

頭頸部癌の低線量率小線源治療

渋谷 均

**LOW-DOSE-RATE BRACHYTHERAPY FOR HEAD AND NECK CANCER**

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## 矩形照射野におけるコリメータ反転効果補正のための加重係数

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## THE GEOMETRIC WEIGHTING FACTOR TO CORRECT A COLLIMATOR EXCHANGE EFFECT IN THE RECTANGULAR IRRADIATION FIELD

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**Abstract:** This study reports on the geometric weighting factor ( $k$ ) for the collimator exchange effect in a rectangular irradiation field. We examined  $S_{c_{eq}}$  and  $S_c$  using a regression analysis, about  $k$  when we used a report type of Kim,<sup>4)</sup> and when we used the least squares method and the bisection method. The distribution of  $k$  in the bisection method approximated the standard normal distribution of the type that concentrated at the center, and it was shown that the theory of  $k$  was appropriate. The values of  $k$  were 1.779, 2.233, and 2.478 in each method. The coefficient of determination adjusted by the degree of freedom ( $R^{*2}$ ) in  $S_{c_{eq}}$  was 0.978, 0.990, and 0.992 each. In  $k=1.779$  and  $k=2.478$ , it was  $p=0.05$ . Therefore, a significant difference was recognized.  $R^{*2}$  in  $S_c$  was 0.987, 0.993, and 0.991 each, and the significant difference was not recognized. It is thought that  $k$  calculation by the dichotomy is effective in confirming the accuracy of the measurement value when  $S_c$  is calculated. The values for  $k$  in the bisection method of  $X<Y$  and  $X>Y$  was 2.514 and 2.443 each.  $R^{*2}$  was 0.985 and 0.996 in  $S_{c_{eq}}$  and 0.984 and 0.998 in  $S_c$ . The difference between  $S_{c_{eq}}$  and  $S_c$  was significant ( $p=0.018$ ,  $p<0.001$ ). Cancellation of the error margin factor in  $X<Y$  will be considered for future tasks in the  $S_c$  calculation using  $k$ .

Key words: Collimator scatter factor, Equivalent square field, Collimator exchange effect, Geometric weighting factor

前立腺癌外部放射線治療における照射体位の  
違いがリスク臓器線量に及ぼす影響  
—異なる臨床標的体積での検討—

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**EFFECT OF TREATMENT POSITION ON NORMAL TISSUE DOSE IN DIFFERENT  
CLINICAL TARGET VOLUMES IN EXTERNAL BEAM RADIOTHERAPY FOR  
PROSTATE CANCER**

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**Abstract:** Purpose: To quantitatively assess the differences between supine and prone positions on normal tissue dose in different clinical target volumes (CTVs) in irradiation of prostate cancer.

Materials and Method: Eighteen patients with prostate cancer underwent treatment planning CT scans in the supine and prone positions. The prostate only (PO) and prostate plus seminal vesicles (PS) were delineated as CTVs. A six-field plan was generated and compared concerning the rectum and bladder dose-volume histogram in both treatment positions in each of the respective CTVs. The distance between the PS and rectum in both treatment positions was also measured.

Results: In some cases, the distance between the seminal vesicles and rectum changed by more than 20 mm in the transition from supine to prone, although the change in distance was about 5 mm in many cases. Significant differences in rectal V90 were observed only in PS between the supine and prone positions ( $p=0.0015$ ). However, significant differences in bladder V90 were not observed in both CTVs between the supine and prone positions.

Conclusion: The effect of rectal dose reduction using the prone position in irradiation of prostate cancer depends on the range of CTV.

Key words: Prostate cancer, Radiotherapy, Prone position

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## 局所進行外耳道癌に対する放射線治療成績 —MRI所見との関連—

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### THE RESULTS OF RADIOTHERAPY IN PATIENTS WITH LOCALLY ADVANCED EXTERNAL AUDITORY CANAL CANCER: PARTICULARLY REFERENCE TO MRI FINDINGS

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**Abstract:** Purpose: To evaluate the therapeutic results of radiotherapy in patients with external auditory canal cancer, with particular reference to MRI findings.

Materials and Method: The records of eight patients with locally advanced carcinoma of the external auditory canal treated between 1996 and 2006 in our institution were reviewed. Six patients were treated with surgery and radiotherapy and two with radiotherapy alone. Chemotherapy was administered in five patients. There were two T2 and six T3 tumors according to the Stell classification. The primary tumor extended to the parotid gland in four subjects, to the temporomandibular joint in two, to the dura in two, and close to the internal carotid artery or jugular vein in three on pretreatment MRI. The median follow-up was 28 months.

Results: Local control was achieved in one of the two patients with T2 disease and in two of the six patients with T3 disease. No local control was achieved in five patients with MRI findings that indicated extension to the dura or the near internal carotid artery and/or jugular vein. There was no relapse in the three patients without such MRI findings.

Conclusion: The therapeutic results in patients with T2 and T3 disease were poor. It was indicated that MRI findings closely correlated with patient outcome.

Key words: External auditory canal cancer, Radiotherapy, MRI

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## 心，冠動脈への線源迷入の鑑別に64列MDCTが有用であった 前立腺癌I-125密封小線源治療の1例

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### 64 MDCT IS USEFUL MODALITY FOR DETECTION OF SEED MIGRATED REGION: A CASE REPORT WITH PROSTATE CANCER TREATED BY <sup>125</sup>I BRACHYTHERAPY

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**Abstract:** We experienced a case where the radioactive seed migrated to the right ventricle after <sup>125</sup>I brachytherapy for prostate cancer. We could not estimate seed migration to either the coronary artery or right ventricle on non-CE conventional CT and chest X-ray. However, on coronary CT using 64 MDCT, we diagnosed the correct region of migration. It is considered important to evaluate the coronary artery using 64 or more MDCT synchronized with the electrocardiogram, if the seed exists at the level of the left lower lung on chest X-ray.

Key words: Seed migration, Brachytherapy, Prostate cancer, Cardia

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A CASE OF A RECURRENT FNH-LIKE LESION TREATED BY  
RADIATION THERAPY

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**Abstract:** A 38-year-old woman underwent liver resection for an FNH-like lesion. Regrowth of the residual nodule occurred 9 months after liver resection. The recurrent nodule was treated with 50 Gy by external conformal radiation therapy. The nodule shrank remarkably 20 months after radiation therapy without evidence of recurrence. The literature was reviewed for an 'FNH-like lesion' and radiation therapy for the benign liver tumors.

Key words: Benign nodular hepatocellular lesion, FNH-like lesion, Radiation therapy

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## 乳癌術後に放射線治療を施行した自己免疫性水疱症の2例

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POSTOPERATIVE RADIATION THERAPY FOR TWO BREAST CANCER PATIENTS  
WITH AUTOIMMUNE BULLOUS DISEASE

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**Abstract:** The current literature reports that radiation therapy for patients with autoimmune bullous disease due to adverse or aggravating effects is contraindicated. We recently used postoperative radiation therapy to treat breast cancer patients with autoimmune bullous disease. We were initially hesitant to indicate radiation therapy for these patients, but they expressed the earnest wish to preserve their breasts, so we obtained full informed consent, administered reduced-dosage radiation, and increased the amount of regular steroids. Neither severe acute adverse effects nor exacerbation or induction of cutaneous reactions during the radiation therapy was observed, and no severe delayed reactions have been noted to the present.

Key words: Autoimmune bullous disease, Pemphigus, Pemphigoid, Radiation therapy

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