

**Methods:** From 1991 to 1995, a standard digital storage phosphor radiography system was used for the beam documentation in 47 patients with electron portals from 6–12 MeV. The delivered doses were in a range of 50 to 200 cGy per fraction for verification imaging and in the range of 1 to 4 cGy for portal imaging within the linacs electron portal imaging mode. 38 patients underwent electron beam verification, 9 patients underwent electron beam portal imaging.

**Results:** The images obtained were of excellent quality. The image contrast was not dependent on the electron energy, neither for portal nor for verification imaging. By methods of electronic contrast enhancement, it could be optimized in each case.

**Conclusions:** Digital storage phosphor radiography is at present the most suitable method at all to perform electron beam documentation.

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POSTER

### Electronic portal imaging in the detection of setup variation in daily treatment of patients undergoing radiation treatment for prostate cancer

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This study tested the utility of electronic portal imaging (EPI) in detecting field placement errors (FPE) and in determining the statistical nature of FPE in patients undergoing radiotherapy (RT) for prostate cancer at our facility.

20 patients treated using a four-field technique were studied. Port films (PF) were taken in the 1st, 3rd and 5th weeks of treatment and FPE corrected on the basis of these. Set-up 'corrections' during RT were recorded. Daily EPIs were also performed and compared with a sim film by 2 observers to determine FPE. Interobserver differences were quantified. The mean and standard deviation (SD) of FPEs in 3 directions (X, Y, Z) were determined. Set-up corrections were compared with the corrections suggested by the daily EPIs.

10 set-up corrections were made on the basis of PFs. Each patient had a mean of 26.7 and 26.2 EPIs taken of the AP port and lateral port respectively. The correlation coefficient between the observers' FPEs was 0.80. The inter-observer difference SD was between 0.88 and 1.67 mm, depending on the direction. The observed set-up FPE for all patients varied between  $-0.33 \pm 2.3$  (mean  $\pm$  SD) and  $-1.12 \pm 3.5$  mm. The 'recorrected' set-up FPE for all patients varied between  $-0.08 \pm 2.45$  and  $2.13 \pm 3.7$  mm. In general, the mean 'recorrected' FPEs for the first 4 EPIs were not different from the subsequent mean variation. In total, discounting any corrections, 6 patients had a systematic FPE in any direction of greater than 3 mm; after correction on basis of the PFs, only 3 had a systematic error greater than 3 mm.

EPI appears to reproducibly detect setup variation in prostate fields. FPE was relatively small, but varied depending on direction. Changes made on the basis of PFs generally reduced the FPE observed on the EPIs.

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POSTER

### The role of radiotherapy in esophageal cancer management

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**Purpose:** The results of radiotherapy with or without surgery are presented.

**Methods:** From February 1989 to September 1993, 170 untreated cases of squamous cell carcinoma stages II–III, arising from the thoracic esophagus have been treated in the institute. One group of 73 patients were treated by external beam irradiation (EBRT) to a dose 30 Gy/5 Gy per fraction/6 fractions per week. Intracavitary brachytherapy (IBT) was performed in 2–3 days after EBRT. The average dose delivered by IBT (Selectron, source <sup>137</sup>Cs, pellets LDR-MDR) was 15 Gy, the dose per fraction was 5 Gy twice per week, calculated at 0.5 cm below esophageal mucosa. For 47 of these patients surgery (S) was carried out after 3–4 week's rest. For 51 patients of 3th group surgery have been fulfilled within 3–4 weeks after EBRT only. Another group of 36 patients were treated by EBRT to a dose of 51–54 Gy/17–18 fractions/3.5 weeks.

**Results:** There was remarkable increase to the end of 1 year in relief of dysphagia and local control in groups with IBT. The level of benign

radiation-induced esophageal ulcerations and strictures in IBT-groups did not exceed such in EBRT-groups. The survival rate from all groups are representing in the table.

**Conclusion:** Intracavitary radiotherapy with or without surgery is safe and effective treatment method for patients with esophageal cancer.

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POSTER

### The factors which influence the cosmetic outcome in breast cancer patients after conservative surgery and radiotherapy

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**Purpose:** Cosmetic outcome among patients with breast cancer after breast conserving surgery and radiotherapy were evaluated and the factors influencing the cosmesis were assessed.

**Methods:** Two hundred nine patients with breast conservative surgery who referred to Ege University Dept. of Radiotherapy between January 1989 and December 1995 were evaluated retrospectively, cosmetic outcome and the factors influencing the cosmesis were evaluated.

**Results:** The age range was between 18–80 years (median 47 years). Seventy (33.6%) patients had quadrangectomy, 82 (38.9%) had wide local excision and 57 (27.5%) had tumorectomy. According to the stages 9 patients (4.3%) were Stage 0, 69 (33%) were Stage I, 69 (33%) were Stage IIA, 37 (17.7%) were Stage IIB, 17 (8.2%) were Stage IIIA, 8 (3.8%) were Stage IIIB. The cosmetic results were excellent in 21.1% (44 patients), good in 50.2% (105 patients), moderate in 18.7% (39 patients), poor in 10% (21 patients).

**Conclusion:** Patient's age younger than 40 years ( $p = 0.035$ ), tumors smaller than 2 cm ( $p = 0.0007$ ), breast diameter less than 19 cm ( $p = 0.033$ ) tumorectomy ( $p = 0.0004$ ), incision type according to NSABP recommendations ( $p = 0.001$ ) were the factors influencing excellent cosmesis while radiotherapy volume ( $p = 0.028$ ), dose ( $p = 0.310$ ), boost type ( $p = 0.665$ ), chemotherapy ( $p = 0.885$ ) and hormonotherapy ( $p = 0.982$ ) had no effect on cosmesis.

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POSTER

### Tumor regression during external radiotherapy as a predictive factor of local control in glottic cancer

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The aim of this study is to assess the influence of complete tumor regression on the results of radiotherapy in patients with glottic cancer. One hundred patients with histologically confirmed squamous carcinoma of glottis were treated exclusively with Co-60 between 1984–1990 (T1 44pts, T2 31 pts, T3 25 pts). The regression had been estimated after the dose 40–45 Gy than after completing the prescribed dose 60–66 Gy and finally at the end of treatment. For patients who did not show the full regression after 60–66 Gy the total dose was usually boosted up to 70 Gy.

The study showed that 13% of patients had radioresistant tumors, 35% very radiosensitive, 53% were in the group of medium radiosensitivity. The predicted probability of 30 months survival without symptoms in patients with complete regression at the end of therapy was notably different in particular stages of clinical advancement. 30 months actuarial survival without symptoms was achieved in 69% with T3. In T2 77.5% and T1 84%. 30 months symptom free survival has been observed in 61 patients: T1 32/44 (73%), T2 20/31 (65%), T3 9/25 (36%). 30 months symptom free survival in 87 patients with CR at the end of therapy was in T1 32/42 (76%), T2 19/27 (70%), T3 7/18 (39%).

**Conclusions:** The complete regression of tumor at the end of treatment has very significant prognostic value.

Among radioresistant tumors (with not full regression (PR) at the end of treatment) prevailed cases with stage T3 but there were also some poor responders among T2 and T1 patients. In the group of T2 patients the rate of poorly responding tumors was 10–15%. That percentage in the stage T3 is estimated to be 2–3 times higher.

	EBRT+IBT+S	EBRT+IBT	EBRT+S	EBRT
N of patients	47	36	51	36
1-survival rates	80.9%	69.23%	45.1%	36.11%
3-survival rates	25.9%	11.54%	8.8%	8.33%