Japanese Scandinavian Radiologic Society

日本スカンジナビア放射線医学協会

会報34号，2021年

Joint meeting of
the 13th Symposium of Japanese Scandinavian Radiological Society
and
16th Nordic Japan Imaging Informatics Symposium

Progress in Radiology 2021

Proceeding Papers

日本スカンジナビア放射線医学協会会報　No.34

目次

次回シンポジウムのご案内

14th Symposium of the Japanese Scandinavian Radiological Society & 17th Nordic Japan Imaging Informatics Symposium (Progress in Radiology 2023)

President professor :

Rimma Axelsson

(Karolinska University Hospital and Karolinska Institutet, Stockholm, Sweden)

Safe the date : 30-th of May – 1-st of June 2023
Venue : New Karolinska University Hospital, Stockholm, Sweden
Accommodation : Elite Hotel Carolina Tower, Stockholm

Dear Colleagues,

It is a great honor to welcome you to the 14th Symposium of the Japanese Scandinavian Radiological Society and the 17th Nordic Japan Imaging Informatics Symposium in Stockholm 30 May – 1 June 2023.

The Conference venue is a newly built top modern facility at Karolinska University Hospital, Solna.

Accommodation is reserved at Elite Hotel Carolina Tower, situated next to Karolinska University Hospital and Karolinska Institutet in one of Stockholm's fastest growing areas.

Progress in Radiology 2023 aims to promote the exchange of scientifically based radiological skills and to build professional networks between Scandinavian and Japanese radiologists. This Symposium will be focused on the contribution of Radiology and Nuclear Medicine in Precision Medicine in different fields of scientific research. The scientific program of the conference will be influenced by the submitted abstracts and the oral presentation proposals from the participants and will cover topics ranging from oncology to neurology and a lot in between. I hereby encourage all participants to submit their abstracts in due time and thereby actively participate in creating a comprehensive and diverse program for this meeting.

For those who wish and have time after the official meeting, we plan a visit to CMIV (in the city of Linköping, 2 hours drive from Stockholm), a multidisciplinary research center with the mission to develop future methods and tools for image analysis and visualization for applications within health care and medical research. Visit is planned for the 1st of June with prearranged transportation and possibility for a stay.

The years of pandemic were a difficult time for mankind though over the world. Radiology stayed strong with a lot of initiated research in Covid-19. We hope life will go back to normal circumstances soon.

We are all looking forward to meet you in person in Stockholm early summer 2023.

2021年度活動報告

対馬 義人 （群馬大学大学院医学系研究科放射線診断核医学）

毎年、日本医学放射線学会に合わせてパシフィコ横浜にて開催しておりました幹事会は、COVID-19の感染拡大の影響を受けWeb開催となった為、メール会議にて意見を取りまとめることとしました（メール会議期間：5月25～31日）。2021年度の日本支部留学助成金については、大橋茜先生（京都医療センター）が受領者として承認されました。また、2021年度研究助成金については、該当者はおりませんでした。

畠中正光先生（札幌医科大学）が大会長を務められた13th Symposium of the Scandinavian Japanese Radiology Society & Nordic Japan Imaging Informatics Symposium（2021年9月29日～10月1日）が、2度の延期を経てonline形式で開催されました。今回のシンポジウムでは、口演26演題、ポスター11演題が発表されました。大会初日には、日本支部幹事と北欧支部幹事合同のBoard meetingをZoomで行い、次回の「第14回日本北欧国際放射線シンポジウム」が、Rimma Axelsson教授（Sweden）を大会長として2023年度にスウェーデン、ストックホルムで開催されることが決定しました。

2018年夏よりフィンランド（Kuopio University Hospital, University of Eastern Finland)に留学していた大熊ひでみ先生が、帰国された旨の報告を受けました。

Japanese Scandinavian Radiological Society (JSRS) Board Meeting (online) Minutes

Date : Sep. 29, 2021
Time : 15:00-16:00 (Japan), 08:00-09:00 (Stockholm), 06:00-07:00 (UTC)
Venue : online (Zoom) from Sapporo, Japan
Attendees : JAPAN
Hiroyuki Tajima, Masamitsu Hatakenaka, Yoshito Tsushima, Kazunori Kuroki, Masafumi Kanoto, Tetsuhisa Yamada, Takaaki Hosoya, Shiro Onozawa, Hiroshi Kondo, Yoshihiro Akatsuka, Masato Yamaguchi, Mui Kim, Ayako Taketomi-Takahashi
SCANDINAVIA
Hannu Aronen (FINLAND), Rafaelsen Søren R.(DENMARK), Haldorsen Ingfrid S.(NORWAY), Nils Dahlström (SWEDEN), Jarmo Reponen (FINLAND)
Facilitator : Yoshito Tsushima

AGENDA

1. Greeting by Prof. Masamitsu Hatakenaka, and this symposium.
2. Reports:
   1) Minutes of the previous meeting held on June 15, 2018 in Bergen, Norway.
      Confirmation of some important points (Prof. Yoshito Tsushima):
      - The name change proposed by Dr. Jarmo Reponen, Finland was accepted. The new name is "Symposium of the Japanese Scandinavian Radiological Society (JSRS) and the Nordic Japan Imaging Informatics Symposium".
      - The next Scandinavian meeting in 2022 will be in Stockholm, SWEDEN, hosted by Prof. Rimma Axelsson.
      - The next Japanese meeting in 2024 will be in Gunma, JAPAN hosted by Prof. Yoshito Tsushima.
      - The Scandinavian meeting in 2026 will probably be hosted by Denmark in partnership with Iceland.
   2) Prof. Ingfrid S. Haldorsen gave a summary of the previous meeting held in July 2018 in Bergen, Norway. There were 59 oral presentations and 12 posters discussing a wide variety of topics in diagnostic radiology, interventional radiology, and PACS. The meeting confirmed the relevance of the Japanese Scandinavian Radiological Society and the continued exchange of radiologic professionals from Scandinavia and Japan. Prof. Haldorsen also reported availability of surplus funds, both in the form of funds transferred from Finland in 2017 as a carryover from the previous meeting, and surplus funds from the meeting in 2018. This surplus of almost 23,000 euros is potentially available for the next meeting in Stockholm.

3) Prof. Yoshito Tsushima reported that Dr. Akane Ohashi, National Hospital Organization Kyoto Medical Center, was selected as a recipient of this year's study abroad scholarship. She will visit Lund University, Sweden as post-doctoral fellow from October 2021 to September 2023. The Society would like to thank the staff of Lund University for making this fellowship possible.

3. Discussion:

Future meetings

- Participants, especially Scandinavian participants, supported postponing the next meeting in Stockholm for 2023, instead of holding it in 2022 as originally planned. 2022 will probably be a very busy year both clinically and academically, and postponing the conference for 2023 would probably be a better use of resources. Prof. Nils Dahlström will collaborate with Prof. Rimma Axelsson to host the next meeting.
- If possible, the subsequent meeting should be held in Japan in 2024 to return the meetings to their originally scheduled even number years. The meeting will be hosted by Prof. Yoshito Tsushima of Gunma University. Gunma is known for its hot springs. Kusatsu is one of the most famous (if not the most famous) hot springs in Japan, but is difficult to access from Tokyo. Other venue options include Tokyo Disneyland and Ikaho Hot Springs (also in Gunma, and closer to Tokyo than Kusatsu). The Scandinavian representatives stated they would prefer a venue and experience unique to Japan. Delegates supporting this view stated that few people had problems accessing the venue when the conference was held in Yamagata, and that travelling together would be a good opportunity for socializing.
- The meeting in 2026 will be held in Denmark. While a meeting hosted in partnership with Iceland is very attractive, the Society does not currently have active members from Iceland, and geographic accessibility is somewhat limited compared to Denmark. Direct flights by Scandinavian Air are available to and from Copenhagen. Potential venues include Legoland Billund Resort (a modern conference center is on site) and Bella Center Copenhagen (the largest conference center in Denmark and the second largest in Scandinavia, which might be too large for our smaller, close-knit group). Prof. Rafaelsen Soren is interested in hosting this meeting and plans to contact Prof. Kyoko Rasumussen for collaboration. (In a later email addressed to many of the representatives who attended the board meeting, Prof. Soren Rafaelsen stated he would be happy to host the meeting in 2026 and that he would contact radiologists from Iceland in planning the meeting.)

Prof. Tsushima then asked if anyone had any additional topics they would like to discuss. No participants offered additional topics of discussion, and Prof. Tsushima closed the meeting.

(Secretary: Ayako Taketomi-Takahashi)

日本スカンジナビア放射線医学協会新事務所のお知らせ

2021年4月1日より、日本支部事務局を群馬大学大学院医学系研究科放射線診断核医学内に移し、運営を開始いたしました。

〒371-8511　群馬県前橋市昭和町3-39-22
群馬大学大学院医学系研究科放射線診断核医学内
日本スカンジナビア放射線医学協会事務局

TEL: 027-220-8401
FAX: 027-220-8409
E-mail: jsrs@jsrs.tokyo

*ホームページをリニューアルしました。
https://jsrs.tokyo

皆様にはご不便をお掛けすることがあることと思いますが、何卒よろしくお願い申し上げます。

留学助成金公募のお知らせ

日本スカンジナビア放射線医学協会日本支部では留学希望者の応募を受けつけています。希望者は以下の要項に従ってまずはメールにてお問い合わせください。

1．ノルウェー、デンマーク、フィンランド、スウェーデン及びアイスランドいずれかへの留学希望者を募ります。

2．放射線医学を専攻している医師または歯科医師で日本医学放射線学会会員であること。

3．国籍は問わない。

4．留学期間は6ヵ月以上であること。

5．応募締切り；お問い合わせ下さい

6．問い合わせ先　jsrs@jsrs.tokyo

留学助成金取得者リスト

＜北欧への留学＞　※所属は全て留学時

2021年（第36回）
大橋 茜（京都医療センター）　留学先：Lund University　指導医：Sophia Zackrisson

2018年（第33回）
大熊 ひでみ（東京大学）　留学先：University of Eastern Finland　指導医：R. Vanninen

2017年（第32回）
嶺 貴彦（東海大学）　留学先：Denmark 王立病院　指導医：Goetz Benndorf

2015年（第30回）
金 舞（群馬大学）　留学先：University of Turku

2012年（第27回）
鹿戸 将史（山形大学）　留学先：Oslo 大学　指導医：Per Kristian Hol

2010年（第25回）
小野澤 志郎（日本医大）　留学先：Malmoe病院　指導者：M. Malina
朽木 恵（山形大学）　留学先：Denmark 王立病院　指導者：I. Viborg

2008年（第23回）
杉浦 公彦（鳥取大学）　留学先：Malmoe 病院　指導者：K. Ivancev

2007年（第22回）
山口 雅人（神戸大学）　留学先 Malmoe 病院　指導者：K. Ivancev

2006年（第21回）
町田 稔（国立がんセンター）　留学先：Karolinska 病院　指導者：G. Svane

2005年（第20回）
野村 美和子（三重大学）　留学先：Aarhus 大学病院　指導者：J. Overgaard
遠藤 育世（聖マリアンナ大学）　留学先：Oslo 大学　指導者：F. Laerum

留学助成金取得者リスト

2004年（第19回）
岸本 佳子（山口大学） 留学先：Goeteborg 大学　指導者：A. Hellstrom
南郷 峰善（大阪市立大学） 留学先：Malmoe 病院　指導者：K. Ivancev

2002年（第17回）
伊藤 宏彦（ワシントン大学） 留学先：Huddinge 病院　指導者 P. Aspelin
江川 亜希子（長崎大学） 留学先：Karolinska 大学　指導者：H. Ringertz

2001年（第16回）
南 和徳（長崎市立市民病院）— 辞退

2000年（第15回）
築山 裕見子（埼玉医科大学） 留学先：Uppsala University　指導者：A.Hemmingsson, A. Magnusson

1999年（第14回）
中原 圓（日本医科大学） 留学先：Karolinska 病院　指導者：K. Ericson

1998年（第13回）
安藤 容子（一宮市立市民病院） 留学先：Oslo 大学　指導者：F. Laerum

1996年（第11回）
村田 智（筑波大学） 留学先：Malmoe 大学　指導者：K. Ivancev

1995年（第10回）
伊藤 浩（東北大学） 留学先：Karolinska 研究所

1994年（第9回）
佐藤 友保（国立福山病院） 留学先：Huddinge 病院　指導者：B. Calissendorff

1993年（第8回）
冨口 静二（熊本大学） 留学先：Huddinge 病院　指導者：K. Mare；Karolinska 病院　L. Jorfeldt
対馬 義人（群馬大学） 留学先：Turku 大学　指導者：M. Kormano

1992年（第7回）
黒木 一典（聖マリアンナ医科大学） 留学先：Oslo 大学　指導者：F. Laerum
児玉 行弘（名古屋大学） 留学先：Odense 大学　指導者：F. Mathiesen

1991年（第6回）

橋本 東児（昭和大学） 留学先：Karolinska 病院　指導者：H. Ohlsen

今村 正浩（関西医科大学） 留学先：Karolinska 研究所 腫瘍生物学Ⅱ部門　指導者：L. Revesz

川島 隆太（東北大学） 留学先：Karolinska 研究所　指導者：P. Roland

1990年（第5回）

山田 哲久（東京慈恵会医科大学） 留学先：Arhus Kommune Hospital　指導者：Bent Mdsen

門前 芳夫（大村市立病院）

留学先：Karolinska 病院 Radiumhemmet　指導者：R. Svanstroem, Radiosurgery　C. Lindquist, Soeder sjukhuset　U.Glas

1989年（第4回）

保坂 純郎（下谷病院） 留学先：Oslo 大学　指導者：I. Enge., F. Laerum

1988年（第3回）

井上 裕喜（鹿児島大学） 留学先：Turku 大学　指導者：M. Kormano

1987年（第2回）

上田 潤（住友病院） 留学先：Uppsala 大学　指導者：Uno Erikson

細矢 貴亮（山形大学） 留学先：Lund 大学　指導者：Cronqvist

1986年（第1回）

西山 謹司（大阪大学） 留学先：Karolinska Institutet(Radiumhemmet)

田島 廣之（日本医科大学） 留学先：Karolinska Institutet(Thoraxkkiniken)　指導者：Alfred Szamosi

※2020年（第35回）、2019年（第34回）、2016年（第31回）、2014年（第29回）、2013年（第28回）、2011年（第26回）、2009年（第24回）、2003年（第18回）、1997年（第12回）は、該当者なし。

留学助成金取得者リスト

<日本への留学>　※所属は全て留学時

2015年
Kyoko Rasmussen（Hvidovre Hospital）　留学先：聖路加病院

1997年
Hanne Witt（Karolinska 病院）　留学先：日本医科大学（隈崎）、東京都立駒込病院

1995年
Pavel Kesek（Malmoe 大学）　留学先：日本医科大学（隈崎）、東京慈恵会医科大学

1993年
Bo Kalin（Karolinska 病院）　留学先：日本医科大学（隈崎）
Jarmo Reponen（Oulu 大学）　留学先：大阪大学（小塚）
Jan Reider Bjoerke（Vestfold Central Hospital）　留学先：国立がんセンター中央病院（牛尾）

1992年
Finn Mathisen（Odense 大学）　留学先：日本医科大学（隈崎）、大阪大学（小塚、池添）

1990年
Ralf Kallmam（Karolinska 病院）　留学先：日本医科大学（隈崎）、京都府立医大（河合）

1989年
Eie Herlitz（Karolinska 病院）　留学先：日本医科大学（隈崎）

日本スカンジナビア放射線医学協会規約

1994 . 4 . 8

1. 本会は日本スカンジナビア放射線医学協会と称する。

2. 本会は日本・スカンジナビア放射線医の友好と連絡を図り、両国の放射線学の交流、進歩を目的とする。

3. 本会の本部事務局をScandinavian-Japanese Radiological Society AS N-OSLO 4. Norway に置く。

4. 本会の日本代表支部事務局を群馬大学放射線診断核医学内（群馬県前橋市昭和町3−39−22）に置く。また、スカンジナビア代表支部事務局をDepartment of Radiology, Karolinska Sjukhuset, STOCKHOLM, Swedenに置く。

5. 本会は下記の会員を以て組織する。
   （1）正会員
   （2）名誉会員
   （3）顧問
   （4）賛助会員

6. 正会員として入会できる者は日本およびスカンジナビア諸国の放射線科学に携わる医師及び幹事の推薦を受けた者とする。

7. 正会員は本会員の会費（連絡費）として毎年、金2,000円を納付するものとする（幹事は5,000円）。

8. 正会員で退会しようとするときは、その旨を本会代表支部事務局に届出るものとする。

9. 名誉会員及び顧問は日本・スカンジナビア放射線医学に特別功労のあるものについて、幹事会の賛成を得て推薦する。

10. 賛助会員は本会の趣旨に賛同し、本会の事業を援助するもののうちから幹事会が、これを推薦する。

11. 本会に下記の役員をおく。
    代表：代表は2名とし、1名は日本より、1名はスカンジナビアより選任される。
    幹事：若干名が選出される。内1名は総務を兼任する。推薦は幹事会によってなされる。
    書記：若干名

12. 代表は幹事の互選とする。代表は、この会を代表し、幹事会とともにこの会を運営する。

13. 役員の任期は4年とする。ただし重任を妨げない。

14. 本会の総会を2年に1度行う。時期は日本スカンジナビア放射線医学シンポジウム期間中とする。

15. 本会の支部会および幹事会を毎年1～2回行う。時期は特に定めない。

16. 本会は下記の事業を行う。
    （1）関係各国の放射線医学の研究事業の紹介、情報の交換を行う。
    （2）関係各国の放射線医の交流を行う。
    （3）その他本会の趣旨に沿う事業を行う。

17. 本会の会計は、会費および寄付金により経理し、毎年1回決算報告をするものとする。会計年度は4月1日から翌年の3月31日までとする。（2008年4月改定）

日本スカンジナビア放射線医学協会会員申込書

令和　　年　　月　　日
（正会員・賛助会員）

御名前（ふりがな）
所　属
住　所　〒（ふりがな） ☎　　FAX　　E-mail
御自宅　〒（ふりがな） ☎　　FAX　　E-mail
放射線科の専門分野
研究主題
・北欧留学（２週間以上）の御経験の有無　（有・無） ＜有＞の方は具体的に御記入下さい。 ①留学資格 ②留学期間　　年　　月　　日 ～　　年　　月　　日 ③留学施設 ④指導者 ⑤研修内容 ⑥取得した資格 ⑦その後の渡北欧歴（年・国名） ⑧その後、コンタクトのある北欧放射線医学者 ＜無＞の方は以下に御記入下さい 。 ①渡北欧の希望の有無＜有・無＞ ②欧米の知識 英・仏・独・スウェーデン・デンマーク ノルウェー・フィンランド・その他
・その他御意見がございましたら御記入下さい。

日本スカンジナビア放射線医学協会賛助会員名簿

＜賛助会員＞

1．GE ヘルスケアファーマ株式会社
2．エーザイ株式会社
3．メディキット株式会社
4．富士製薬工業株式会社

事務局だより

日本スカンジナビア放射線医学協会の事務局が2021年4月1日より群馬大学大学院医学系研究科放射線診断核医学へ移転しました。1986年に発足した歴史ある協会の年一回の会報誌製作に携わる機会をいただきました。

COVID-19は変異を繰り返し、今後の見通しは不明と言わざるをえず、日本と北欧を制限なく往来できる日が待ち遠しくあります。日本の先生方と北欧諸国の先生方との繋がりをシンポジウムのご報告などを通して、微力ではありますが未来へ紡いでいければと考えております。

最後となりますが、本会報誌製作にあたって原稿依頼にご快諾くださった先生方に重ねて感謝申し上げます。

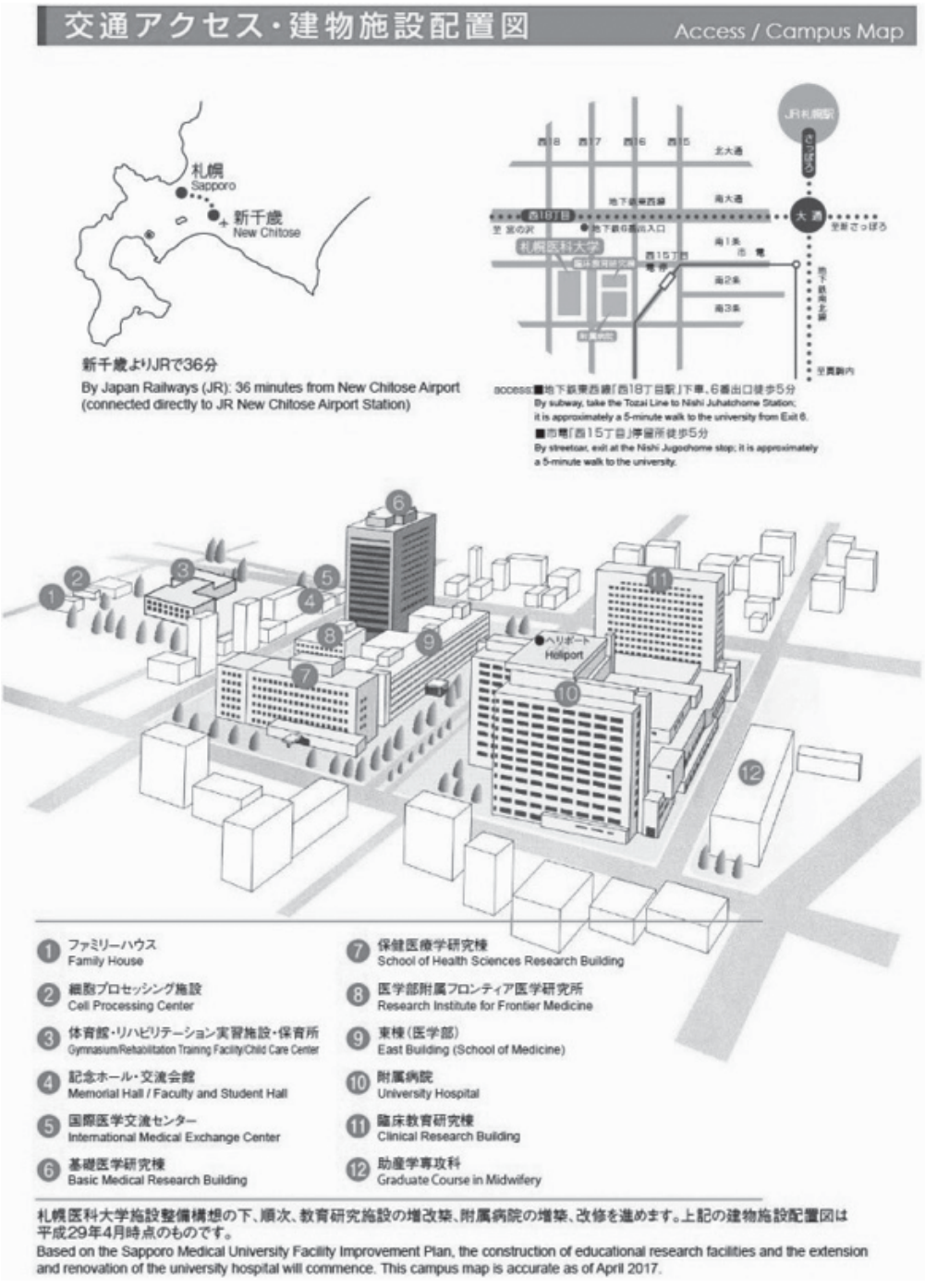
Progress in Radiology 2021

Joint meeting of
the 13th Symposium of Japanese Scandinavian Radiological Society
and
16th Nordic Japan Imaging Informatics Symposium

Proceeding Papers

Sapporo Medical University

South 1, West 18, Chuo-ku, Sapporo, Japan
TEL 011-611-2111
5min. walk from Nishi 18 Chome Station' s Exit 5 or 6 (Subway Tozai Line)
5min. walk from Nishi 15 Chome Station (Streetcar)



Contents／目次

Time Schedule

タイムスケジュール

Time Schedule／タイムスケジュール

	September 29 (Wed)	September 30 (Thu)	October 1 (Fri)
9:00			
10:00			
11:00	10:30 - 11:30 **Special Lecture**	10:30 - 11:20 **Informatics, Management and NM(J)** (5 subjects)	10:30 - 11:40 **IVR·Case reports** (7 subjects)
12:00	12:00 - 14:00 **Poster Session** (Poster presentation slides viewed on the webinar)	12:00 - 13:00 **Luncheon Seminar 1** *Sponsored by Eisai Co., Ltd.*	12:00 - 13:00 **Luncheon Seminar 2** *Sponsored by Guerbet Japan KK*
13:00			13:00 **Closing Remarks**
14:00		14:00 - 14:30 **Diagnistic Radiology** (3 subjects)	
15:00	15:00 - 15:50 **Online Board Meeting**	15:30 - 16:10 **Informatics, Management and NM(S)** (4 subjects)	
16:00	16:00 **Opening Remarks** 16:10 - 17:20 **Diagnostic Radiology and IVR** (7 subjects)		
17:00		17:00 - 18:00 **Evening seminar** *Sponsored by GE Healthcare Pharma Limited*	
18:00			
19:00			
20:00			

Poster presentations are able to be viewed online.

President Address

ご挨拶

President Address／ご挨拶

Welcome to Progress in Radiology 2021

Dear Scandinavian and Japanese Colleagues,

We are now facing the last thing we could ever imagine three years ago, when we met together at Bergen and held our meeting in a warm and comfortable atmosphere along with beautiful landscape and delicious cuisine. COVID-19 has changed the world completely including our meeting; Progress in Radiology 2021; 13th Symposium of the Japanese Scandinavian Radiological Society & 16th Nordic Japan Imaging Informatics Symposium. We have prepared several events for participants to enjoy Sapporo city and Japanese food but we may have to change them and/or cancel some of them due to governmental and prefectural regulations for preventing spread of corona virus.

Finally, we decided to hold this meeting as a hybrid form, combination of online and on-site. We won't give up on holding events with high quality lunch or dinner until the last minute. It is very sad indeed that Scandinavian radiologists cannot visit the venue due to Japanese governmental regulation of staying at hotel for at least two weeks before starting business in Japan. As for radiologists working and studying in Japan, if possible, please come to Sapporo and enjoy our city.

The meeting consists of two major scientific sessions (Refer to Time Table), one for Scandinavian researchers which is colored green in the program and scheduled for the evenings on September 29th and 30th considering time difference of about 7 hours, and the other for domestic radiologists, colored blue in the program and scheduled for the mornings on September 30th and October 1st. The decision of altering meeting from on-site to hybrid is a last-minute change, and may lead some troubles and inconveniences. Understanding and cooperation of the participants would be greatly appreciated.

We are looking forward to seeing all of you in Sapporo, in some cases through PC monitor.

PS: Recently, another extraordinary event happened, the abrupt withdrawal of US force from Afghanistan. Have you ever heard of Dr. Tetsu Nakamura? He dedicated half of his life to improve Afghan people's lives and was assassinated by gunmen in 2019. His death may have predicted the chaos of Afghanistan today.

President: Masamitsu Hatakenaka, MD., PhD.
Chair person, Department of Diagnostic Radiology
Sapporo Medical University

Postscript

I apologize for the last-minute change from a hybrid style symposium to an online symposium due to the extension of emergency restriction by Japanese government to the areas including Sapporo city. Accordingly, we have set the registration fee as "FREE" for all participants. I hope that many radiologists, researchers, and students will take this opportunity to register and participate in this symposium.

President: Masamitsu Hatakenaka, MD., PhD.
Chair person, Department of Diagnostic Radiology
Sapporo Medical University

General Information

総合案内

General Information

Date : September 29 (Wed)- October 1 (Fri), 2021

Venue : Online　※There will be no on-site event

Official Language : English

Registration Fee : Yoshito Tsushima

Social event : September 29th (Wed)

10:30-11:30 Special Lecture (Department of Neural Regenerative Medicine, Research Institute for Frontier Medicine, Sapporo Medical University)

15:00-15:50 International board meeting of Japanese Scandinavian Radiological Society

There are no extra costs for participating for these events.
Supported by the Embassy of Finland, the Embassy of Sweden, the Royal Danish Embassy

Instruction to speakers (Online)

1) Only Power Point Presentations are allowed.
2) The time for presentation is 8 minutes, followed by 2 minutes discussions.
   Please keep the time for the presentation to ensure smooth proceedings.
   On the day of the session, please follow the instructions provided in advance.
   If you have any question, please contact: jsrs2021@congre.co.jp

総合案内

会　　期：2021年9 月29日(水)～2021年10月1 日(金)

会　　場：オンライン開催　※現地での開催はございません。

公 用 語：英語

参 加 費：無料

公的イベント：9 月29日(水)

10:30-11:30 特別講演
(札幌医科大学 医学部附属フロンティア医学研究所 神経再生医療学部門 再生治療推進講座)

15:00-15:50 日本スカンジナビア放射線医学協会合同幹事会

後　　援：フィンランド大使館、スウェーデン大使館、デンマーク大使館

座長・演者へのご案内

・各セッションの運営は座長にお任せします。時間厳守にご協力ください。
・当日はあらかじめお知らせするご案内に従ってご準備をお願いします。
・一般演題の発表時間は、発表8 分討論2 分の計10分です。国際シンポジウムの発表時間につきましては、あらかじめ座長・演者にご連絡済みです。
・ご不明な点はお問い合わせください　jsrs2021@congre.co.jp

Committee

Organizing Committee : Chair : Masamitsu Hatakenaka

Japanese Executive Board :
Yoshito Tsushima
Takahiro Kozuka
Tatsuo Kumazaki
Takaaki Hosoya
Hiroyuki Tajima
Hiroko Tsunoda
Toshi Hashimoto
Yoshio Monzen
Tetsuhisa Yamada
Tomoyasu Sato
Satoru Murata
Ryo Takagi
Masato Yamaguchi
Kazunori Kuroki
Hiroshi Kondoh
Masamitsu Hatakenaka
Takayuki Ishida
Katsumasa Nakamura
Masafumi Kanoto
Shiro Onozawa
Takahiko Mine
Mai Kim

Scandinavian Exective Board :
Rimma Axelsson
Nils Dahlström
Søren Rafaelsen
Gina Al-Farra
Kyoko Sakata Rasmussen
Gençay Gül
Ingfrid Salvesen Haldorsen
Harald Nes
Mona Kristiansen Beyer
Hannu. J. Aronen
Jarmo Reponen
Hjalti Már Þórisson

Progress in Radiology 2021

Scientific Program

学術プログラム

29th Sep. (wed.)

10:30-11:30 **Special Lecture** Chair: Masamitsu Hatakenaka

12:00-14:00 **Poster Presentations**

16:00-16:10 **Opening Remarks** Masamitsu Hatakenaka

16:10-17:20 **Diagnostic Radiology and IVR**
Chair: Masafumi Kanoto and Masamitsu Hatakenaka

30th Sep. (thu.)

10:30-11:20 **Informatics, Management and NM (J)**
Chair: Hiroshi Kondoh and Yoshito Tsushima

12:00-13:00 **Luncheon Seminar 1** Chair: Masamitsu Hatakenaka

14:00-14:30 **Diagnostic Radiology** Chair: Masamitsu Hatakenaka

15:30-16:10 **Informatics, Management and NM (S)**
Chair: Hiroshi Kondoh and Yoshito Tsushima

17:00-18:00 **Evening Seminar** Chair: Masamitsu Hatakenaka

1st Oct. (fri.)

10:30-11:40 **IVR・Case reports** Chair: Masafumi Kanoto

12:00-13:00 **Luncheon Seminar 2** Chair: Shingo Kakeda

13:00- **Closing Remarks** Masamitsu Hatakenaka

29th Sep. (wed.)

10:30-11:30 Special Lecture

Chair: Masamitsu Hatakenaka

S-1 Cell therapy for CNS diseases

Osamu Honmou, M.D., Ph.D.[1)]

[1)] MDepartment of Neural Regenerative Medicine, Research Institute for Frontier Medicine, Sapporo Medical University

S-2 Mesenchymal Stem Cell Therapy for Spinal Cord Injury - Present and Future -

Ryosuke Hirota, M.D., Ph.D.[1,2)]

[1)] Department of Neural Regenerative Medicine, Research Institute for Frontier Medicine, Sapporo Medical University

[2)] Department of Orthopedic Surgery, Sapporo Medical University

12:00-14:00 Poster Presentations

P-01 A case of Stanford B aortic dissection treated by entry closure with AVP2 in addition to simple TEVAR

Yoshiro Hori[1)], Hiroshi Kataoka[2)], Hiroyuki Tanaka[2)], Mana Kurihara[1)], Yuki Tashiro[1)], Akio Kotake[1)], Nobuyuki Takeyama[1)], Kyoko Nagai[1)], Eliko Tanaka[1)], Toshi Hashimoto[1)]

[1)] Department of Radiology, Showa University Fujigaoka Hospital, Kanagawa, Japan

[2)] Department of Cardiovascular Surgery, Showa University Fujigaoka Hospital, Kanagawa, Japan

P-02 Castleman' s disease in the retropharyngeal space; Radiologic-pathologic correlation

Arisa Ohara[1)], Yutaka Masuda[1)], Keigo Morinaga[2)], Kazunori Kuroki[1)], Masachika Fujiwara[3)], Dai Sato[4)], Kenichi Yokoyama[1)]

[1)] Department of Radiology, Kyorin University Faculty of Medicine

[2)] Department of Radiology, Koyama Memorial Hospital

[3)] Department of Pathology, Kyorin University Faculty of Medicine

[4)] Department of Otolaryngology, Kyorin University Faculty of Medicine

P-03 Image Findings of Hemophagocytic lymphohistiocytosis with Central Nervous System Involvement: A Case Report and Review of the Literature

Yasuhiro Sugai[1)], Toshitada Hiraka[1)], Yoshihiro Konno[1)], Yuki Toyoguchi[1)], Kazukuni Kirii[1)], Fumika Watarai[1)], Masafumi Kanoto[1)]

[1)] Department of Diagnostic Radiology, Yamagata University Faculty of Medicine, Yamagata, Japan

P-04 Effect of Cetuximab for inoperable, recurrent or metastatic oral squamous cell carcinoma (OSCC): evaluation by 18F-FDG PET/CT imaging biomarker

Mai Kim[1)], Masaru Ogawa[1)], Takahiro Shimizu[1)], Takaya Makiguchi[1)], Takahiro Nakajima[2)], Tetsuya Higuchi[2)], Yoshito Tsushima[2)], Satoshi Yokoo[1)]

[1)] Department of Oral and Maxillofacial Surgery, Plastic Surgery, Gunma University Graduate School of Medicine

[2)] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine

P-05 Assessment of the Cryoablation protocols in various cell-lines using quantitative biomarkers of bioluminescence imaging

Bolortuya Khurelbaatar[1)], Masaya Miyazaki[2)], Oyunbold Lamid-Ochir[1,3)], Zhang Xieyi[1)], Takahito Nakajima[1)], Yoshito Tsushima[1)]

[1)] Deparment of Diagnostic Radiology and Nuclear Medicine, Gunma University, Graduate School of Medicine, Gunma, Japan

[2)] Department of Applied Medical Imaging, Gunma University Graduate School of Medicine

[3)] Department of Radiology, The First Central Hospital of Mongolia

P-06 Morphology of calcaneofibular ligament under different ankle position on MRI.

Yoshihiro Akatsuka[1)], Hiroyuki Takashima[1)], Atsushi Teramoto[2)], Rui Imamura[1)], Kota Watanabe[3)], Toshihiko Yamashita[2)]

[1)] Division of Radiology and Nuclear Medicine, Sapporo Medical University Hospital

[2)] Department of Orthopaedic Surgery, Sapporo Medical University School of Medicine

[3)] Second Division of Physical Therapy, Sapporo Medical University School of Health Sciences

P-07 A lightweight 0.25-mm lead equivalence protective apron to shield radiological technologists from radiation exposure to 99mTc during single-photon emission computed tomography (SPECT)

Takao Kanzaki[1,2], Tetsuya Higuchi[3], Xieyi Zhang[4], Yasuyuki Takahashi[2], Takayuki Suto[1], Yoshito Tsushima[3]

[1] Department of Radiology, Gunma University Hospital
[2] Department of Nuclear Medicine Technology, Hirosaki University Graduate School of Health Sciences
[3] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine
[4] Laboratory of Biopharmaceutics, Department of Pharmacology, Faculty of Pharmacy, Takasaki University of Health and Welfare

P-08 Relationship between Acute Adverse Reactions to Iodine Contrast Media and Fasting before CT

Yuko Seki[1], Junya Fukuda[1], Takayuki Suto[1], Hiromi Hirasawa[2], Ayako Taketomi-Takahashi[2], Yoshito Tsushima[3]

[1] Department of Radiology, Gunma University Hospital, Gunma, Japan
[2] Department of Diagnostic and Interventional Radiology, Gunma University Hospital, Gunma, Japan
[3] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine, Gunma, Japan

P-09 Hyperdense consolidation sign: a new diagnostic CT sign of diffuse alveolar hemorrhage

Soma Kumasaka[1], Yuka Kumasaka[2], Akiko Jingu[2], Yoshito Tsushima[1]

[1] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine, Maebashi, Japan
[2] Department of Diagnostic Radiology, Fujioka General Hospital, Fujioka, Japan

P-10 Retrograde Embolization of Renal Upper Collecting System for Life-Threatening Hematuria from Renal Cell Carcinoma.

Fumiya Uchiyama[1], Tetsuhisa Yamada[1], Akinori Harada[1], Jun-Ichi Nishimura[1]

[1] Department of Radiology, Japanese Red Cross Medical Center, Tokyo, Japan

P-11 MRI guided transgluteal prostate biopsy at 3 T, a case report

Blanco Sequeiros Roberto[1], Pärssinen Heikki[1], Anttinen Mikael[2], Mäkelä Pietari[1], Bonström Peter[2]

[1] Department of Radiology, Turku University Hospital, Finland
[2] Department of Urology, Turku University Hospital, Finland

16:00-16:10 Opening Remarks

Masamitsu Hatakenaka

16:10-17:20 Diagnostic Radiology and IVR

Chair:Masafumi Kanoto and Masamitsu Hatakenaka

O-01 Reporting Colon Cancer Staging Using a Template

Søren R. Rafaelsen[1,2,3)], Malene R Pedersen[1,2,3)], Martina K Loft[1,2,3)], Claus Dam[1)]

[1)] Department of Radiology, University Hospital of Southern Denmark, Vejle, Denmark
[2)] Institute of Regional Health Research, Lillebaelt Hospital, Vejle, University of Southern Denmark, Odense, Denmark.
[3)] Danish Colorectal Cancer Center South, Vejle Hospital, Vejle, Denmark

O-02 The impact of mismatch repair status to the preoperative staging of local colon cancer

Søren R. Rafaelsen[1,2)], Emilie Erbs[2)], Jan Lindebjerg[2)], Lars H Jensen[2)], Torben F Hansen[2)]

[1)] Department of Radiology, University Hospital of Southern Denmark, Vejle, Denmark
[2)] Danish Colorectal Cancer Center South, Vejle Hospital, Institute of Regional Health Research, University of Southern Denmark, Denmark

O-03 Artificial intelligence (AI)-assisted precision imaging in gynecologic cancer

Ingfrid S. Haldorsen[1,2)]

[1)] Mohn Medical Imaging and Visualization Centre, Dep. of Radiology, Haukeland University Hospital, Bergen, Norway
[2)] Department of Clinical Medicine, University of Bergen, 5020 Bergen, Norway

O-04 MRI-ASSESSED TUMOR SIZE PARAMETERS PREDICT SURVIVAL IN UTERINE CERVICAL CANCER

Njål Lura[1,2)], Kari Wagner-Larsen[1)], Julie Dybvik[1,2)], David Forsse[2,3)], Jone Trovik[2,3)], Mari Kyllesø[2)], Camilla Krakstad[2)], Ingfrid Haldorsen[1,2)]

[1)] Department of Radiology, Haukeland University Hospital, Bergen, Norway
[2)] University of Bergen
[3)] Department of Gynecology

O-05 Simulated 4D CT blood flow in the heart after virtual mitral valve replacement - comparison with the native valveCERVICAL CANCER

Anders Persson[1,2,3,4,5,8], Jonas Lantz[2,5,8], Sophia Beeck[2,5,8], Carl-Johan Carlhäll[2,5,7,8], Matts Karlsson[2,6,8], Tino Ebbers[2,5,8]

[1] Division of Radiology, Department of Medical and Health Sciences
[2] Center for Medical Image Science and Visualization, CMIV
[3] Faculty of Health Sciences
[4] Department of Radiology in Linköping, Center for Diagnostics, Region Östergötland
[5] Division of Cardiovascular Medicine, Department of Medical and Health Sciences
[6] Division of Applied Thermodynamics and Fluid Mechanics, Department of Management and Engineering
[7] Department of Clinical Physiology, Department of Medical and Health Sciences, Linköping University
[8] Linköping University

O-06 An experimental approach to a cost efficient systolic pump usable in vascular phantoms

Sverre Dahl[1], Håvard_B. Jenssen[1], Trygve Syversveen[1]

[1] Department of radiology, Oslo University Hospital, Rikshospitalet.

O-07 Hepatic Portal Venous Flow evaluated by 4D-Flow MRI without and with Compressed Sensing and compared to 2D-Flow MRI

Nils Dahlström[1,2], Markus Karlsson[1,2], Jens Tellman[2,3], Frederik Testud[4], Ning Jin[5], Peter Lundberg[2,3]

[1] Department of Radiology, and Department of Health, Medicine and Caring Sciences, Linköping University, Linköping, Sweden
[2] Center for Medical Image Science and Visualization (CMIV) , Linköping University, Linköping, Sweden
[3] Department of Radiology, and Department of Health, Medicine and Caring Sciences, Linköping University, Linköping, Sweden
[4] Siemens Healthcare AB, Malmö, Sweden
[5] Siemens Medical Solutions USA, Inc, Cleveland, Ohio, USA

30th Sep. (thu.)

10:30-11:20 Informatics, Management and NM (J)

Chair: Hiroshi Kondoh and Yoshito Tsushima

O-08 Relationship between the dose of I-131 and the quantitative evaluation of thyroid bed uptake for adjuvant therapy of thyroid cancer

Kenta Konishi[1)], Ryo Ishiba[1)], Tomoyuki Asao[1)], Tsutomu Ikenohira[1)], Tetsuya Komatsu[1)], Shuhei Yamashita[2)], Harumi Sakahara[3)], Katsumasa Nakamura[1)]

[1)] Department of Radiation Oncology, Hamamatsu University School of Medicine, Hamamatsu-Shizuoka, Japan
[2)] Department of Radiology, Hamamatsu Rosai Hospital, Hamamatsu-Shizuoka, Japan
[3)] Hamamatsu PET Diagnostic Center

O-09 Bevacizumab Radioimmunotherapy in triple-negative breast cancer xenograft

Wenchao Gu[1)], Yudistiro Ryan[1)], Hirofumi Hanaoka[2)], Yoshito Tsushima[1)]

[1)] Department of Diagnostic Radiology and Nuclear medicine,Gunma University Graduate School of medicine, Maebashi, Japan
[2)] Department of Bioimaging Information Analysis, Gunma University Graduate School of Medicine, Maebashi, Japan

O-10 A Novel Method of Calculation of Mean ADC of the Bone on Whole-Body DWI using Deep Learning

Norio Hayashi[1)], Kaho Iwasaki[1)], Yusuke Sato[2)], Shunichi Motegi[3)], Akio Ogura[1)], Toshihiro Ogura[1)], Soma Kumasaka[4)], Yoshito Tsushima[4)]

[1)] Department of Radiological Technology, Gunma Prefectural College of Health Sciences
[2)] Department of Radiology, Gunma University Hospital
[3)] Department of Radiology, Josai Clinic
[4)] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University School of Medicine

O-11 Changes in the Purkinje cell' s synaptic density post-incubation of gadobutrol and ferrous ion: an in-vitro study

Achmad Adhipatria Kartamihardja[1)], Winda Aryani[2)], Ayako Taketomi-Takahashi[1)], Noriyuki Koibuchi[2)], Yoshito Tsushima[1,3)]

[1)] Department of Diagnostic Radiology, Gunma University Graduate School of Medicine, Maebashi, Japan

[2)] Department of Integrative Physiology, Gunma University Graduate School of Medicine, Maebashi, Japan

[3)] Gunma Initiative for Advance Research, Gunma University Graduate School of Medicine, Maebashi, Japan

O-12 Radiology in Nepal: challenges and leadership opportunities

Suman Shrestha[1,2)], Takahito Nakajima[1)], Yoshito Tsushima[1)]

[1)] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine, Gunma, Japan

[2)] Nepal Cancer Hospital and Research Center, Lalitpur, Nepal

12:00-13:00 Luncheon Seminar 1

Chair: Masamitsu Hatakenaka

Eisai Co., Ltd.

LS1-1 Hepatocellular Carcinoma Imaging and Therapy in Japan

Masahiro Okada

Department of Radiology, Nihon University School of Medicine

14:00-14:30 Luncheon Seminar 1

Chair: Masamitsu Hatakenaka

O-13 Quantification of liver fat content using advanced ultrasound and magnetic resonance imaging: prospective comparison with magnetic resonance spectroscopy

Bien V.Tran[1)], Kouichi Ujita[1)], Ayako T. Takahashi[1)], Hiromi Hirasawa[1)], Takayuki Suto[1)], Yoshito Tsushima[1,2)]

[1)] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine, Gunma, Japan

[2)] Department of Diagnostic Radiology, Interventional Radiology and Nuclear Medicine, Gunma University Hospital, Gunma, Japan

O-14 How reliable is the texture analysis of ADC map?

Masamitsu Hatakenaka[1)], Yurina Onuma[1)], Chie Tsuruta[1)], Naomi Koyama[1)]

[1)] Department of Diagnostic Radiology, Sapporo Medical University, Sapporo, Japan

O-15 The Japanese Alliance for Pediatric Cardiac CT

Eriko Maeda[1)]

[1)] Department of Radiology, The University of Tokyo

15:30-16:10 Informatics, Management and NM (S)

Chair: Hiroshi Kondoh and Yoshito Tsushima

O-16 A Research Information System - The next step after adopting PACS for image-based research studies

Hauke Bartsch[1,2,3)], Cecilie Brekke Rygh[2)], Erling Andersen[5)], Ingfrid S. Haldorsen[1,2,4)], Aslak Aslaksen[2)], Inge Paulsen[3)]

[1)] Mohn Medical Imaging and Visualization Center, Bergen, Norway
[2)] Department of Radiology, Haukeland University Hospital, Bergen, Norway
[3)] Helse Vest IKT, Bergen, Norway
[4)] Department of Clinical Medicine, University of Bergen, Bergen, Norway
[5)] Department of Clinical Engineering, Haukeland University Hospital, Bergen, Norway

O-17 Medical informatics in Finnish undergraduate medical education: defining core content in the national multidisciplinary MEDigi project

Jarmo Reponen[1)], Timo Tuovinen[1)]

[1)] Research Unit of Medical Imaging, Physics and Technology, Faculty of Medicine, University of Oulu, Finland

O-18 Development of structured observation sheet for double reading in diagnostic radiology

Jarno T. Huhtanen[1)], Pekka Niemi[2)], Sami Kajander[2)], Hannu Aronen[3)]

[1)] PgD Clinical Reporting (UK), M.H.SC. (FIN), Turku University of Applied Sciences, Turku, Finland
[2)] MD, PhD, Docent, Department of Radiology, University of Turku
[3)] MD, PhD, Professor, Department of Radiology, University of Turku

O-19 Proposal for Introduction and Maintenance of Hospital Information System and PACS - A study on bidding separation of server hardware and software -

Hiroshi Kondoh[1)], Masaki Mochida[2)]

[1)] Division of Medical Informatics, Tottori University Hospital
[2)] SECOM Sanin Co. Ltd.

17:00-18:00 Evening Seminar

Chair: Masamitsu Hatakenaka

GE Healthcare Pharma Limited

ES1-1 Image Diagnosis of CSF leakage; focusing on MRI findings

Masafumi Kanoto

Department of Diagnostic Radiology, Yamagata University Faculty of Medicine, Yamagata, Japan

ES1-2 Risk management of contrast agents: Rare adverse effects

Yoshito Tsushima

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

1st Oct. (fri.)

10:30-11:40 Interventional Radiology - Case Reports

Chair: Masafumi Kanoto

O-20 Comparison of treatment outcome of TACE continued case and case conversion to Lenvatinib in Hepatocellular Carcinoma Patients Refractory to Transarterial Chemoembolization

Kenji Murakami[1)], Kimio Kamada[1)], Sho Kamieda[1)]

[1)] Department of Diagnostic Radiology, Goryokaku Hospital, Hakodate, Japan

O-21 Initial Experience of Endovascular Aortic Repair using Iliac Branch Endoprosthesis

Masato Yamaguchi[1)]

[1)] Department of Diagnostic and Interventional Radiology, Kobe University Hospital

O-22 Technique of percutaneous direct needle puncture of calcified plaque (PIERCE technique) in superficial femoral and tibial arteries.

Tomoyasu Sato[1)]

[1)] Department of interventional and diagnostic radiology, Tsuchiya general hospital, Hiroshima, JAPAN

O-23 Procedure and results of endovascular treatment of MCA aneurysm in our hospital.

Ryokichi Yagi[1)], Ryo Hiramatsu[1)], Hiroyuki Ohnishi[1)], Shinji Kawabata[1)], Shigeru Miyachi[1)], Masahiko Wanibuchi[1)]

[1)] The department of Neurosurgery and Neurointervention, Osaka Medical College

O-24 A case of rare complication of inferior vena cava filter with long term implantation: a fractured filter caused the right atrium injury

Yuki Tashiro[1,2)], Mana Kurihara[1)], Akio Kotake[1)], Eriko Tanaka[1)], Kyoko Nagai[1)], Nobuyuki Takeyama[1)], Hori Yoshiro[1)], Hiroshi Kataoka[2)], Hiroyuki Tanaka[2)], Toshi Hashimoto[2)]

[1)] Radiology, Showa University Fujigaoka Hospital, Yokohama, Japan

[2)] Cardiovascular Surgery, Showa University Fujigaoka Hospital, Yokohama, Japan

O-25 “Glue in the Lockdown” technique to embolize peripheral arterial aneurysms

Takahiko Mine[1)], Shohei Mizushima[1)], Maiko Yoshida[1,2)], Takeshi Kashimura[1)], Yohei Iseki[3)], Dai Nishina[3)], Masahiro Fujii[3)], Ryuzo Bessho[3)]

[1)] Department of Radiology, Nippon Medical School Chiba Hokusoh Hospital
[2)] Education and Research Center of Legal Medicine, Chiba University
[3)] Department of Cardiovascular Surgery, Nippon Medical School Chiba Hokusoh Hospital

O-26 A rare case of ectopic tonsillar tissue considered as a possible malignancy in the hypopharynx by a FDG-PET/CT study.

Tsuyoshi Yoshida[1)], Kazuo Nishiyama[2)], Ayako Yamaguchi[3)], Junichi Omagari[3)]

[1)] PET Diagnostic Imaging Center, Koga Hospital 21, Kurume, Japan
[2)] Department of Head and Neck Surgery, National Hospital Organization Kyushu Cancer Center, Fukuoka, Japan
[3)] Department of Radiology, Koga Hospital 21, Kurume, Japan

12:00-13:00 Luncheon Seminar 2

Chair: Shingo Kakeda

Guerbet Japan KK

Key Points you needs as a Radiologist

LS2-1 Artificial Intelligence in Radiology

Kohsuke Kudo

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

LS2-2 Recent changes in common sense about iodinated contrast media

Yoshito Tsushima

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

13:00- Closing Remarks

Masamitsu Hatakenaka

Progress in Radiology 2021

Proceeding Papers

抄録集

O-01

Reporting Colon Cancer Staging Using a Template

Søren R. Rafaelsen[1,2,3], Malene R Pedersen[1,2,3], Martina K Loft[1,2,3], Claus Dam[1]

[1] Department of Radiology, University Hospital of Southern Denmark, Vejle, Denmark
[2] Institute of Regional Health Research, Lillebaelt Hospital, Vejle, University of Southern Denmark, Odense, Denmark.
[3] Danish Colorectal Cancer Center South, Vejle Hospital, Vejle, Denmark

Introduction

Neoadjuvant chemotherapy (NCT) has the potential to improve the outcome of advanced colon cancer, and particularly patients with clinical T4b colon cancer treated with neoadjuvant chemotherapy may have an improved survival rate. Computer tomography (CT) scanning is the standard study method for determining the tumour stage of disease prior to treatment planning and has sufficient accuracy to distinguish between small and advanced colon tumors which are defined by more than 5 mm of outgrowth. The purpose of this study was to evaluate the effect of completeness of the radiological reports in primary local staging colon cancer when using a template.

Materials and methods

The study used primary staging reports retrieved from the departments RIS/PACS. Five key tumour descriptors were evaluated within each report: tumour morphology, information on tumour breach of the colon wall (≥ T3), tumour outgrowth in mm, nodal status and TNM in conclusion. The failure to provide a description of the presence or absence of a feature in a report counted as 'not reported' . To allow comparisons between reporting styles, the template or free-text style of reporting was also recorded.

Results

During a two year period, a total of 666 patients CT reports were evaluated at the colorectal center multidisciplinary team (MDT) conference. In 200 of these reports a template was used. Information on tumour morphology (polypoid or annular) was present in 81% of the template reports vs 9% in free-text style. The figures in percentage for information on tumour breach of the colon wall (≥ T3) were 93% vs 48 %, tumour out-growth in mm: 51% vs 17%, nodal status: 99% vs 86% and TNM in conclusion: 98% vs 51%. $P < 0.0001$.

Conclusion

The present study provides additional support for the routine use of template reports to improve imaging reporting standards in colonic cancer.

O-02

The impact of mismatch repair status to the preoperative staging of local colon cancer

Søren R. Rafaelsen[1,2], Emilie Erbs[2], Jan Lindebjerg[2], Lars H Jensen[2], Torben F Hansen[2]

[1] Department of Radiology, University Hospital of Southern Denmark, Vejle, Denmark
[2] Danish Colorectal Cancer Center South, Vejle Hospital, Institute of Regional Health Research, University of Southern Denmark, Denmark

Background: Computed tomography (CT) scan is standard in preoperative local staging of colon cancer. Tumours with a deficient mismatch repair (dMMR) system are characterised by unique clinical and pathophysiologic aspects that may impact on the accuracy of the preoperative CT staging.

Patients and Methods: Data from the Danish Colorectal Cancer Group national clinical database addressing a cohort of patients operated for stage I-III colon cancer in 2010-15 was analysed. The analyses of MMR status had been conducted consecutively through means of immunohistochemistry. All CT scans were blindly assessed by a certified radiologist.

Results: Data from 590 patients, operated at a specialised cancer centre were available for analyses. 135 (22.9%) of the patients had tumours demonstrating dMMR. The overall correlation of the clinical and pathological T-category was significant for both groups. There was inferior correlation between clinical (cN) and pathological (pN) N-category ($p>0.05$) in pMMR cancers with a higher degree of over-staging assessed by CT-scan compared to a significant correlation between cN and pN stage in pMMR cancers ($p<0.01$). Of the 91 dMMR tumours assessed node-positive by the preoperative CT scan, 59 (64.8%) showed no sign of metastatic involvement at the postoperative assessment.

Conclusion: The accuracy of preoperative lymph node staging in colon cancer by CT scan seems to differ depending on MMR status and may impact the clinical management including the neoadjuvant setting.

O-03

Artificial intelligence (AI)-assisted precision imaging in gynecologic cancer

Ingfrid S. Haldorsen[1,2)]

[1)] Mohn Medical Imaging and Visualization Centre, Dep. of Radiology, Haukeland University Hospital, Bergen, Norway
[2)] Department of Clinical Medicine, University of Bergen, 5020 Bergen, Norway

This project aims to develop improved imaging tools to address major clinical challenges in uterine cancers: Overtreatment of early stage disease; and poor survival in metastatic disease partly related to lack of **predictive imaging markers for response to systemic therapies.**

The research group explores preoperative *functional imaging findings in uterine cancer* in relation to defined molecular tumor subtypes both in patients and in preclinical gynecologic cancer models. This research platform provides a unique set-up for identifying promising molecular targets for treatment and their corresponding imaging biomarker profiles.

The search for new potential imaging biomarkers is also performed using machine learning algorithms for automated tumor segmentations for whole-volume radiomic tumor profiling from multiparametric and functional magnetic resonance imaging (MRI)-and positron emission tomography/computed tomography (PET/CT) - scans.

The project Artificial intelligence (AI)-assisted precision imaging in gynecologic cancer is headed by professor/radiologist Ingfrid S. Haldorsen, Head of Mohn Medical Imaging and Visualization Centre (MMIV), Department of Radiology, Haukeland University Hospital. The project has received substantial funding ensuring active participation from a multidisciplinary team of >15 scientists (mathematicians, molecular biologists, physicists/postdocs/PhD-students/radiologists/medical students) in the project.

This presentation will give an overview of current research initiatives within this research project, and also briefly present other ongoing research projects at MMIV which is a research center hosting >50 scientists and students. MMIV (www.mmiv.no) currently accommodates projects related to *Machine Learning, Cancer Imaging, Visualization, Advanced Neuroimaging and Research Pacs*. Collaboration and research visits from radiologists and researchers from the JSRS network is very much welcomed.

O-04

MRI-ASSESSED TUMOR SIZE PARAMETERS PREDICT SURVIVAL IN UTERINE CERVICAL CANCER

Njål Lura[1,2], Kari Wagner-Larsen[1], Julie Dybvik[1,2], David Forsse[2,3], Jone Trovik[2,3], Mari Kyllesø[2], Camilla Krakstad[2], Ingfrid Haldorsen[1,2]

[1] Department of Radiology, Haukeland University Hospital, Bergen, Norway
[2] University of Bergen
[3] Department of Gynecology

Purpose:
The aim of this study was to compare the value of different tumor size measurements at magnetic resonance imaging (MRI) for predicting disease specific survival in uterine cervical cancer.

Methods/Materials:
A total of 417 patients with histologically confirmed uterine cervical cancer who had a pelvic MRI at primary diagnostic work-up were reviewed. Maximum tumor diameters were measured in three orthogonal planes; anteroposterior (AP), transverse (TV), and craniocaudal planes (CC); maximum diameter irrespective of plane (MAX), and tumor volumes (TVOL) were estimated. Tumor size parameters were analyzed in relation to disease-specific survival and clinical FIGO stage. Kaplan-Meier survival analyses and Cox regression analyses were performed. Receiver operating characteristics (ROC) curves for the different tumor measurements were calculated and optimal cut-off values were determined.

Results:
All tumor size parameters yielded high area under the ROC curve (AUC) (range of 0.80-0.83), for predicting disease-specific death. All size parameters were significant predictors of disease specific survival in univariate analyses (hazard ratios (HR) ranging from 1.033-1.057; $p<0.001$ for all); when including all size parameters in a multivariate model, only MAX had an independent impact on survival (HR of 1.04; $p=0.012$). The optimal cut of value for MAX was ≥ 41 mm yielding a sensitivity and specificity of 81 % and 75%, respectively, for predicting disease specific death. All size parameters had a significant impact on survival also when adjusting for clinical FIGO stage, histologic subtype, age, BMI and smoking habits (adjusted HRs ranging from 1.015-.1.038; $p<0.01$ for all).

Conclusion:
All tumor size parameters from pelvic MRI predict disease-specific survival, also after adjusting for relevant clinical parameters. MAX was the only independent predictor of poor survival in multivariate analysis including all tumor size parameters. Tumor MAX ≥41 mm represents a promising imaging marker that may aid in the prediction of aggressive uterine cervical cancer.

O-05

Simulated 4D CT blood flow in the heart after virtual mitral valve replacement - comparison with the native valve

Anders Persson[1,2,3,4,5,8)], Jonas Lantz[2,5,8)], Sophia Beeck[2,5,8)], Carl-Johan Carlhäll[2,5,7,8)], Matts Karlsson[2,6,8)], Tino Ebbers[2,5,8)]

[1)] Division of Radiology, Department of Medical and Health Sciences
[2)] Center for Medical Image Science and Visualization, CMIV
[3)] Faculty of Health Sciences
[4)] Department of Radiology in Linköping, Center for Diagnostics, Region Östergötland
[5)] Division of Cardiovascular Medicine, Department of Medical and Health Sciences
[6)] Division of Applied Thermodynamics and Fluid Mechanics, Department of Management and Engineering
[7)] Department of Clinical Physiology, Department of Medical and Health Sciences, Linköping University
[8)] Linköping University

While mechanical valve implantation generally improves patient outcome and quality of life, the valve normally creates non-physiological intracardiac flow patterns, which, in turn, could increase the risk for adverse hemodynamical events such as thrombus and thromboembolism. There are reports that the angular orientation of the valve can have a significant effect on intraventricular flow fields in combination with the individual patient-specific ventricular shape and function. While *in vivo* measurements can provide hemodynamic information in a specific patient, comparing the effect of different surgical alternatives in comparison with a healthy native valve is not possible. In this study, we investigate the effect of mechanical mitral valve orientation on left ventricular flow patterns in a patient-specific heart geometry. Intracardiac flow fields were computed using computational fluid dynamics (CFD) from 4D Flow CT data and validated using 4D Flow MRI in a patient with a healthy mitral valve. These computed flow fields were then compared to flow fields after virtual implantation of a mechanical heart valves oriented in four different angles to assess the effect on leaflet position. For the patient in this study, intracardiac flow fields changed significantly. After valve implantation, a larger portion of the mitral inflow stayed in the basal region, resulting in an increased residual volume in the apical area, compared to the native valve where a large single ventricular vortex was formed.

Using our developed numerical framework, we were able to assess intraventricular flow fields before and after virtual valve implantation of a mechanical mitral valve and showed impaired left ventricular blood flow with a mechanical mitral valve, compared to the native valve. This framework may be used to improve design of prosthetic heart valves and surgical valve replacement procedures and could potentially assist in treatment planning of individual patients.

O-06

An experimental approach to a cost efficient systolic pump usable in vascular phantoms

Sverre Dahl[1)], Håvard_B. Jenssen[1)],
Trygve Syversveen[1)]

[1)] Department of radiology, Oslo University Hospital, Rikshospitalet.

Background: Pumps for vascular phantoms exists in many varieties, but the level of complexity required for reliable medical experimentation has made the development of cost efficient designs challenging.

Aim: We propose a design for an adjustable, easily operated and cost efficient pump producing flow mimicking physiological systolic-diastolic low resistance flow for vascular phantoms.

Experimental setup: A low geared electrical motor (12V, 8Nm) serving as a force generator, was connected to a rotational-to-linear motion conversion unit based on the ≫ Scottish yolk>-principle with a rotor plate connecting to a piston oscillating in a liquid chamber with diameter approx. 13 mm. The liquid chamber was positioned between two one-way valves drawing liquid from a basin and pumping it through a 16F silicone catheter submerged in regular ultrasound gel with an overlying thin plastic cover, the latter unit serving as a phantom upon which measurements were conducted using a GE Logiq E10 apparatus.

The calibre of the catheter remained constant. The amplitude of the piston oscillations was varied, and with parallelly mounted steel springs the systolic and diastolic intervals was paced. The system was completely devoid of air during measurements in order to achieve good hydraulic effect.

Signal intensity was increased by using a blood mimicking agent (CIRS-speed: 1570±30 m/s, att.: 0.1±0.05 dB/cm-MHz, density: 1.01-1.09 g/cc, visc.: 4.0±05 mPas).

The phantom, as well as a matrix keeping the units structurally arranged was designed in Sketchup Pro 2019 and printed on a Creality Cr-10s Pro 3D printer using polylactic acid (PLA) filament.

Results: We managed to produce low resistance systolic-diastolic flow, and measured with ultrasound spectral Doppler an acceleration time ranging from 83,2-177,6 ms at PSVs ranging from 0,2-1,4 m/s, comparable to physiological visceral arterial flow. Thus, we believe this design might prove useful as a flow generator in vascular phantoms.

O-07

Hepatic Portal Venous Flow evaluated by 4D-Flow MRI without and with Compressed Sensing and compared to 2D-Flow MRI

Nils Dahlström[1,2], Markus Karlsson[1,2], Jens Tellman[2,3], Frederik Testud[4], Ning Jin[5], Peter Lundberg[2,3]

[1] Department of Radiology, and Department of Health, Medicine and Caring Sciences, Linköping University, Linköping, Sweden
[2] Center for Medical Image Science and Visualization (CMIV) , Linköping University, Linköping, Sweden
[3] Department of Radiology, and Department of Health, Medicine and Caring Sciences, Linköping University, Linköping, Sweden
[4] Siemens Healthcare AB, Malmö, Sweden
[5] Siemens Medical Solutions USA, Inc, Cleveland, Ohio, USA

Background

For non-invasive portal blood flow assessment, pulsed doppler ultrasound is often used. However, as MRI is increasingly employed in the diagnostic workup of liver disease and since MRI protocols have become more efficient, blood flow measurement using MRI is an interesting addition. Instead of assessing one vessel at a time with 2D-flow sequences, 4D-flow techniques primarily developed for cardiac MRI may be applied to visualize flow in 3D volumes. However, the very large organ volume and small vessel diameters are among several factors that may lead to excessive acquisition times. Our aim was to evaluate whether the acceleration technique of Compressed Sensing (CS) can improve the practicality of 4D-flow MRI in the liver.

Method

Eight volunteers were examined using 2D-flow MRI, and using prototype sequences for 4D-flow MRI accelerated with parallel imaging or with CS using a VENC of 50 cm/s. Post-processing was performed in GTFlow (GyroTools LLC, Z ¨ rich, Switzerland) to calculate mean peak velocity and net flow in a cross section of the main portal vein, matched with the measurement plane orientation in the 2D-flow MRI.

Results

There was good accordance between 4D-flow (with parallel imaging or CS acceleration) and 2D-flow measurements. Acquisition times were considerably shorter with CS acceleration.

Discussion

The acquisition time was significantly reduced using Compressed Sense, from 20-25 min to around 10 min. Further sequence optimization is necessary to reduce this even more while preserving enough flow signal, e.g. using a lower VENC, but performance depends on several other parameters such as respiratory gating, acquisition resolution and acceleration factor.

Conclusion

Measurement of blood flow in the main portal vein using 4D-flow MRI gives results comparable to conventional 2D phase contrast, but requires long acquisition time. Acceleration using CS has potential to render 4D-flow MRI techniques feasible as an addition to liver MRI protocols.

O-08

Relationship between the dose of I-131 and the quantitative evaluation of thyroid bed uptake for adjuvant therapy of thyroid cancer

Kenta Konishi[1)], Ryo Ishiba[1)], Tomoyuki Asao[1)], Tsutomu Ikenohira[1)], Tetsuya Komatsu[1)], Shuhei Yamashita[2)], Harumi Sakahara[3)], Katsumasa Nakamura[1)]

[1)] Department of Radiation Oncology, Hamamatsu University School of Medicine, Hamamatsu-Shizuoka, Japan
[2)] Department of Radiology, Hamamatsu Rosai Hospital, Hamamatsu-Shizuoka, Japan
[3)] Hamamatsu PET Diagnostic Center

【Purpose/Objective】I-131 radioactive iodine therapy (RAI) after total thyroidectomy is the standard treatment for patients with a differentiated thyroid cancer. The purpose of this study is to investigate the relationship between the quantitative parameters and the uptake of thyroid bed for the purpose of adjuvant therapy using a 1.11 GBq or 3.70 GBq dose of I-131.

【Material and Methods】

We examined 37 patients with differentiated thyroid carcinoma retrospectively, who were treated with RAI at our institution between April 2017 and April 2019. Before RAI, all patients were performed total thyroidectomy. All patients were treated with the I-131 dose of 1.11 GBq (n = 25) or 3.70 GBq (n = 12). The I-131 whole body scan and SPECT/CT were performed 3 days after RAI using Symbia Intevo 6 (Siemens Healthcare, Erlangen, Germany). We measured standardized uptake value (SUV) and absolute radioactivity concentration (kBq/ml) on the highest uptake target lesions in the thyroid bed using an image analysis software.

【Results】

The median follow-up period was 8.6 months. Although both kBq/ml max and kBq/ml mean tended to be higher in 3.70 GBq group (kBq/ml max ; median 104.33, kBq/ml ; median 64.14) than in 1.11 GBq group (kBq/ml max ; median 83.75, kBq/ml mean ; median 48.44), there were no significant differences. On the other hand, the group in which the uptake disappeared after RAI showed higher absolute radioactivity concentration with marginal significance than the group in which the uptake did not disappeared. SUVmax and SUVmean were also higher in the uptake disappeared group.

【Conclusion】

It was suggested that the quantitative evaluation might be useful as one of the predictive indicators of disappearance of thyroid bed.

O-09

Bevacizumab Radioimmunotherapy in triple-negative breast cancer xenograft

Wenchao Gu[1)], Yudistiro Ryan[1)], Hirofumi Hanaoka[2)], Yoshito Tsushima[1)]

[1)] Department of Diagnostic Radiology and Nuclear medicine,Gunma University Graduate School of medicine, Maebashi, Japan
[2)] Department of Bioimaging Information Analysis, Gunma University Graduate School of Medicine, Maebashi, Japan

Objective:

Radioimmunotherapy (RIT) has been investigated for serval years. But slow blood clearance of antibody can cause severe hematological side-effects. Because bevacizumab (a clinically used anti-VEGF antibody) has an even longer terminal biological half-life compared to other antibodies, a blood clearance enhancement strategy is necessary for the application of bevacizumab RIT in clinical settings. Therefore, in this study, we performed three steps pretargeting RIT with bevacizumab for treatment triple negative breast cancer (TNBC).

Methods

MDA-MB-231 (TNBC cell line) was selected for preparing xenografts mice. In our pretargeting strategy, biotinylated bevacizumab was injected intravenously into tumor-bearing mice. After 24 hours, a clearing agent (avidin) was administered. Lastly, 3 hours after injection of clearing agent, Yttrium-90-labeled succinylated streptavidin (^{90}Y-succ-streptavidin) was administered. Mice were divided into 4 groups for therapeutic study; 300 μCi (group1), 250 μCi (group2), or 200 μCi (gourp3) of ^{90}Y-succ-streptavidin treatment and no treatment for the last group (group4).

Results

At day 10, tumor growth was significantly suppressed in all treatment groups compared to that of the no-treatment group ($p<0.05$). The mean tumor volume in group1, group2, group3 and group4 was 392.3 ± 65.7 mm^2, 468.4 ± 159.7 mm^2, 526.8 ± 154.0 mm^2 and 945.0 ± 474.5 mm^2, respectively.

Conclusions

These results indicated that our pretargeting treatment may effective for human TNBC treatment.

O-10

A Novel Method of Calculation of Mean ADC of the Bone on Whole-Body DWI using Deep Learning

Norio Hayashi[1)], Kaho Iwasaki[1)], Yusuke Sato[2)], Shunichi Motegi[3)], Akio Ogura[1)], Toshihiro Ogura[1)], Soma Kumasaka[4)], Yoshito Tsushima[4)]

[1)] Department of Radiological Technology, Gunma Prefectural College of Health Sciences
[2)] Department of Radiology, Gunma University Hospital
[3)] Department of Radiology, Josai Clinic
[4)] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University School of Medicine

Purpose

Whole-body MRI (WB-MRI) has the potential to detect some lesions for screening examination. The purpose of this study is to develop a method to calculate the mean apparent diffusion coefficient (ADC) values of the bone on WB-DWI.

Materials and Methods

We acquired WB T1-weighted images and DWI images from 15 patients. An MRI scanner was 1.5 T Philips Achieva (Best, Netherlands). In the first step, we segmented bone regions on T1-weighted images using a deep learning technique. In the second step, bone regions on DWI images were segmented by using the bone maps which were segmented on T1-weighted images and registered to DWI images. Finally, the mean ADC values of the bone on DWI were calculated. We evaluated the ADC values of the bone between the proposed and manual methods.

Results

The segmentation accuracy of the bone was 91.6 %. The mean ADC of the bone by the proposed method was significantly different that by mean ADC of all areas. There was no significant of the mean ADC values of the bone between the proposed and manual methods.

Conclusion

Using deep learning technology, we developed a method for calculating the mean ADC values of the bone. As a result, it may be possible to analyze bone metastasis quantitatively by using the proposed method.

O-11

Changes in the Purkinje cell' s synaptic density post-incubation of gadobutrol and ferrous ion: an in-vitro study

Achmad Adhipatria Kartamihardja[1)], Winda Aryani[2)], Ayako Taketomi-Takahashi[1)], Noriyuki Koibuchi[2)], Yoshito Tsushima[1,3)]

[1)] Department of Diagnostic Radiology, Gunma University Graduate School of Medicine, Maebashi, Japan
[2)] Department of Integrative Physiology, Gunma University Graduate School of Medicine, Maebashi, Japan
[3)] Gunma Initiative for Advance Research, Gunma University Graduate School of Medicine, Maebashi, Japan

Objectives: To investigate the changes in post synaptic density of cerebellar Purkinje cells after the exposure of Fe^{2+} and different concentration of gadobutrol

Materials and Methods: Fresh primary cerebellar neurons were isolated from C57BL/6 mice pinkies at P0-P2. The cerebellar neurons were cultured on a poly l-lysine coated 8-well culture plate and incubated at 37 ° C, supplemented with 5% CO_2. After the cell attachment, we maintained the cells with supplemented F12-DMEM based medium. On day in-vitro 1, the cell culture was exposed to 1μM Fe^{2+} and different concentration of gadobutrol (10, 1, or 0.1 μM) . When the cells matured, the immunocytochemistry were performed for synaptic density analysis. The PSD-95 protein on the dendrites and cell body were quantified. The cell' s morphology and the localization of the PSD-95 protein were also analyzed.

Results: There are no changes in the Purkinje cell' s relative dendritic area when incubated with Fe^{2+}. At 0.1 μM and 1 μM, gadobutrol significantly increased the relative dendritic area of the Purkinje cell's and a gradual increase of the dose resulting in lower relative dendritic area. There no significant changes were found the Purkinje cells incubated with 10 μM gadobutrol compared to the control group. Incubation of gadobutrol with Fe^{2+} attenuates the effect of gadobutrol to the relative dendritic area. The cell number in gadobutrol group was similar compared to the control group, while incubation of gadobutrol with Fe^{2+} significantly reduce the cell number in gadobutrol group.

Conclusion: Gadobutrol may cause changes in the synaptic density of the cerebellar Purkinje cells. Co-incubation of gadobutrol with Fe^{2+} may attenuate the effect to the synaptic density and cell number.

O-12

Radiology in Nepal: challenges and leadership opportunities

Suman Shrestha[1,2], Takahito Nakajima[1], Yoshito Tsushima[1]

[1] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine, Gunma, Japan
[2] Nepal Cancer Hospital and Research Center, Lalitpur, Nepal

Nepal is a poor mountainous country with a population of nearly 30 million. The annual health budget allocation is just about 5-6% of national budget, which is just enough for the salary of health care workers and supply of basic care. Most of the tertiary government hospitals are working with X-rays and ultrasound as radiology services. There are about 490 radiologists registered in Nepal medical council to-date, however, some senior radiologists are out of practice and recently, young radiologists are migrating overseas for better career and opportunities. Having topographical challenges with poor transportation facilities and also the preference of private centers to operate with CT scans and MRI mostly in the capital city and some metropolitan cities, advanced radiology services, CT and MRI, are almost none in the rural areas. Radiology has not been given much emphasis and obviously, nuclear radiology or nuclear imaging and therapy are almost non-existent. There are also lack of sub-specialists working in some specific subspeciality like neuro-radiology, breast radiology, musculoskeletal radiology, interventional radiology and so on. Only limited training slots are available for general radiology training and are very expensive costing around 50,000 USD, sometimes even double that price in some private medical colleges. In such a situation where a country is suffering from brain drain of trained radiologists and the government is not able to come up with training programs and well-equipped centers, there are opportunities for the private sector or the young foreign-trainee radiologists to take leadership initiatives to collaborate with foreign radiology societies and training centers to work for the training and investment in radiology in rural and sub-urban regions of Nepal. It is also necessary for Nepal to learn from other collaborations like JSRS and initiate to form societies like Japan Nepal Radiology Society, Nepal Scandinavian Radiology Society and so on.

O-13

Quantification of liver fat content using advanced ultrasound and magnetic resonance imaging: prospective comparison with magnetic resonance spectroscopy

Bien V.Tran[1)], Kouichi Ujita[1)], Ayako T. Takahashi[1)], Hiromi Hirasawa[1)], Takayuki Suto[1)], Yoshito Tsushima[1,2)]

[1)] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine, Gunma, Japan
[2)] Department of Diagnostic Radiology, Interventional Radiology and Nuclear Medicine, Gunma University Hospital, Gunma, Japan

Purpose
To evaluate the accuracy of ultrasound (US) and magnetic resonance imaging (MRI) techniques in the quantification liver fat content, with magnetic resonance spectroscopy (MRS) as the reference standard.
Materials and Methods
Volunteers without history of kidney disease were recruited to undergo US, MRI, and MRS examinations. On ultrasound, hepatorenal index (HRI) was calculated from 3 ROIs placed in the liver parenchyma and right renal cortex. On MRI, q-Dixon was performed, and proton density fat fraction (PDFF) was calculated with proper ROI. HISTO sequence with a typical voxel size of 27cc was chosen to estimate PDFF in MRS. Pearson' s correlation was used to correlate US, MRI, and MRS. An ROC curve was created, and cutoff point, sensitivity and specificity were computed by using Youden index. Intraclass correlation coefficient (ICC) and Bland-Altman analysis were performed to evaluate the reliability and agreement of measurements in 15 subjects.
Results
Thirty-eight volunteers (16 men, 22 women) were recruited. The correlation coefficient between MRI-MRS, US-MRS, and MRI-US were 0.78 ($p < 0.001$), 0.37 ($p < 0.001$), and 0.32 ($p < 0.001$), respectively. With MRS cut-off point of 5.56%, the AUC values of MRI and US were 0.98 ($p < 0.01$) and 0.81 ($p < 0.05$), respectively. The sensitivity, specificity, and cutoff value of MRI and US were 100%, 91%, 2.75%, and 67%, 100%, 1.7, respectively. The ICCs of MRS, MRI, and US were 0.87, 0.93, and 0.80, respectively. The mean of two MRS, MRI, and US measurements were 0.49 (LOA, -2.2% and 3.2%), 0.13 (LOA, -2.0% and 2.3%), and 0.02 (LOA, -0.5 and 0.5), respectively.
Conclusion
MRI with PDFF was more reliable than HRI. The feasibility of evaluating liver fat content using US with HRI may be limited and should be used with caution, even given its superior time and cost-efficiency.

O-14

How reliable is the texture analysis of ADC map?

Masamitsu Hatakenaka[1)], Yurina Onuma[1)], Chie Tsuruta[1)], Naomi Koyama[1)]

[1)] Department of Diagnostic Radiology, Sapporo Medical University, Sapporo, Japan

Introduction

Diffusion-weighted imaging (DWI) has been utilized not only for detecting acute cerebral infarction but also in oncology imaging. Furthermore, texture analysis-related metrics based on apparent diffusion coefficient (ADC) map have also been investigated recently for differential diagnosis and evaluating lesion aggressiveness. However, the reliability of those parameters has yet to be confirmed sufficiently. The purpose of the present study is to evaluate reliability of the texture analysis-related metrics about ADC map.

Materials and Methods

After getting institute review board approval, two sequential DWIs with b-values of 0 and 1000 s/mm^2 were obtained in both phantom and 11 cases of pelvic MRI for uterine lesions and ADC maps were generated using SYNAPSE VINCENT (Fuji Film Medical co. ltd), then 26 texture analysis-related metrics of the region of the interest (ROI) were measured using LIFEx (http://www.lifexsoft.org) and repeatability of them was evaluated using Bland-Altman analysis.

Results

In phantom study controlling motion and temperature, minimum, mean, maximum, Q1, Q2, Q3, Histogram entropy, GLCM correlation, GLCM entropy, GLRLM SRE, GLRLM HGRE and GLRLM RP showed relatively high repeatability with 95% limit of agreement $<\pm5\%$. In clinical study, the same metrics except minimum and maximum showed relatively high repeatability with 95% limit of agreement $<\pm20\%$.

Conclusion

The results of the study demonstrated that more than half parameters based on texture analysis for ADC map show low repeatability in clinical study. We should keep this in mind and be careful when applying texture analysis results into image interpretation.

O-15

The Japanese Alliance for Pediatric Cardiac CT

Eriko Maeda[1)]

[1)] Department of Radiology, The University of Tokyo

Cardiac CT has been increasingly used in children with congenital heart disease, instead of invasive cardiac angiography.

In the era of 64-row CT without iterative reconstruction, the radiation exposure of pediatric cardiac was 5-20mSv, rendering 1 in 250-500 children at risk of future carcinogenesis, which was associated with intermediate risk for carcinogenesis in definition by WHO. In these ten years, the radiation exposure reduced to submillisievert, or even <0.3 mSv with negligible risk for future carcinogenesis, owing to improvement of iterative reconstruction, and the invention of dual-source CT and area-detector CT.

Although there are several studies reporting clinically sufficient image quality for dose-reduced examinations, many hospitals in Japan are on their way to does reduction, despite the prevalence of high-end scanners in this country. The highest and the lowest radiation dose among 8 Japanese hospitals, which published English papers on pediatric cardiac CT, differed 71 times.

To rectify this variation, The Japanese Alliance on Pediatric Cardiac CT was organized in 2019. The members of the alliance include 14 radiologists from each region of Japan, 5 radiation technologists specialized in pediatric imaging and a medical statistician. We have three main missions. The first mission is to establish the diagnostic reference level of pediatric cardiac CT in Japan. The second objective is to provide up-to-date knowledge and our experience on low-dose pediatric cardiac CT, to know adequate clinical information can be acquired with a reduced dose. The last task is to exchange opinions in this area. In this talk, I would like to introduce the activity of our alliance, and the strategy to reduce the national dose.

O-16

A Research Information System - The next step after adopting PACS for image-based research studies

Hauke Bartsch[1,2,3], Cecilie Brekke Rygh[2], Erling Andersen[5], Ingfrid S. Haldorsen[1,2,4], Aslak Aslaksen[2], Inge Paulsen[3]

[1] Mohn Medical Imaging and Visualization Center, Bergen, Norway
[2] Department of Radiology, Haukeland University Hospital, Bergen, Norway
[3] Helse Vest IKT, Bergen, Norway
[4] Department of Clinical Medicine, University of Bergen, Bergen, Norway
[5] Department of Clinical Engineering, Haukeland University Hospital, Bergen, Norway

Picture Archive and Communication Systems (PACS) work together with Radiology and Hospital Information Systems to support the daily clinical work at hospitals world-wide. Here we argue that a similar combination of an electronic data capture system (EDC) with PACS is suitable for many image based research studies that deploy machine learning and image based analysis pipelines. This includes the possibility of introducing active learning models into the research workflow and most importantly, the potential of translating research into clinical practice.

By structuring a Research Information System (RIS) as a combination of EDC and PACS, projects benefit in terms of tracking of data quality, sharing of expertise in image reading and a simplified collection of information required for effective study management. Standard data sharing tasks like de-identification of meta- and image data are also similarly structured between projects. All of these areas therefore benefit from a centralized research system.

In order to realize the potential benefits of a research information system we used an opportunity in the Helse Vest health region Norway to create a RIS as part of the introduction of a new clinical multi-site PACS. The availability of clinical image viewing capabilities enabled an active learning based application to be deployed on the RIS. In this project images are annotated by the radiologist and stored as structured reports. Available to the processing pipeline the calculated quantitative measures are stored in the EDC and new image series reports are stored in PACS. The system allows for study tracking and automated export of derived data. Deployment of processing pipelines into clinical workflows requires change in data routing only. Supporting an open science framework our project is sharing developed software components publicly and we are looking for collaborating institutions and research projects outside of radiology to extend the scope of the project.

O-17

Medical informatics in Finnish undergraduate medical education: defining core content in the national multidisciplinary MEDigi project

Jarmo Reponen[1)], Timo Tuovinen[1)]

[1)] Research Unit of Medical Imaging, Physics and Technology, Faculty of Medicine, University of Oulu, Finland

Digitalization is already part of healthcare, but it has not been systematically introduced to Finnish medical education. MEDigi, a key project of Ministry of Education and Culture, responds to this challenge. It aims to develop and implement digital teaching, learning and assessment solutions and to promote national harmonization of undergraduate medical and dental education. The project aims also to increase the competence related to medical informatics and to the digital tools (eHealth) used in clinical practice.

The project supports national, discipline-specific collaboration in reaching consensus regarding the contents of undergraduate education, divided into three levels: core content (level 1), complementary content (level 2) and specialty content (level 3). In every faculty, level 1 core content should form the core of teaching and provide the student the base for further development of competence. The core content analysis and national agreement on core competencies will enable to specify consistent learning outcomes and evaluation criteria.

EHealth division consisting experts from all participating universities started working in April 2019 with the University of Oulu in charge of the progress. Two surveys were made, one for medical and dental teachers and one for those interested in the subject. Based on survey results, collection of background information and seminar work, eHealth division did the core content analysis. The results were divided into 12 main categories: 1) electronic patient record systems including picture archiving and communication systems, 2) knowledge databases and clinical decision support systems including artificial intelligence, 3) national electronic health record and imaging repositories, 4) information systems used by patients, 5) information security and data privacy, 6) secondary use of health data, 7) ethics and interaction in digital environment, 8) big data in healthcare, 9) health technology assessment, 10) megatrends in digital health, 11) development, research and innovation, and 12) use of medical technology.

O-18

Development of structured observation sheet for double reading in diagnostic radiology

Jarno T. Huhtanen[1)], Pekka Niemi[2)], Sami Kajander[2)], Hannu Aronen[3)]

[1)] PgD Clinical Reporting (UK), M.H.SC. (FIN), Turku University of Applied Sciences, Turku, Finland
[2)] MD, PhD, Docent, Department of Radiology, University of Turku
[3)] MD, PhD, Professor, Department of Radiology, University of Turku

Purpose

Double reading in diagnostic radiology can reduce errors and find discrepancies in report made by radiologist or radiology trainee[1]. Double reading can increase quality assurance in the field of radiology[2] by reducing errors in interpretation. Error rates varies between modalities. Double reading can be done either by double-reading or dual reading[3]. This structured observation sheet can be used in both occasions.

Methods

The structured observation sheet for double reading was based on literature review[4]. Observation sheet was done with REDCap (Research Electronic Data Capture) and it consist two phases. In the first phase the original x-ray is evaluated and is labelled as normal, abnormal or unclear. There is text box for possible explanations. In the second phase the original report is evaluated and marked (0= normal interpreted as abnormal / abnormal interpreted as normal, 1= abnormality detected but incorrect description, 2= abnormality detected but incomplete description 3= normal interpreted as normal / abnormal interpreted as abnormal). Again here is text box for possible explanations. It is crucial to identify the description because unclear or incomplete description about the findings can have implications to the patient care (e.g. pathological fracture described without the pathology)[5].

Results

Observation sheet was pre-tested and evaluated by two radiologist to increase face-validity[6]. Observation sheet was easy to use and not too time consuming which is important in clinical settings. It is easy to highlight the areas of most missed or incorrect reports. By reviewing these cases it is possible to reduce errors.

Conclusions

In health care radiologist competence and the quality of reports should be systematically reviewed[7]. Errors are inevitable but knowing the reasons are the only way to reduce them[8]. This can be done with the developed structured observation sheet.

O-19

Proposal for Introduction and Maintenance of Hospital Information System and PACS - A study on bidding separation of server hardware and software -

Hiroshi Kondoh[1], Masaki Mochida[2]

[1] Division of Medical Informatics, Tottori University Hospital
[2] SECOM Sanin Co. Ltd.

In these 10 years, the composition of hospital information systems (including electronic medical records (EPR), departmental systems, and PACS; hereinafter HIS / PACS) of large hospitals has changed due to advances in cloud technologies. We will report the investigation of the current situation and consideration of the contract. (Method) We collected the pre and post data in the introduction of separate purchase of hardware and software in new HIS and PACS. (Results) The virtual server had a lifespan of 6-7 years, which is not much different from the conventional hardware life. But the migration of software became easier and the software bacame to be no longer dependent on hardware. We separated the contracts due to the efficiency of hardware integration, the possibility of extending the life of software, the introduction of software separation, and the redundancy of functions. Although the actual price reduction did not had, due not to realize a true competitive bidding, we got several times storage. And the unified storage is expected to be able to manage high-speed large flash memory, inexpensive HDD (object storage), cloud storage centrally. We had not so much time to evaluate the system, but the access times actually became smaller in several systems than in previous hard ware situation. (Discussions) Regarding the separate contracts for terminals with the thin client system, server software and hardware, the realization of competitive bidding was a prerequisite for the price reduction, and the current effect was seen in terms of performance. The effect of extending the life span was considered to be demonstrated in the future. This method is effective for adding services and moving to cloud servers.

O-20

Comparison of treatment outcome of TACE continued case and case conversion to Lenvatinib in Hepatocellular Carcinoma Patients Refractory to Transarterial Chemoembolization

Kenji Murakami[1)], Kimio Kamada[1)], Sho Kamieda[1)]

[1)] Department of Diagnostic Radiology, Goryokaku Hospital, Hakodate, Japan

【purpose】
To evaluate outcome of TACE continued case and case conversion to Lenvatinib in Hepatocellular Carcinoma Patients Refractory to Transarterial Chemoembolization
【Material and methods】
This retrospective study reviewed intermediate-stage HCC patients who underwent the twice TACE. Patients were defined as TACE-refractory in japan guideline 2017 from 2017/4/1 to 2018/12/31. Patients divided into two groups: (1) patients who switched from TACE to Lenvatinib and (2) those who continued TACE. We evaluated the patient overall survival (OS) and Progression-Free Survival (PFS; the time patients reached PD).
【Result】
A total of 48 patients with HCC underwent TACE. 30 patients were deemed refractory. At the time they were identified as TACE failure, 11 patients converted to Lenvatinib, whereas 8 patients continued TACE. We excluded patients with Child-Pugh scores of ≥8, those with advanced-stage HCC, those who had undergone hepatic arterial infusion chemotherapy or other systemic therapy, and those treated with best supportive care alone. Child-pugh classification, tumor number, tumor size was not signicant. The median FPS and OS were 200 and 580 days, respectively, in the conversion group, and 120 and 390 months, respectively, in the continued group ($p = 0.342$ and $p = 0.137$, respectively).
【conclusion】
It is possible that Lenvatinib conversion might prolong OS and FPS in TACE-refractory patients with intermediate-stage HCC.

O-21

Initial Experience of Endovascular Aortic Repair using Iliac Branch Endoprosthesis

Masato Yamaguchi[1)]

[1)] Department of Diagnostic and Interventional Radiology, Kobe University Hospital

[Purpose] To evaluate the initial outcome of endovascular aneurysm repair (EVAR) using Iliac Branch Endoprosthesis (IBE).
[Materials and Methods] Between October 2017 to October 2019, fifteen patients who underwent EVAR using IBE for aorto-iliac aneurysms or isolated common iliac aneurysms were retrospectively reviewed. Eighteen common iliac aneurysms (twelve patients with unilateral implantation, and three patients with bilateral implantation) were treated using IBE. The incidence rates of endoleaks on post-EVAR angiography were evaluated. The incidence rates of endoleaks and thrombus in the IBEs on post-op CT angiography were also evaluated.
[Results] The implantation of IBE was successfully performed in all cases. The incidence rates of type III endoleaks (EL-III) was 17 % (3/18) on post-EVAR angiography. However, these three EL-IIIs spontaneously disappeared on postop CT angiography. The incidence rates of thrombus in the IBE were 61% (11/18). IBE occlusion was observed in one case (5.6%) due to poor joint of the iliac branch component and bridging component.
[Conclusion] The use of IBE for common iliac aneurysms was safe and effective. The incidence rates of EL-III on post-EVAR angiography was relatively higher, but all EL-III spontaneously disappeared on post-EVAR CT angiography. Thrombus in the IBE may cause the spontaneous disappearance of EL-III.

O-22

Technique of percutaneous direct needle puncture of calcified plaque (PIERCE technique) in superficial femoral and tibial arteries.

Tomoyasu Sato[1)]

[1)] Department of interventional and diagnostic radiology, Tsuchiya general hospital, Hiroshima, JAPAN

According to the improvement of the result of angioplasty, angioplasty plays an important role in the treatment of PAD. Angioplasty sometimes fails due to massive calcifications especially in the hemodialysis patients. Even if guidewire passed the target lesion successfully, we sometimes can not advance the other devices such as microcathters or balloon catheters, or we can not dilate the target lesion because of the calcifications.
To deal with such problems, we developed a novel method of percutaneous direct needle puncture of the calcified plaque (PIERCE) technique. This technique was invented to make cracks in the calcified plaques using percutaneous needle puncture, and we can obtain device crossing and favorable dilatation of the lesions.
The Precise procedure of this technique will be presented. After local anesthesia, the calcified plaque was directly punctured using 16-18 G needle under fluoroscopic guidance. Puncture was done several times at another level of the lesions. Though puncture was done in the severely diseased arteries, hemostasis was obtained after 5 to 10 minutes of balloon dilatation at the puncture site. This technique would be safe, effective and extremely low cost.

O-23

Procedure and results of endovascular treatment of MCA aneurysm in our hospital.

Ryokichi Yagi[1)], Ryo Hiramatsu[1)], Hiroyuki Ohnishi[1)], Shinji Kawabata[1)], Shigeru Miyachi[1)], Masahiko Wanibuchi[1)]

[1)] The department of Neurosurgery and Neurointervention, Osaka Medical College

Introduction: The treatment strategy for cerebral aneurysms is examined on a case-by-case basis based on verification of the incidence of complications by ISAT for ruptured aneurysms and ISUIA for unruptured aneurysms. But for middle cerebral artery (MCA) aneurysms, clipping is likely to be the first choice in terms of anatomical location. In our hospital, endovascular treatment is the first choice for unruptured and ruptured aneurysms, similarly for MCA aneurysms. In this study, we compared the outcome of endovascular treatment for MCA aneurysm in our hospital with previous reports.

Methods: From January 2013 to May 2019, 38 patients (42 aneurysms) who underwent endovascular treatment for MCA aneurysms at our hospital, age, treatment procedures, embolic status, complications, and prognosis were examined.

Results: 42 aneurysms (31/11 unruptured / ruptured), average age 72/66 years, maximum diameter 5.97 / 5.57mm, use of intermediate catheter 15 (48%) / 4 (36%), the day after operation The MRI DWI high signal area was 6.6 / 15. At the end of treatment, CO31% / 45%, NR45% / 45%, DF16% / 9%, and at 3 months later, CO73% / 63%, NR26% / 36%, DF0% / 9%. One recurrence was observed, and the bleeding developed 2 years after embolization.

Discussion: The results of endovascular treatment for MCA aneurysm in our hospital were morbidity 3.2% and mortality 0%, which were comparable to previous reports. However, intraoperative thrombus formation was observed in the unruptured aneurysm treated with the combination of stents, and there were also cases of complications such as cases of in-stent occlusion on 2 weeks after the operation and cases of recurrence.

Conclusion: The treatment results of MCA aneurysm by endovascular treatment have been improved with the progress
of devices, and we think that there is a need in an aging society. In the future, we would like to further improve treatment
results by carefully examining cases and carefully doing devices choice.

O-24

A case of rare complication of inferior vena cava filter with long term implantation: a fractured filter caused the right atrium injury

Yuki Tashiro[1,2], Mana Kurihara[1], Akio Kotake[1], Eriko Tanaka[1], Kyoko Nagai[1], Nobuyuki Takeyama[1], Hori Yoshiro[1], Hiroshi Kataoka[2], Hiroyuki Tanaka[2], Toshi Hashimoto[2]

[1] Radiology, Showa University Fujigaoka Hospital, Yokohama, Japan
[2] Cardiovascular Surgery, Showa University Fujigaoka Hospital, Yokohama, Japan

The long term implantation of an inferior vena cava (IVC) filter sometimes causes various complications. We report a case of 69-year old female presented upper quadrant pain with a fractured IVC filter penetrating right atrium. CT images without ECG-gated acquisition showed hemopericardium without any causes, such as an aortic dissection. In addition, there was a fractured IVC-filter (Bird' s Nest® Vena Cava Filter) that was implanted 26 years ago. Therefore a cardiac injury due to the fragmentated IVC-filter was suspected. ECG-gated CT images showed that a linear structure at the right atrium penetrated a cardiac wall. We diagnosed as right atrium injury and hemopericardium due to migration of the fragmentated IVC-filter. Surgical extraction of the wire was attempted but was difficult due to the migration of wire into the mediastinum. The Bird' s Nest® Vena Cava Filter is a permanent filter and constructed with wires that are diameter in 0.18mm and surround V-shaped struts. In this case, it was difficult to detect the fragment of the wire in CT images without ECG-gated acquisition because of its fineness and motion artifact. Fractured IVC-filter causing a right atrium injury is a rare complication, but when is suspected, we consider that ECG-gated CT examination is useful for diagnosis.

O-25

“Glue in the Lockdown” technique to embolize peripheral arterial aneurysms

Takahiko Mine[1)], Shohei Mizushima[1)], Maiko Yoshida[1,2)], Takeshi Kashimura[1)], Yohei Iseki[3)], Dai Nishina[3)], Masahiro Fujii[3)], Ryuzo Bessho[3)]

[1)] Department of Radiology, Nippon Medical School Chiba Hokusoh Hospital
[2)] Education and Research Center of Legal Medicine, Chiba University
[3)] Department of Cardiovascular Surgery, Nippon Medical School Chiba Hokusoh Hospital

Introduction:
Etiologic factors of isolated internal iliac artery (IIA) rupture include arteriosclerosis, traumas, vasculitis, collagen disease, infections, and connective tissue diseases. Here, we report a case with a spontaneous IIA rupture whose cause was highly suspected as HIV related vascular disease.

Care report:
52-year-old man without significant past and family history was admitted on ambulance due to the sudden onset of lower abdominal pain. A huge intra pelvic pseudoaneurysm arising from the right IIA was revealed from CT angiography and an emergency endovascular repair was successfully managed. In the postoperative course, inflammatory signs and pancytopenia persisted over three weeks and some multidrug-resistant bacterium were detected from blood and urine cultures. In addition, the positive reaction of HIV-1 with a low CD4 count (180 cells/mm^3) supported the diagnosis of the imminence of AIDS. Highly active anti-retroviral therapy was applied thereafter, and the condition has been controlled until today.

Conclusion:
Pancytopenia, mild coagulopathy, persistent inflammatory signs, and compromised host were the main symptoms of our patient which were associated with HIV infection. Moreover, from the present vascular lesions of intrapelvic arterial rupture with juvenile arteriosclerotic change, which corresponded with the previously reported features from the African institutions, HIV rerated vascular disease was highly suspected as the etiology of our patient.

O-26

A rare case of ectopic tonsillar tissue considered as a possible malignancy in the hypopharynx by a FDG-PET/CT study.

Tsuyoshi Yoshida[1)], Kazuo Nishiyama[2)],
Ayako Yamaguchi[3)], Junichi Omagari[3)]

[1)] PET Diagnostic Imaging Center, Koga Hospital 21, Kurume, Japan
[2)] Department of Head and Neck Surgery, National Hospital Organization Kyushu Cancer Center, Fukuoka, Japan
[3)] Department of Radiology, Koga Hospital 21, Kurume, Japan

A 60s male underwent a FDG-PET/CT study for a cancer screening on 2017/1/7. He has had a history of resection of urinary bladder tumor in 2000. Regular laboratory examination showed normal value. Tumor markers (PSA, AFP, CEA, CA19-9, SCC, CYFRA) were all in normal range.

FDG-PET/CT study showed abnormally high uptake of FDG in the left piriform sinus (SUVmax=early scan:4.81, delayed: 5.60). CT and MRI examinations revealed that a mass was located in the left piriform sinus.

At first, the hot spot shown by the FDG-PET/CT study was considered as a possible malignancy in the hypopharynx. Open biopsy under general anesthesia was conducted by a head and neck surgeon on 2017/2/6. The pathology of the specimen was, however, consistent with normal tonsillar tissue.

P-01

A case of Stanford B aortic dissection treated by entry closure with AVP2 in addition to simple TEVAR

Yoshiro Hori[1)], Hiroshi Kataoka[2)], Hiroyuki Tanaka[2)], Mana Kurihara[1)], Yuki Tashiro[1)], Akio Kotake[1)], Nobuyuki Takeyama[1)], Kyoko Nagai[1)], Eliko Tanaka[1)], Toshi Hashimoto[1)]

[1)] Department of Radiology, Showa University Fujigaoka Hospital, Kanagawa, Japan
[2)] Department of Cardiovascular Surgery, Showa University Fujigaoka Hospital, Kanagawa, Japan

We report a case of Stanford B aortic dissection treated by entry closure with AVP2 (Amplatzer Vascular Plug 2) in addition to TEVAR. Case: The case is 50 years old male with Stanford B aortic dissection. Because the aortic diameter of the distal arch increased from 35 mm to 49 mm in 4 years, the surgical treatment was indicated. The entry extended from the origin of the left subclavian artery to the aortic arch and the diameter was about 12 mm. In the simple zone2 TEVAR, the length of the proximal landing zone was insufficient, and there was a possibility that the entry could not be covered enough. Therefore, we planned to perform the TEVAR after closing the entry with AVP2.First, AVP2 was inserted through the entry from the false lumen retrogradely, then the first disk was deployed, and the disk was pulled back and attached to the entry. Next, the central lobe and the third disk were deployed, and the entry was closed. After that, zone 2 TEVAR and embolization of the left subclavian artery were performed. The closure of the entry was confirmed by contrast-enhanced CT after treatment, and good aortic remodeling was obtained by CT 2 years later. Conclusion: When the location of the entry is close to left subclavian artery, the use of the AVP2 to prevent the blood flow of entry is a safe and feasible treatment option for successful TEVAR.

P-02

Castleman' s disease in the retropharyngeal space; Radiologic-pathologic correlation

Arisa Ohara[1)], Yutaka Masuda[1)], Keigo Morinaga[2)], Kazunori Kuroki[1)], Masachika Fujiwara[3)], Dai Sato[4)], Kenichi Yokoyama[1)]

[1)] Department of Radiology, Kyorin University Faculty of Medicine
[2)] Department of Radiology, Koyama Memorial Hospital
[3)] Department of Pathology, Kyorin University Faculty of Medicine
[4)] Department of Otolaryngology, Kyorin University Faculty of Medicine

Castleman' s disease is a rare lymphoproliferative disorder of uncertain cause characterized by a distinctive pattern of hypervascular lymphoid hyperplasia. It is usually reported as a solitary mediastinal mass. Though the head and neck is the second most common area, the disease that originate from retropharyngeal space is rare. We report a case of hyalinevascular-type Castleman' s disease located in the retropharyngeal space.

A 37-year-old woman complained a sore throat. The swollen lateral wall of the left oropharynx was found on inspection. During the follow up, although a sore throat had improved, the swollen lateral wall of the left oropharynx did not improve. Unenhanced CT scan showed a well-circumscribed, solid mass in the left retropharyngeal space, which was low dense to the muscle. The mass showed homogeneous, avid enhancement on the arterial phase of contrast-enhanced CT scan. Then, MRI was performed. On the T1WI and T2WI images, the mass was slightly high intense to the muscle. On the f/s T2WI images, the mass was high intense to the muscle. The mass was high intense on DWI images, and ADC value was low on ADC map. MRDSA showed the strong enhancement on arterial phase, then washout was seen on venous phase. Subsequently, f/s enhanced T1WI was scanned, which showed a homogenously strong enhancement. Angiography (left external carotid artery) revealed hypervascular mass on the left side of the neck, then we identified main feeding arteries which were branches of the left superior thyroid artery. We embolized these branches by using GDC coils. On the following day, the operation was performed. The bleeding volume during the operation was 95mL, that proved the effectiveness of the preoperative embolization. The pathological diagnosis was Castleman disease, hyaline-vascular type. We estimated that the origin of the mass was retropharyngeal lymph node.

P-03

Image Findings of Hemophagocytic lymphohistiocytosis with Central Nervous System Involvement: A Case Report and Review of the Literature

Yasuhiro Sugai[1)], Toshitada Hiraka[1)], Yoshihiro Konno[1)], Yuki Toyoguchi[1)], Kazukuni Kirii[1)], Fumika Watarai[1)], Masafumi Kanoto[1)]

[1)] Department of Diagnostic Radiology, Yamagata University Faculty of Medicine, Yamagata, Japan

Hemophagocytic lymphohistiocytosis is an unusual disease. We report a case of this disease with central nervous system (CNS) involvement. The patient is a 3-month-old man. He suffered from prolonged fever, hepato-splenomegaly and pancytopenia, and admitted to our hospital. He had detailed examination and was diagnosed as the familial hemophagocytic lymphohistiocytosis with mutation in PRF1 gene. He had been treated with the HLH 2004 protocol, planning to go bone marrow transplantation. Among the treatment, he developed ataxia and dystonia. In magnetic resonance imaging (MRI) study, T2-weight/FLAIR hyperintensity lesions were observed in bilateral cerebral and cerebellar hemispheres, and brainstem, mainly in the peripheral cortical and subcortical lesion. Post-contrast T1-weight image demonstrated abnormal enhancement along leptomeninges and perivascular space, besides in these parenchymal lesions. Various radiographic findings have been reported in the literature, however any specific findings of CNS involvement in hemophagocytic lymphohistiocytosis are not revealed. From pathological point of view, infiltration by lymphocytes and histiocytes first occurs in leptomeninges, then extends to perivascular space and white matter occasionally resulting in necrosis and demyelination. We think the MRI findings in our case were well correlated to these pathological findings. We will present our case and review MRI findings of CNS involvement in hemophagocytic lymphohistiocytosis in the literature.

P-04

Effect of Cetuximab for inoperable, recurrent or metastatic oral squamous cell carcinoma (OSCC): evaluation by 18F-FDG PET/CT imaging biomarker

Mai Kim[1)], Masaru Ogawa[1)], Takahiro Shimizu[1)], Takaya Makiguchi[1)], Takahiro Nakajima[2)], Tetsuya Higuchi[2)], Yoshito Tsushima[2)], Satoshi Yokoo[1)]

[1)] Department of Oral and Maxillofacial Surgery, Plastic Surgery, Gunma University Graduate School of Medicine
[2)] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine

[Purpose] Surgery is the standard treatment for oral squamous cell carcinoma (OSCC); however, cetuximab, as indicated in combination with platinum-based therapy with 5-FU, has been shown to prolong survival in cases of recurrence or metastasis. Radiotherapy with cetuximab is indicated for locally advanced or inoperable tumors because of the patient's general physical status. Cetuximab, a molecularly targeted drug has been important in evaluating case selection and effectiveness therapeutic sensitivity for patients with OSCC. ^{18}F-FDG-PET, functional imaging that focuses on cell activity due to glucose metabolism and is characterized by its ability to evaluate tumor metabolism, was used in this study to investigate the relationship between tumor glucose metabolism and the therapeutic effectiveness of cetuximab. **[Subjects and Methods]** Twenty-two patients with OSCC who were treated with cetuximab between December 2013 and January 2019 at the oral and maxillofacial surgery of Gunma University Hospital were evaluated. PET analyzed the primary imaging (baseline PET) before the initial treatment and the PET biomarkers for the target lesions before cetuximab administration. **[Results]** Significant differences in baseline standardized uptake value (SUV), metabolic tumor volume (MTV), and total lesion glycolysis (TLG) were observed in cases of locally advanced or inoperable primary OSCC tumors (P = 0.042). Moreover, low MTV and TLG tended to predict therapeutic response to cetuximab. Additionally, phenotypic and morphological features of tumor structures were examined for texture analysis. SUVs were classified into the same category because entropy, homogeneity, and energy were expressed as clusters, which indicated heterogeneity. **[Conclusion]** Low pretreatment SUV, MTV, and TLG may help predict the antitumor effectiveness of cetuximab in patients with locally advanced or inoperable OSCC.

P-05

Assessment of the Cryoablation protocols in various cell-lines using quantitative biomarkers of bioluminescence imaging

Bolortuya Khurelbaatar[1)], Masaya Miyazaki[2)], Oyunbold Lamid-Ochir[1,3)], Zhang Xieyi[1)], Takahito Nakajima[1)], Yoshito Tsushima[1)]

[1)] Deparment of Diagnostic Radiology and Nuclear Medicine, Gunma University, Graduate School of Medicine, Gunma, Japan
[2)] Department of Applied Medical Imaging, Gunma University Graduate School of Medicine
[3)] Department of Radiology, The First Central Hospital of Mongolia

Objective: Cryoablation is one of the promising alternative local-regional ablation treatments for focal benign and malignant tumors. In this study, bioluminescence imaging (BLI) was employed to assess the treatment efficacy of cryoablation fundamental protocols in various cell-lines.

Materials and methods: Luciferase expressed human renal cell carcinoma (RCC) (A498-Luc, Caki-1-Luc) and nonsmall cell lung carcinoma (NSCLC) (A549-Luc, NCI-H460-Luc) cells were seeded as same concentrations in four 6-well plates. These were divided into 3 groups: group 0 (G0), a control group without treatment and baseline for quantitative analysis; and treatment groups into double and triple cycle groups according to the freeze-thaw cycles, with each cycle consisting of freezing under -25°C and -80°C for 10 min, followed by thawing at room temperature for 5 minutes. BLIs were acquired after double or triple freeze-thaw cycles. Cell viability was assessed using flow-cytometry with propidium iodide.

Results: There was a high linear correlation between BLI signals and viability cell numbers (r = 0.88, $p < 0.0001$). The BLI results demonstrated that lower temperatures (-80°C) and triple cycles yielded more significant cell deaths compared to higher temperatures (-25°C) and double cycles ($p < 0.001$, $p < 0.0001$). At -25°C, RCC cells were more susceptible to freezing than NSCLC cells ($p < 0.0001$), and at -80°C, no significant differences in BLI signals between double versus triple cycle ($p = 0.77$) and RCC versus NSCLC ($p > 0.05$) were observed.

Conclusion: Our results demonstrated that RCC is more sensitive to cryoablation even under higher temperatures (-25℃) freezing. Triple cycles and lower temperatures (-80 °C) could be sufficient to obtain complete cell death.

P-06

Morphology of calcaneofibular ligament under different ankle position on MRI.

Yoshihiro Akatsuka[1)], Hiroyuki Takashima[1)], Atsushi Teramoto[2)], Rui Imamura[1)], Kota Watanabe[3)], Toshihiko Yamashita[2)]

[1)] Division of Radiology and Nuclear Medicine, Sapporo Medical University Hospital
[2)] Department of Orthopaedic Surgery, Sapporo Medical University School of Medicine
[3)] Second Division of Physical Therapy, Sapporo Medical University School of Health Sciences

Purpose: Evaluating of the lateral ankle ligaments injuries using MRI is not easy, and evaluation of the calcaneofibular ligament (CFL) in particular is difficult. To investigate the morphology of the calcaneofibular ligament (CFL) under different ankle positions and obtain basic data to use in functional CFL assessments, injury diagnoses, and determination of treatment effects.

Materials and Methods: The subjects were healthy volunteers (total: 10; 7 males, 3 females; average age: 27.8 ± 7.3 years) with no history of ankle disease. We took ankle images (neutral position, maximum dorsiflexion, and maximum plantar flexion) using a 3-T MRI and 3-dimensional fast imaging employing steady-state acquisition cycled phases (3D FIESTA-C). We processed the 3D images of the CFL, peroneal muscle tendons, fibula, and calcaneus at a workstation, and measured CFL variables.

Results: In all positions, the CFLs showed a gently curving course with the peroneal muscle tendons as a fulcrum. The tortuosity angle was significantly smaller in plantar flexion (30.0° ± 7.4°) than in the neutral position (41.7° ± 8.3°).

Conclusion: 3D MRI images showed that, in all positions, the CFLs were curved due to the influence of the peroneal muscle tendons. With maximum plantar flexion, the CFL tortuosity angles were small, which is probably due to CFL tension. This should be considered on diagnosing CFL injuries and evaluating treatment outcomes.

P-07

A lightweight 0.25-mm lead equivalence protective apron to shield radiological technologists from radiation exposure to 99mTc during single-photon emission computed tomography (SPECT)

Takao Kanzaki[1,2], Tetsuya Higuchi[3], Xieyi Zhang[4], Yasuyuki Takahashi[2], Takayuki Suto[1], Yoshito Tsushima[3]

[1] Department of Radiology, Gunma University Hospital
[2] Department of Nuclear Medicine Technology, Hirosaki University Graduate School of Health Sciences
[3] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine
[4] Laboratory of Biopharmaceutics, Department of Pharmacology, Faculty of Pharmacy, Takasaki University of Health and Welfare

[Purpose] Radiological technologists in nuclear medicine departments (NMRTs) are exposed to higher radiation doses than most other occupationally exposed populations. Consequently, Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) has recommended the wearing of 0.5-mm lead equivalence protective apron (PA) in the case of staffs that are in close contact with patients who received a high activity of ^{99m}Tc. Our study aimed to evaluate the effectiveness of a 0.25-mm lead equivalence lightweight protective apron (Lightweight PA) for NMRTs radiation exposure during nuclear medicine procedures.

[Materials and Methods] The phantom study was conducted with four radioisotopes (RI): ^{99m}Tc, ^{123}I, ^{67}Ga and ^{131}I which were placed at 0.5m from the human phantom with and without Lightweight PA, and the personal dosimeter 'D-Shuttle' (Chiyoda Technol Corporation) was used for dose evaluation. Dose rates for ^{99m}Tc (300 MBq) were also measured at the distances of 0.5-2.0m. In the clinical study, a NMRT recorded the radiation dose during 20 days with and without Lightweight PA in clinical ^{99m}Tc-procedures (152 examinations).

[Results] In the phantom study, the Lightweight PA decreased the measured doses by 35% in ^{99m}Tc, 27% in ^{67}Ga, 33% in ^{123}I, and 10% in ^{131}I, respectively. The ^{99m}Tc shielding effect with Lightweight PA was increased as the distance increased, and the ^{99m}Tc shielding effect was 52% at 1.0m from the source. In the clinical study, Lightweight PA reduced the average dose per day from 13 ± 8.5 to 7.4 ± 3.3 μSv (mean ± standard deviation; $p < 0.05$), a 43% decrease.

[Conclusion] The 0.25-mm Lightweight PA may significantly reduce the radiation exposure of NMRTs.

P-08

Relationship between Acute Adverse Reactions to Iodine Contrast Media and Fasting before CT

Yuko Seki[1)], Junya Fukuda[1)], Takayuki Suto[1)], Hiromi Hirasawa[2)], Ayako Taketomi-Takahashi[2)], Yoshito Tsushima[3)]

[1)] Department of Radiology, Gunma University Hospital, Gunma, Japan
[2)] Department of Diagnostic and Interventional Radiology, Gunma University Hospital, Gunma, Japan
[3)] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine, Gunma, Japan

Purpose: Traditionally, patients fasted before intravenous administration of iodine-based contrast media. This was because vomiting was a frequent adverse reaction to high-osmolar iodine-based contrast media. The new guidelines from the European Society of Urogenital Radiology (ESUR) issued in 2018 do not recommend fasting before administration of low- or iso-osmolar non-ionic iodine-based contrast media. In April 2019, our hospital revised its contrast-enhanced CT (CE-CT) protocol, and has not fasted patients before CE-CT with iodine-based contrast media. The purpose of this study was to evaluate frequency of acute adverse reactions with CE-CT and the risk of aspiration pneumonia due to vomiting.

Materials and Methods: We searched the database of our institution for patients who underwent CE-CT between Dec. 2015 and Nov. 2018 (44,894 cases) with fasting, and between Apr. 2019 and Jan. 2020 (12,309 cases) without fasting. We also evaluated the symptoms of acute adverse reactions and diagnoses of aspiration pneumonia. Categorical variables were analyzed using Chi-squared test.

Results: The incidence of acute adverse reactions with fasting was 1,331 cases (2.97% of all CE-CT), and the incidence without fasting (after the revised protocol was implemented) was 379 cases (3.08%) (p=0.552). The common symptoms were sneezing (22.6%), coughing (12.3%), itchiness (9.7%), and discomfort (8.4%). The incidence of vomiting with fasting was 55 cases (0.12%), and its incidence without fasting was 20 cases (0.16%; p=0.195). We did not find any cases of aspiration pneumonia due to acute adverse reactions. The incidence of anaphylaxis was 25 cases (0.06%), and its incidence was 7 cases (0.06%) (p=0.961) following the revised protocol.

Conclusion: The frequency of vomiting as an acute adverse reaction of iodine-based contrast media was very low. We could not find cases of aspiration pneumonia. We found no differences in adverse reactions before and after the protocol change.

P-09

Hyperdense consolidation sign: a new diagnostic CT sign of diffuse alveolar hemorrhage

Soma Kumasaka[1)], Yuka Kumasaka[2)], Akiko Jingu[2)], Yoshito Tsushima[1)]

[1)] Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine, Maebashi, Japan
[2)] Department of Diagnostic Radiology, Fujioka General Hospital, Fujioka, Japan

Purpose:
Diffuse alveolar hemorrhage (DAH) refers to an uncommon but life-threatening condition characterized by intra-alveolar bleeding. Although DAH must be distinguished from other lung diseases, the CT findings of DAH are not only varied but also nonspecific, therefore it is often difficult to differentiate from alveolar pneumonia or pulmonary edema. The purpose of this study was to evaluate the value of "hyperdense consolidation" as a new CT sign in the diagnosis of DAH.
Materials and Methods:
We retrospectively reviewed patients with DAH between 2013 and 2018 who underwent initial non-contrast CT in our hospital. The final diagnosis of DAH was made by autopsy (n = 1), bronchoscopy (n =1) and clinical symptoms (n = 6). As a control group, patients with alveolar pneumonia or pulmonary edema (heart failure) were randomly selected during the same period. The CT images were continuously constructed with the thickness of 5mm. CT findings of these patients were evaluated with specific narrow window setting (window level = 60 HU, width = 80 HU). The hyperdense consolidation sign was defined as consolidation, which contains visually hyperdense area to aorta. Two independent radiologists analyzed CT findings, and their results were compared. Fisher exact test was used for statistical analysis, and *p*value less than 0.05 was considered significant.
Results:
A total of eight DAH patients (five men and three women; age, 75.4+/-4.0, range, 70-80 years old) with diffuse or patchy consolidations were found. Control patients (alveolar pneumonia, n=4, and pulmonary edema, n=4) were also selected. The hyperdense consolidation sign was positive in six of eight patients (75.0%) with excellent interobserver agreement (κ = 1.00), whereas only one of eight patients (12.5%) in the control group showed this sign (p<0.05).
Conclusions:
Hyperdense consolidation sign may be useful to distinguish DAH and lung consolidation due to pneumonia or pulmonary edema.

P-10

Retrograde Embolization of Renal Upper Collecting System for Life-Threatening Hematuria from Renal Cell Carcinoma.

Fumiya Uchiyama[1)], Tetsuhisa Yamada[1)], Akinori Harada[1)], Jun-Ichi Nishimura[1)]

[1)] Department of Radiology, Japanese Red Cross Medical Center, Tokyo, Japan

Introduction

Management of intractable hematuria from advanced renal cell carcinoma (RCC) can be problematic in patients not suitable for surgery. Renal trans-arterial embolization (TAE) has been established as a palliative treatment to relieve the symptoms such as hematuria. We report a case of retrograde embolization of renal upper collecting system for life-threatening hematuria in non-operative patient who had repeatedly received TAE for RCC.

Clinical History and Results

A 65-year-old man had gross hematuria requiring transfusion, in which RCC was opacified in right kidney with extending into right hepatic lobe and pulmonary metastases. He had previously received 4th TAE for intractable hematuria. Additional TAE was further more difficult due to development of multiple collateral vessels after embolization of right renal artery. Angiographic catheter was retrogradely advanced into the renal pelvis of right kidney under assistance of cystoscope. N-Butyl cyanoacrylate (N-BCA) mixed with lipiodol was injected into the renal calyces and pelvis through the catheter. Two AVP II plugs were placed in the renal pelvis and proximal ureter after injection of the N-BCA. After the retrograde embolization, the intractable hematuria has completely disappeared with ceasing urine production from right kidney with the RCC for one year. The lipiodol mixed with N-BCA and AVP II were well opacified in the right renal upper collecting system. There were no any complications.

Conclusion

Retrograde embolization of renal upper collecting system using N-BCA and AVP II was safe and effective for treatment of life-threatening hematuria in the non-operative patient who had repeatedly received TAE for RCC.

P-11

MRI guided transgluteal prostate biopsy at 3 T, a case report

Blanco Sequeiros Roberto[1)], Pärssinen Heikki[1)], Anttinen Mikael[2)], Mäkelä Pietari[1)], Bonström Peter[2)]

[1)] Department of Radiology, Turku University Hospital, Finland
[2)] Department of Urology, Turku University Hospital, Finland

Background:
Prostate cancer is the leading malignancy in males. Men with suspected prostate cancer that have had distal anorectal resection are at peril: the prostate is inaccessible via traditional biopsy which requires use of tranrectal ultrasound. As an alternative transgluteal approach can be used (1-3). However it is not possible to visualize reliably small tumors in CT or Ultrasound. Here we present a case where 3T MRI guidance was used to perform prostate biopsy. There are no reports describing use of 3T MRI for transgluteal prostate biopsy.

Patient:
The patient was a 72 year male with anorectal resection and radiotherapy treated rectal cancer, with suspected prostate cancer (PSA 12). MR imaging showed 1 cm PIRADs 5 lesion in the right peripheral zone (Figure1). The size of the prostate was 2.8x2.8x3 cm. The patient had bilateral hip prostheses.

Biopsy:
Biopsy was performed at 3 T MRI (Philips, Sonolleve, 3T) using in bore technique and transgluteal approach (Figure1). A MRI compatible 16g coaxial needle and 18g cutting needle (In vivo, USA) were used. There were no technical problems due needle or prosthesis generated artifacts nor were there complications. The biopsy revealed gleason 3+4 cancer. A later PSMA PET confirmed local disease and patient received MRI guided HIFU therapy.

Conclusion:
3T MRI can be used to guide transgluteal prostate biopsy.

References:
1. MRI guided transgluteal biopsies with an open low-field system in patients with clinically suspected prostate cancer: Technique and preliminary results. Zangos et al. European Radiology 2005

2. 1.5- T MRI guided transgluteal biopsies in patients with clinically suspected prostate cancer: Technique and feasability. Bodelle et al. Investigative Radiology 2013.

3. Prostate biopsy after anorectal resection: value of CT-guided trans-gluteal biopsy. Cantwell et al. European Radiology 2008.

～シーマン X線防護眼鏡～

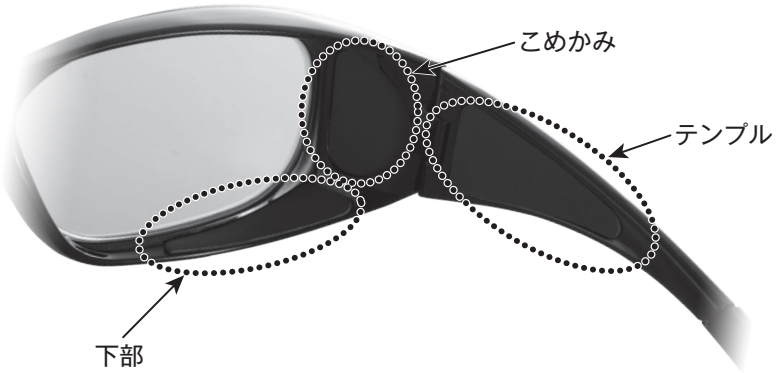
SX-Pro X線防護眼鏡

〈フィットオーバータイプ〉

〔対応可能な眼鏡サイズの目安〕
『幅140mm×高さ40mm以内』

X線被ばくのリスクを低減するために

【サイドシールド部】



正面、側面、下面から散乱線による被ばくリスクを低減することで、眼を保護します。

信頼をかたちに
シーマン株式会社
https://www.sheen-man.co.jp

本　社　大阪市北区東天満1丁目12番10号　〒530-0044
TEL(06)6354-7702　FAX(06)6354-7114
東京支店　TEL(03)5207-3521　FAX(03)5207-3522
九州支店　TEL(092)283-7400　FAX(092)283-7401
名古屋営業所　TEL(052)218-7337　FAX(052)218-7338

販　売　名：SX-Pro X線防護眼鏡
届 出 番 号：27B1X00011R00001
製造販売元：スーガン株式会社

末梢用ガイディングシースキット

Parent Cross

Medikit Peripheral Sheathless Guiding System

デバイス通過性と
末梢到達性にフォーカスした
新しいガイディングシースの選択肢

7Fr　6Fr　5Fr

末梢用ガイディングシースキット

Parent Plus™

Medikit Peripheral Sheathless Guiding System

変わらぬ性能で
安定したEVT手技をサポートします

6Fr　4.5Fr　3Fr

承認番号：23100BZX00050000

メディキット株式会社

発 売 元：メディキット株式会社　〒113-0034　東京都文京区湯島 1-13-2　TEL.03-3839-0201
製造販売元：東郷メディキット株式会社　〒883-0062　宮崎県日向市大字日知屋字亀川 17148-6　TEL.0982-53-8000
営 業 所／東京・札幌・仙台・埼玉・千葉・八王子・横浜・金沢・名古屋・京都・関西・神戸・広島・松山・福岡・宮崎
流通倉庫／宮崎県日向市・千葉県佐倉市
http://www.medikit.co.jp/　http://www.togomedikit.co.jp/

Eisai

hhc
human health care

患者様の想いを見つめて、薬は生まれる。

顕微鏡を覗く日も、薬をお届けする日も、見つめています。
病気とたたかう人の、言葉にできない痛みや不安。生きることへの希望。
私たちは、医師のように普段からお会いすることはできませんが、
そのぶん、患者様の想いにまっすぐ向き合っていたいと思います。
治療を続けるその人を、勇気づける存在であるために。
病気を見つめるだけではなく、想いを見つめて、薬は生まれる。
「ヒューマン・ヘルスケア」。それが、私たちの原点です。

ヒューマン・ヘルスケア企業 エーザイ

AFUTUREFREEOFLF
Global Alliance
エーザイはWHOのリンパ系フィラリア病制圧活動を支援しています。

IOPAMIDOL

イオパミドール注「F」

イオパミドール150注「F」
50mL/200mL

イオパミドール300注「F」
20mL/50mL/100mL

イオパミドール370注「F」
20mL/50mL/100mL

イオパミドール300注シリンジ「F」
50mL/80mL/100mL/150mL

イオパミドール370注シリンジ「F」
50mL/65mL/80mL/100mL

非イオン性尿路・血管造影剤 イオパミドール注射液

処方箋医薬品注) 薬価基準収載

IOHEXOL

イオヘキソール注「F」

イオヘキソール300注「F」
20mL/50mL/100mL

イオヘキソール350注「F」
20mL/50mL/100mL

イオヘキソール240注シリンジ「F」
100mL

イオヘキソール300注シリンジ「F」
50mL/80mL/100mL/110mL/125mL/150mL

イオヘキソール350注シリンジ「F」
70mL/100mL

非イオン性造影剤 イオヘキソール注射液

処方箋医薬品注) 薬価基準収載

注):注意一医師等の処方箋により使用すること。

■効能・効果、用法・用量、警告・禁忌を含む使用上の注意等につきましては添付文書をご参照ください。

製造販売元
〔資料請求先〕
富士製薬工業株式会社
〒939-3515 富山県富山市水橋辻ヶ堂1515番地
https://www.fujipharma.jp/