

	Bladder	Prostate	Rectum	Femoral Heads	Pelvic bones	Contours
Manual	5m 20s	5m 38s	5m 37s	9m 5s	52m 36s	47m 50s
Computer	2m 40s	6m 1s	6m 52s	6m 14s	28 s	1m 12s

Computer segmentation algorithms can considerably reduce the time taken to define pelvic anatomy relevant to radiotherapy treatment planning, thereby increasing the productivity of the planner. They are best applied to those structures which have strong edges and are less well suited to definition of the prostate (poor edge contrast) and rectum (gas filled lumen). More sophisticated algorithms are required if further time savings are to be realised.

171 POSTER COMPENSATORY HYPERTROPHY OF THE CIRRHOTIC LIVER WITH HEPATOMA AFTER PROTON BEAM RADIOTHERAPY

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Background/Aims: The liver has a tremendous ability to hypertrophy in compensation for acute parenchymal loss by surgical hepatectomy and possibly by radiotherapy. This ability, however, is impaired in the cirrhotic liver and therefore major hepatectomy is even precluded from a treatment of choice for hepatoma. Radiotherapy can be an alternative treatment of hepatoma and the ability to hypertrophy will be a major determinant of radiation tolerance. The aim of this study is to determine the ability of the cirrhotic liver to hypertrophy following radiotherapy. **Materials and Methods:** Thirty-two series of CT scans of hepatoma patients with cirrhotic livers were used. These tumors were treated by proton beam radiotherapy of doses ranged from 72 to 84 Gy +/- chemoembolization therapy. The tumors were selectively irradiated leaving most part of the non-tumorous liver intact. A minimum follow-up period was 12 months after initiation of radiotherapy. The total liver volume and the treated liver volume (recognized as an area of altered density after radiotherapy) were measured to examine a change of liver volume. **Results:** The total liver volume decreased mostly over half a year after radiotherapy and then tended to increase moderately. The treated liver volume continued to decrease even 12 months after radiotherapy. This change of both liver volume was smaller in more severely cirrhotic livers. **Conclusions:** The cirrhotic liver certainly hypertrophies in response to radiotherapy, although it occurs rather moderately and slowly.

172 POSTER CANCER IN THE ELDERLY: ANALYSIS OF 2061 PATIENTS AGED 70 AND OVER REFERRED TO RADIOTHERAPY CENTERS IN ITALY IN 1994

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The incidence rate of tumors increases with aging. Radiotherapy represents the most widely used oncologic therapeutic tool in the aged patients due to its lower toxicity. In 1993 a cooperative research group (GROG: Geriatric Radiation Oncology Group) was founded with the principal objective to deepen the topic of Radiotherapy for aged patients ill with cancer. Thirty-seven Italian Radiotherapy Centers joined in the initiative and participated in a study run in 1994 that collected data concerning patients referred to Radiotherapy Centers. In particular, epidemiologic data, tumor data (site, histology and stage) and radiotherapy treatment data (site, dose and fractionation) were analysed. Data concerning 2061 patients aged 70 and over were analysed, with the following characteristics: Age: min. 70, max 103, mean 72.5; Gender: M 1138, F 923, ratio 1/1.2; P.S. (according to ECOG) min. 0, max 4, mean 1.4. The most frequently irradiated sites were the following: breast (265), lung (227), sigmoid colon and rectum (118), prostate (103), bladder (88), skin (137). Diagnosis was incidental in 247 patients and on symptoms in 1764; in 651 out of 1764 diagnosis was considered early, 1092 neoplasms were not metastatic at presentation, while 604 cases showed distant metastases (365 of these 604 neoplasm were not staged). Radiotherapy was performed in 1810 patients. The remaining 251 patients did not undergo radiotherapy because of disease extent (66), bad general conditions (34), patient refusal (38). In 1235 cases a conventional fractionation of the dose (1.8–2 Gy) was used, while nonconventional fractionation schedules were used in 526 patients. In 49 cases the datum was not available. Treatment-related toxicities concerning different organs were recorded.

The second part of the form made it possible to collect data about social conditions, education, concomitant disease, and daily life activities.

173 POSTER SYMPTOMATIC BENEFIT OF PALLIATIVE RADIOTHERAPY FOR PATIENT WITH ADVANCED NON-SMALL CELL LUNG CANCER

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The efficacy of palliative radiotherapy of NSCLC was evaluated.

Seventy patients with histologically and cytologically confirmed advanced NSCLC were palliatively irradiated in the Department of Oncology I Medical Faculty, Charles University, Prague, in the period 1/93–12/94. Forty-six patients were evaluable for response (32 men, 14 women, median age 66.1, range 46–82). Median survival was 24.5 weeks. The most frequent intrathoracic symptoms were: cough 54%, chest pain 41%, dyspnoea 54%, hemoptysis 13%, VCS sy 7%. Palliation of the main symptoms have been achieved in 68% for cough, in 83% for hemoptysis, in 89% for chest pain, in 60% for dyspnoea and in 100% for VCS sy (in combination with chemotherapy). The median duration of palliation was 14.7 weeks for all the main symptoms.

Two fractionations schedules for the chest radiotherapy were used: 30 Gy/10 fr/2 wks (67%) or short regimens 8–20 Gy/1–2 fr/1–2wks (33%). The results of palliation and survival are similar for both treatment schedules. Side effects have been infrequent, only 6 patients (13%) had dysphagia during the treatment. Radiation myelopathy has been not observed in any case.

174 POSTER THE ROLE OF RADIATION THERAPY IN THE TREATMENT OF TYMPANO-JUGULAR CHEMODECTOMAS

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Tympano-jugular chemodectomas although rarely malignant present a functional risk because of their possible involvement with the cranial nerves. For a long time surgery has been the standard treatment. Radiation therapy was used only when surgery had failed or presented too high a risk. From 1979 to 1992 we treated 30 patients with radiotherapy (RT): women: 75%. Eighty percent of chemodectomas were extensive (Fish stage C and D). Four patients had a recurrence after surgery. In 10 cases radiotherapy was delivered after exploratory or partial surgery. A dose of 45 Gy was given, for 5 weeks (5 × 1.8 Gy/week) to the tumor bed except for the first eight patients who were treated with a dose of 55 Gy–60 Gy and for one patient who received 75 Gy for a malignant chemodectoma. With a follow-up of 3 to 16 years only one patient suffered a tumor progression after the RT. Clinical symptoms decreased in 80% of the patients and were stabilized in 15% of the patients. After RT, radiological signs decreased in 50% of the patients. A moderate dose of 45 Gy (25 fractions/5 weeks) stopped tumor growth in 95% of the patients without damage. It is therefore not necessary to deliver a higher dose of RT. When there is a risk of neurological damage RT should be prescribed in preference to a surgery.

175 POSTER LATE TOXICITY OF RADIOTHERAPY IN ELDERLY PATIENTS WITH HEAD AND NECK CANCER

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Information about late toxicity of radiotherapy (RT) in the elderly is rare. Yet late effects are irreversible and must be evaluated also in this range of age. We studied 1588 patients (pts) with head and neck cancers enrolled in EORTC trials and receiving RT. Late toxicities were examined uniquely if they occurred before an eventual tumor failure in order to avoid confusion between effects of first and second line treatments. Thus, we evaluated the probability of occurrence of toxicity in function of time with Kaplan-Meier method. Logrank test was used to compare toxicity in each age range from 50 years to 75 years and more. In such conditions, 751 pts were available for analysis of which 645 had late toxicity grade ≥ 1 for a total of 981. The mean time of occurrence of late toxicity was 2.2 years and was not statistically different in all age