and enhanced contrast visualization. However, these images still rely on standard resolution and require dedicated technology. Photon-counting CT (PCCT) represents a major advance in spectral imaging, enabling superior spatial resolution, improved contrast-to-noise ratio, and more precise material quantification compared with conventional dual-energy CT, all in a single acquisition. Furthermore, PCCT inherently provides spectral data in every scan. We aim to determine whether spectral and high-resolution reconstructions reduce the need for supplementary examinations of pulmonary and incidental lesions. The project is registered with ID NCT06440616 at ClinicalTrials.gov.

Methods

500 patients referred for thoracoabdominal CT are recruited for PCCT. Suspected pulmonary lesions receives ultra-high-resolution reconstructions. Patients are randomized to clinical reading with or without spectral images. Structured reports documents findings and recommended supplementary examinations. Analysis of the association between recommended examinations and spectral image reading will be performed.

Results

The study is ongoing. Preliminary data are expected at the time of the conference.

Conclusion

Final conclusions will follow preliminary results.

Abstracts of E- Posters

Title

Combined Inflow and Outflow Control Using a Vascular Plug and Balloon for Embolization of a Left Coronary Artery Fistula with Giant Aneurysms

Authors

Misa Iwasaki¹, Tatsuo Ueda¹, Hidemasa Saito¹, Ryutaro Fujitsuna¹, Fumie Sugihara¹, Sayaka Shirai¹, Takahiko Mine², Hiroyuki Tajima³, Hiromitsu Hayashi¹, Shin-ichiro Kumita¹

Affiliations

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³ Department of Radiology, Saitama Medical University International Medical Center, Saitama, Japan

Abstract

Purpose

Coronary artery fistulas (CAFs) associated with large aneurysms are rare and pose technical challenges due to high-flow dynamics and the potential risk of embolic material migration. We report a case of successful transcatheter embolization utilizing simultaneous inflow and outflow control with a vascular plug and balloon.

Case Report

A woman in her 40s presented with palpitations. Imaging demonstrated a left CAF draining into the right atrium complicated by two giant aneurysms. Given a Qp/Qs ratio of 1.81, endovascular treatment was indicated. An arteriovenous pull-through system was established between the femoral artery and the internal jugular vein. An AMPLATZER Vascular Plug II was deployed via the venous approach into the inflow vessel to serve as an anchor. Subsequent coil embolization of the fistula and aneurysms was then performed. To prevent distal coil migration, the outflow vessel was temporarily occluded using a balloon catheter. Complete occlusion of the CAF and aneurysms was successfully achieved without complications.

Conclusion

Managing both inflow and outflow is critical for the stable delivery of embolic agents in high-flow vascular malformations. The use of an arteriovenous pull-through system significantly enhances catheter stability and device delivery in complex anatomical settings.

Title:

Massive Rectal Hemorrhage via a Collateral Pathway from the Profunda Femoris Artery Successfully Treated with Transcatheter Arterial Embolization

Authors:

Toko Takagi¹, Tatsuo Ueda¹, Misa Iwasaki¹, Keima Ueda¹, Sayaka Shirai¹, Hidemasa Saito¹, Fumie Sugihara¹, Takahiko Mine², Hiroyuki Tajima³, Hiromitsu Hayashi¹, Shin-ichiro Kumita¹.

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Preferred presentation category (select one): Poster

Abstract

Background: Transcatheter arterial embolization (TAE) is an established method for treating severe lower gastrointestinal bleeding when endoscopic hemostasis is unavailable. In rectal bleeding, the responsible arteries most commonly arise from either the superior rectal artery via inferior mesenteric artery (IMA), or the middle and inferior rectal arteries, via internal iliac artery (IIA). However, in the presence of severe stenosis or occlusion of these vessels, unexpected collateral pathways may develop. We report an extremely rare case of massive rectal bleeding supplied by collateral branches arising from the profunda femoris artery via the external iliac artery (EIA) system.

Case report: An 80-year-old man developed sudden massive hematochezia while receiving intensive care for acute myocardial infarction complicated by severe cardiogenic shock. Contrast-enhanced computed tomography (CT) demonstrated multiple sites of extravasation within the rectum. Subsequent angiography identified active bleeding from the middle rectal artery, which was discovered to be supplied through a collateral pathway from the medial femoral circumflex artery (MFCA) via the obturator artery. Emergent TAE was performed and using a mixture of n-butyl-2-cyanoacrylate (NBCA) and iodized oil, embolization was successfully completed.

Conclusion: When bleeding source cannot be localized to the usual arterial sources, especially patients with severe atherosclerosis, collateral pathways from the EIA–profunda femoris system should be considered.

Title

Review of Brown Adipose Tissue/Beige Fat Cell Cases Diagnosed by FDG PET at Our Institution

Authors

Tsuyoshi Yoshida MD. PhD. and Masayuki Sasaki MD. PhD

Affiliations

Koga Hospital 21 PET Imaging Center, Japan

Abstract**Purpose**

Brown adipose tissue (BAT) and beige fat cells (BFC) are thermogenic tissues activated by cold exposure. Recent FDG PET studies have clarified their distribution in humans. We retrospectively reviewed BAT/BFC distribution patterns detected by FDG PET at our institution in both malignant and non-malignant cases.

Methods

Between December 2009 and December 2025, 154 FDG PET recipients were diagnosed with BAT/BFC (83 malignant, 71 non-malignant). Distribution patterns were classified according to Toyama et al. as T-type (supraclavicular/axillary), I-type (cervical/paravertebral without supraclavicular/axillary involvement), LHIS-type (lipomatous hypertrophy of the interatrial septum), and Others (unclassified sites). Distributions were compared by age (<60 vs. ≥60 years) and malignancy status.

Results

In patients <60 years, T-type predominated in both malignant (24/34) and non-malignant (31/43) groups. In patients ≥60 years, atypical distributions (LHIS and Others) were more frequent in the malignant group (24/49) compared with those <60 years (0/34) (Fisher's exact test, $p < 0.0001$). No significant age-related differences were observed in the non-malignant group. In the Others category, rare sites included the orbit ($n=2$), lower dorsal esophagus ($n=1$), dorsal pancreas head ($n=1$), and perirenal area ($n=1$).

Conclusion

In malignant cases, patients aged ≥60 years showed a significantly higher frequency of atypical BAT/BFC distributions, particularly LHIS and rare sites. Orbital involvement was identified in two cases and has not been previously reported.

Title

A Study on the Clinical Significance of Compressed Breast Thickness in Mammography and Breast Cancer: Considerations for Reconstructing Breast Cancer Screening in Japan

Authors

Megumi Kuchiki¹⁾, Atsuko Oda, Tamami Shirakawa¹⁾,
Yusaku Yokoyama, Yasuhiro Sugai, Masafumi Kanoto²⁾

Affiliations

- 1) Department of Radiology, Tohoku Central Hospital of the Mutual Aid Association of Public School Teachers
- 2) Department of Diagnostic Radiology, Yamagata university faculty of medicine

Abstract

Purpose: To clarify the clinical significance of compressed breast thickness (CBT) in mammography for Japanese women.

Methods: Using chest CT and mammography in 670 healthy women, we examined the relationship between CT breast thickness, CBT in the MLO view, and breast composition.

We examined the relationship between mammographic breast composition, CBT, and clinical factors in 180 breast cancer patients treated at our institution.

Results: A strong positive correlation was observed between CT breast thickness and CBT (coefficient of determination 0.75). CT breast thickness was significantly lower as breast composition increased. The CBT corresponding to a supine CT breast thickness of 20 mm, considered detectable by self-examination for early breast cancer, was 30 mm.

The median CBT for patients was 37.5 mm. Seventy-two cases (40%) presented with symptoms, and 73 cases (40.6%) had dense breasts. In 18 cases (10.0%), lesions could not be detected by mammography alone. Among the 11 cases with symptoms but no mammographic findings, 9 cases (81.8%) had a CBT <30 mm. The proportion of early-stage breast cancer was significantly higher ($p < 0.01$) in the CBT <30 mm group (16 cases, 57.1%) compared to the CBT $\geq$ 30 mm group (30 cases, 19.7%) among symptomatic cases.

Conclusion: CBT is an indicator reflecting breast size and has been shown to correlate with breast cancer detection and prognosis. It enables the provision of breast size-related information when promoting breast awareness. This finding may also contribute to determining the content of future breast cancer screening programs in Japan.

Title

Longitudinal structural brain changes after Scharioth macula lens implantation in patients with age-related macular degeneration: AI-based MRI study

Authors

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Abstract

Purpose

Age-related macular degeneration (AMD) causes central vision loss and has been associated with structural alterations in visual cortical pathways. This study aimed to investigate regional brain volume alterations in patients with AMD and to assess longitudinal changes after Scharioth macula lens implantation.

Methods

Ten patients with advanced AMD (mean age 78.8 ± 5.6 years) underwent 3T structural MRI before and six months after SML implantation and supervised visual rehabilitation. Automated multi-atlas segmentation quantified 258 brain regions. Regional volumes were expressed as absolute measures and age-, sex-, and head-size-adjusted normative percentiles based on a reference database of 1,923 controls. Analyses focused on predefined visual network regions and exploratory whole-brain assessment with false discovery rate correction. Vision-related quality of life was assessed using NEI VFQ-25.

Results

Percentiles of posterior visual cortex were markedly reduced, particularly in the occipital pole. Over six months, visual network regions showed overall structural stability with heterogeneous regional changes, including decreases in the left middle occipital gyrus and precuneus and directional increase in occipital pole percentile. No exploratory whole-brain effects survived correction. Quality-of-life improvements were modest and were not significantly associated with baseline structural measures.

Conclusion

AMD is associated with regionally specific structural alterations in the posterior visual cortex. Following SML implantation and visual rehabilitation, visual network regions demonstrated overall structural stability with heterogeneous regional changes, while no evidence of generalized brain involvement was observed. These findings are consistent with region-specific central visual pathway involvement in AMD and indicate overall structural stability after intervention.