



令和2年度 関西医科大学放射線科 Cutting edge セミナー

謹啓

立春の候、先生方におかれましては、ますます御健勝のこととお慶び申し上げます。

この度下記の要領で「令和2年度 関西医科大学放射線科 Cutting edge セミナー」を開催させて頂く事になりました。先生方の積極的なご参加をお待ち致しております。

謹白

記

日時: Session I : 令和2年 2月20日(木) 18:00—
Session II : 令和2年 3月5日(木) 18:00—

場所: 関西医科大学附属病院
地下1階 読影室2

※質疑応答を含めた発表時間は、各 Session は1題10分、公聴会は30分を予定しております。

※発表される内容を Microsoft PowerPoint で保存し、当日 USB にて提出頂きますようお願い致します。但し動画を使用される場合には、動作不良になる場合がございますので発表データを作成された PC もご持参ください。

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以上

令和 2 年度 関西医科大学放射線科 Cutting edge セミナー

プログラム

平成 31 年 2 月 20 日(木)

18:00-

【開会の辞】

狩谷 秀治 先生 (関西医科大学 放)

18:10-

【Session I 診断①】

座長 広川 雄三 先生 (関西医大 放)

1. MRI of prostate cancer: Trial of quantitative evaluation using ADC

Hiroaki Kurokawa, Kohzai Masasuke, Terazawa Rika, Ueno Yutaka, Kan Naoki ,
Hirokawa yuzo, Morise Satomi, Ikeda Shigeki, Tanigawa Noboru.

Kansai Medical University, Department of Radiology

2. Management of pulmonary nodule: difference between Japanese Society of CT Screening and Fleischner Society

Osamu Honda, Yutaka Ueno, Naoki Kan, Satomi Morise, Asuka Kawaguchi, Rika
Terazawa, Masasuke Kohzai, Yuzo Hirokawa, Hiroaki Kurokawa, Noboru Tanigawa

Kansai Medical University, Department of Radiology

18:20-

【Session II IVR①】

座長 香西 雅介 先生 (関西医大 放)

3. Transarterial embolization for retained products of conception: outcome in 21 cases

Ono Y, Kariya S, Nakatani M, Ueno Y, Maruyama T, Komemushi A, Tanigawa N

Kansai Medical University, Department of Radiology

4. Changes in hepatic function after TACE in patients with HCC.

Takuji Maruyama¹⁾, Shuji Kariya¹⁾, Miyuki Nakatani¹⁾, Yutaka Ueno¹⁾, Yasuyuki Ono¹⁾,
Atsushi Komemushi¹⁾, Noboru Tanigawa¹⁾

1) Department of Radiology, Kansai Medical University

18:40-

【Session III 核医学】

座長 上埜 泰寛 先生 (関西医大 放)

5. Parkinson病とその他 parkinsonismの心交感神経と脳ドーパミントランスポーター機能

Kaoru Maruyama

6. Assessment of antitumor effect using Yttrium-90 lipiodol in a rat hepatocellular carcinoma cell line.

Kono Y, Kan N, Matsumoto Y*, Sakurai S*, Sakata Y**, Ueno Y, Maruyama K,
Kariya S, Utsunomiya K, Tanigawa N.

Dept. of Radiology, Kansai Medical University

*Radioisotope Research Center, Kansai Medical University

**Central Research of Laboratory, Kansai Medical University

7. Radioiodine (I-131) Ablation in Outpatient after Total Thyroidectomy for The Differentiated Thyroid Cancer

Naoki Kan¹⁾, Keita Utsunomiya¹⁾, Yumiko Kono¹⁾, Kensuke Suzuki²⁾, Hiroshi Iwai²⁾, Yasuhiro Ueno¹⁾, Kaoru Maruyama¹⁾ and Noboru Tanigawa¹⁾

1) Department of Radiology, Kansai Medical University, Osaka, Japan

2) Department of Otolaryngology, Kansai Medical University, Osaka, Japan

令和2年 3月 5日(木)

18:00-

【Session I IVR①】

座長 寺澤 理香 先生 (関西医大 放)

8. Analysis of factors influencing accuracy and complications in CT-guided lung biopsy

Miyuki Nakatani, Shuji Kariya, Yasuyuki Ono, Takuji Maruyama, Yutaka Ueno, Atsushi Komemushi, Noboru Tanigawa

Kansai Medical University, Department of Radiology

9. Cavitation effect by ultrasonic irradiation under carbon dioxide nano-microbubbles in swine

Yutaka Ueno, Shuji Kariya, Yasuyuki Ono, Takuji Maruyama, Miyuki Nakatani, Atsushi Komemushi, Noboru Tanigawa

Kansai Medical University, Department of Radiology

10. レントゲンカンファレンス

廣田 香月, 黒川 弘晶, 本田修

抄録

1. 前立腺癌の MRI : ADC を用いた定量評価の試み

英文タイトル:

MRI of prostate cancer: Trial of quantitative evaluation using ADC

抄録本文:

[Objective]The ADC value is not universal between equipment and facilities. We examined what conditions would allow us to diagnose prostate cancer using apparent diffusion coefficient (ADC) values.[Materials and Methods]Twenty-five lesions of 17 cases of prostate cancer were included in this study.For quantitative evaluation of ADC value in diffusion weighted images, we examined differences between MRI devices, changes in ADC value by setting b value, and ADC values of bladder urine and 25 tumor lesions.[Results]The ADC value calculated with b values of 0 and 2000(s/mm²) was 1800 to 2100 (×10⁻⁶ mm² / sec) for bladder and urine, and there was no difference between multiple MRI models. The ADC value of urinary bladder was very close to that of distilled water in the urethral balloon. Urine in the bladder can be a phantom as an indicator of ADC values.Under the same imaging conditions, ADC values of 21 prostate cancer lesions visually confirmed by MRI averaged 670, and ADC values of 600 or less were all tumor lesions.The average ADC value of the non-tumor site in the transition zone was 982.[Conclusion]The ADC value of urinary bladder was available as a phantom. If the urine was around 2000, the average ADC value of tumors visible on MRI was 670.Less than 600 are highly suspected tumors.

2. Management of pulmonary nodule: difference between Japanese Society of CT Screening and Fleischner Society

Osamu Honda, Yutaka Ueno, Naoki Kan, Satomi Morise, Asuka Kawaguchi, Rika Terazawa, Masasuke Kohzai, Yuzo Hirokawa, Hiroaki Kurokawa, Noboru Tanigawa

Abstract

Pulmonary nodule can be found on CT examination. Those include not only malignant tumor, but also benign tumor, infectious disease, and non-infectious disease. Some pulmonary nodules need further examination, some nodules need follow-up, and some

nodules need nothing to do. How to manage the pulmonary nodule is mainly decided by the size and the feature of the nodule. Adenocarcinoma, squamous cell carcinoma, and small cell carcinoma are the popular high-grade malignant epithelial pulmonary tumors. Adenocarcinoma has many subtypes which includes preinvasive lesions (atypical adenomatous hyperplasia, adenocarcinoma in situ) and minimally invasive adenocarcinoma, and it has many CT features (solid, part-solid nodule, and pure ground-glass nodule). How to manage the pulmonary nodule in Japan is proposed by Japanese Society of CT screening, and the follow-up interval is different between solid nodule and part-solid nodule, and pure ground-glass nodule. On the other hand, Fleischner Society, which is an international multidisciplinary medical society for thoracic radiology, also proposes its own principal for the management of pulmonary nodule. In this presentation, we introduce the guideline of the management for the pulmonary nodule, and discuss the difference between Japanese Society of CT screening and that of Fleischner Society.

3. Transarterial embolization for retained products of conception: outcome in 21 cases

Ono Y, Kariya S, Nakatani M, Ueno Y, Maruyama T, Komemushi A, Tanigawa N

Kansai Medical University, Department of Radiology

[Objective]

The purpose of this study was to evaluate the results of transarterial embolization (TAE) for the retained products of conception (RPOC).

[Materials and Methods]

The subjects were 21 patients (mean age, 34 years; range, 23 - 53 years) who underwent TAE for RPOC between 2006 and 2019.

Technical success was defined that stopping of the life-threatening hemorrhage was confirmed by internal examination immediately after embolization. Clinical success was defined that complete hemostasis was obtained without surgical treatment for hemorrhage after embolization.

[Results]

24 times of TAE were performed in 21 patients. Technical success rate was 100%. Hysterectomy was performed in the three patients due to rebleeding. The clinical success rate was 85.7% (n = 18). Four cases were performed second TAE or second angiography due to rebleeding or remaining blood flow in RPOC. The average interval

between TAE and hysterectomy was 3.25 days (range,0-7). The average interval between TAE and second TAE was 7.33 days (range,4-13).

Type of delivery was 12 vaginal delivery, 2 planned Cesarean delivery, 6 emergency Cesarean delivery, and 1 dilatation & curettage. RPOC was caused 8 cases of primary postpartum hemorrhage (PPH) and 13 cases of secondary PPH.

[Conclusion]

TAE was effective for RPOC. Second TAE was also effective for rebleeding or remaining blood flow in RPOC.

4. Changes in hepatic function after TACE in patients with HCC.

Takuji Maruyama¹⁾, Shuji Kariya¹⁾, Miyuki Nakatani¹⁾, Yutaka Ueno¹⁾, Yasuyuki Ono¹⁾, Atsushi Komemushi¹⁾, Noboru Tanigawa¹⁾

1) Department of Radiology, Kansai Medical University

[Purpose]

To investigate the changes in liver function when transcatheter arterial chemoembolization (TACE) was performed multiple times for hepatocellular carcinoma (HCC).

[Materials and Methods]

The subjects were 32 consecutive HCC patients who had undergone the first TACE from January 2013 to August 2013, had a Child-Pugh Grade A before the first TACE, and had undergone two or more TACEs. The Child-Pugh Score (CPS) and ALBI Score (AS) immediately before and three months after each TACE were examined. Patients who underwent hepatectomy or chemotherapy other than TACE during the observation period were excluded. The average value of CPS and AS before and after each TACE was calculated. The difference between CPS and AS before and after each TACE and before the first TACE and after the third TACE was analyzed using Wilcoxon rank sum test.

[Results]

The average values of CPS before and after each TACE were 5.37 before the first time, 5.41 after the first time, 5.74 before the second time, 5.65 after the second time, 5.73 before the third time, and 5.67 after the third time. The average values of AS before and after each TACE were -2.64 before the first time, -2.53 after the first time, -2.42 before the second time, -2.46 after the second time, -2.34 before the third time, -2.16 after the third time. There was no significant difference in CPS and AS before and after each TACE. Before the first TACE and after the third TACE, there was no significant

difference in CPS, but AS increased significantly.

[Conclusion]

CPS and AS did not change between before and after each TACE. CPS did not change between before the first TACE and after the third TACE, but AS increased.

5. Parkinson 病とその他 parkinsonism の心交感神経と脳ドーパミントランスポーター機能

Kaoru Maruyama

英文タイトル: Cardiac sympathetic function and brain dopamine transporter function in Parkinson's disease and other parkinsonism

抄録本文: [Objective] To evaluate myocardial sympathetic imaging using ¹²³I-meta-iodobenzylguanidine (MIBG) scintigraphy and striatal presynaptic dopamine transporter imaging using ¹²³I-Ioflupane (FP-CIT) single photon emission computed tomography (SPECT) in patients with parkinsonism. [Materials and Methods] Fifty-seven patients who underwent both methods for differential diagnosis between Parkinson's disease (PD, n = 37) and other parkinsonism (nonPD, n = 20) were enrolled. The nonPD comprise progressive supranuclear palsy (n = 6), corticobasal degeneration (n = 4), multiple-system atrophy (n = 2), and others (n = 8). MIBG uptake was evaluated as the heart to mediastinum count ratio (H/M) for early and delayed images, and the heart washout rate (WR). [Results] For single use of MIBG delayed H/M, the sensitivity, specificity, accuracy, positive and negative predictive values, in the clinical differentiation of PD from nonPD, were 81%, 75%, 79%, 86%, and 68%, respectively; for single use of WR, those were 84%, 55%, 74%, 78%, and 65%, respectively; for single use of FP-CIT, those were 100%, 40%, 79%, 76%, and 100%, respectively. For combined use of delayed H/M and FP-CIT, the sensitivity, specificity, accuracy, positive and negative predictive values were 81%, 85%, 82%, 91%, and 71%, respectively. In PD group, both early and delayed H/M ratio was not related to FP-CIT value ($P > 0.05$). [Conclusion] The results suggest that myocardial sympathetic uptake system and striatal dopamine transporter system are differently affected in PD. By combining use of

FP-CIT and MIBG, accuracy can be raised. Complementary neuroimaging studies with radiotracer may help in the differential diagnosis of parkinsonism.

6. Assessment of antitumor effect using Yttrium-90 lipiodol in a rat hepatocellular carcinoma cell line.

Kono Y, Kan N, Matsumoto Y*, Sakurai S*, Sakata Y**, Ueno Y, Maruyama K, Kariya S, Utsunomiya K, Tanigawa N.

Dept. of Radiology, Kansai Medical University

*Radioisotope Research Center, Kansai Medical University

**Central Research of Laboratory, Kansai Medical University

[Objective] To investigate the effects of Yttrium-90 lipiodol via in-vivo a xenograft model using a rat hepatocellular carcinoma.

[Material and Methods] We made xenograft rats that implanted a rat hepatocellular carcinoma cell (AH109A-TC) in subcutaneous tissue of bilateral shoulders (n=3) or bilateral femur muscles (n=6). ⁹⁰Y lipiodol (3.7MBq/100 μ L) were injected into unilateral subcutaneous tumors via direct needle puncture (S-group), into unilateral femoral xenograft tumors by intra-arterial administration (F-group, n=3) or an unlabeled lipiodol were injected into femoral xenograft tumor by intra-arterial administration (C-group, n=3). All contralateral tumors were prepared as controls but in femoral tumor model, the femur artery on the control side was ligated. At 7 days after injection, Growth suppression rate were calculated. CT and imaging plate was performed and tumor volume was compared to control tumor volume.

[Results] Target tumors of S-group were seen high accumulation of lipiodol than F-group and C-group in a week. However, the therapeutic effect was poor in the S-group. By contrast, therapeutic effect was seen in the F-group and C-group, specifically F-group tumors was grown smaller. Growth suppression rate of S-group, F-group and C-group were 1.1 ± 0.52 , 0.1 ± 0.03 , 0.7 ± 0.22 (Average \pm SE) respectively. In F-group and were seen lung accumulation of lipiodol.

[Conclusion] Yttrium-90 lipiodol has a synergistic antitumor effect in arterial embolization.

7. Radioiodine (I-131) Ablation in Outpatient after Total Thyroidectomy for The Differentiated Thyroid Cancer

Naoki Kan¹⁾, Keita Utsunomiya¹⁾, Yumiko Kono¹⁾, Kensuke Suzuki²⁾, Hiroshi Iwai²⁾, Yasuhiro Ueno¹⁾, Kaoru Maruyama¹⁾ and Noboru Tanigawa¹⁾

1) Department of Radiology, Kansai Medical University, Osaka, Japan

2) Department of Otolaryngology, Kansai Medical University, Osaka, Japan

[Objective] To evaluate the clinical significance of I-131 ablation in patients with differentiated thyroid cancer.

[Subjects and Methods] Forty-three postoperative (total thyroidectomy) patients with differentiated thyroid cancer were studied. Thirty-one patients received total thyroidectomy for thyroid cancer (Primary operation group) and 12 patients had total thyroidectomy as a second operation (Reoperation group : subtotal thyroidectomy was performed at first operation for thyroid cancer). All patients received I-131 30 mCi ablation and SPECT/CT scans were performed to assess the thyroid bed accumulation of I-131 to evaluate the efficacy of ablation. Thyroglobulin (Tg) levels were measured before and 6 months after I-131 ablation.

[Results] Ablation success rate was 64.3% in Primary operation group and 42.8% in Reoperation group. Thyroid cancer recurrence rate after ablation was 3.2% in Primary operation group and 33.3% in Reoperation group ($p < 0.05$). Serum Tg level was tended to be higher in Reoperation group than that in Primary operation group at 6 months after ablation. Thyroid cancer recurrence was observed in 3 of 4 patients with ablation failure in Reoperation group. Serum Tg level was higher in patients with recurrent disease (\pm) compared to those without recurrence (\pm).

[Conclusion] Low-dose I-131 ablation is recommended following total thyroidectomy in patients with high risk differentiated thyroid cancer. However, low-dose (30mCi) I-131 ablation may not be effective for patients who had received surgery for differentiated thyroid cancer and have previously had recurrent disease.

8. Analysis of factors influencing accuracy and complications in CT-guided lung biopsy

Miyuki Nakatani, Shuji Kariya, Yasuyuki Ono, Takuji Maruyama, Yutaka Ueno, Atsushi Komemushi, Noboru Tanigawa

Kansai Medical University, Department of Radiology

[Objective] This study aimed to analyze factors influencing accuracy and complications in patients who underwent CT-guided lung biopsy at our medical center.

[Material and Methods] This study included 841 patients who underwent CT-guided lung biopsy between January 2006 and March 2017. Final diagnosis, when surgical resection was performed, was histopathological diagnosis from the lung lesion specimen, and when resection was not performed, was clinical diagnosis after >6 months of follow-up. The accuracy of lung biopsy was assessed by comparison of biopsy results and final diagnosis.

[Results] Accuracy of CT-guided lung biopsy was 95.5%. CT fluoroscopy was used in 93.1% of cases. Two patients whose sample could not be diagnosed histopathologically and 190 patients whose final diagnosis was undetermined were excluded from evaluation of accuracy. The factors, including lesion size, lesion depth from pleura, lesion location and patient position, had no significant influence on accuracy. The complications were Grade 1 and 2 pneumothorax and Grade 1, 2 and 3 bleeding.

[Conclusion] CT-guided lung biopsy had a diagnostic accuracy rate of 95.5%. Pneumothorax and bleeding sometimes occurred as complications.

9. Cavitation effect by ultrasonic irradiation under carbon dioxide nano-microbubbles in swine

Yutaka Ueno, Shuji Kariya, Yasuyuki Ono, Takuji Maruyama, Miyuki Nakatani, Atsushi Komemushi, Noboru Tanigawa

Kansai Medical University, Department of Radiology

[Objective] It is known that the physical impact of the cavitation effect creates a temporary hole in the cell membrane, facilitating the entry and exit of substances through the cell membrane. We investigated whether cisplatin translocation of the cell membrane was enhanced by inducing cavitation by ultrasonic irradiation under carbon dioxide nano-microbubbles in swine liver tissue.

[Materials and Methods] Six swines were used. By percutaneous catheter, 100 ml of cisplatin and 100 ml of carbon dioxide nano-microbubbles (concentration: 1.07 to 2.50×10^9 / ml) were simultaneously administered from the hepatic artery. The pig was

laparotomized, and the left inner lobe of the liver was ultrasonically irradiated (output 10W, frequency 3MHz) from the liver surface to induce cavitation. After that, the swine were euthanized and tissue was excised from both the inner left lobe with ultrasonically irradiated and the inner right lobe without ultrasonically irradiated. The excised specimens were each measured for cisplatin concentration.

[Results]The cisplatin concentration of the excised specimens was significantly higher in the medial left lobe with induced cavitation, averaging 6266.7 (SD 2841.2) ng/g in the medial left lobe and 2700.0 (SD 63612) ng/g in the medial right lobe. (P = 0.03).

[Conclusion]Cell membrane migration was enhanced in cavitation-induced liver tissue, and drug migration was increased. In this study, we showed that cavitation can be used in swine.