differential diagnosis, and emphasize the problem of local recurrence and mortality.

439 consecutive patients with primary and recurrent soft tissue sarcomas of limb and limb girdle have been treated at the Royal Marsden Hospital over the 6 year period 1989–1995. During this time 975 patients were referred with a presumed diagnosis of soft tissue sarcoma at any site, of whom 23% were found to have a benign soft tissue tumour and 7% had other malignancy.

There were 325 primary and 114 locally recurrent soft tissue sarcomas of limb and limb girdle. Amputation was performed in 21 cases (4.8%), as initial treatment in 10 (2%) and in 11 for failure of initial treatment or recurrence. By excluding those who were found to have have metastatic disease, those treated primarily with chemotherapy and those where surgical clearance was not possible we considered 354 (81%) disease free after treatment. This group has a local recurrence rate of 15.5% and a mortality of 30% (median follow up is 3.9 years). Isolated local recurrence rate (excluding those with simulataneous distant metastases) is 12 7%

These rates are comparable to other reported series but emphasize the aggressive biology of the disease and the need to develop effective adjuvant treatments.

516 PUBLICATION

In vivo scintigraphic imaging of somatostatin receptors in sarcomas – Possible applications

C. Giannakenas[1], H.P. Kalofonos[2], D. Apostolopoulos[3], A. Chondromaras[1], E. Tzorakolefterakis[4], T. Petsas[5], P.J. Vassilakos[3].
[1]Dept. of Nuclear Medicine, "St. Andreas" General Hospital, Patras; [2]Dept. of Oncology; [3]Dept. of Nuclear Medicine; [4]Dept. of Surgery; [5]Dept. of Radiology, University Hospital of Patras, Greece

Purpose: The aim of this continuing study is to investigate the efficacy of 111In-DTPA-Octreotide (OC) for the in vivo scintigraphic imaging of these relatively uncommon tumours.

Method: To date we have studied 14 patients with known sarcomatous lesions, M/F = 9/5, mean age 59 y. All the patients had at least one known lesion as demonstrated by other modalities e.g. CAT, U/S. Planar and in a few cases SPECT scintigraphy was performed at 48 hr and 22hr after the IV injection of 2.9–4.2 mCi of OC,. Histologic verification was obtained in all cases, (FNA or from surgically removed tissue).

Results: Positive (+) imaging was observed in 12/14 cases (85.7%): fibrosarcoma = 1+, embryonic rhabdomyosarcoma = 1+, (HIV-) Kaposi sarcoma = 1+, leiomyosarcomas = 2+/1−, liposarcomas = 2+, uterine sarcomas = 2+, osteosarcomas = 2+, chondrosarcomas = 1−, and neurogenous sarcoma = 1+. Both negatives were false negative. Occult lesions were demonstrated in two of the patients.

Conclusions: OC appears to have properties which may lead to a new indication in localising primary and secondary lesions and possibly as a tumour marker for radioimmunoguided surgery. The latter aspect is under trial in this continuing study.

517 PUBLICATION

Therapeutic concepts for loco-regional recurrences in soft tissue sarcomas of the extremities

P. Klein, B. Reingruber, L. Pahlke, W. Haupt, W. Hohenberger.
Chirurgische Universitätsklinik Erlangen, Germany

Between January 1983 and January 1994, 39 patients were treated for recurrences of soft tissue sarcomas at the extremities at the Chirurgische Universitätsklinik, Erlangen. Patients with distant metastases were not considered in this study. The primary operations had been performed externally in 82% of cases, 18% had been pre-treated in our hospital, the latter represented our recurrence rate of 7.1% after operations for primary tumours.

Treatment consisted of biopsies, no surgical treatment or R1/2 resections (n = 5); wide radical excisions (n = 13); compartmental resections (n = 11); amputations (n = 10).

Results:

	Cumulative 5-year survival after primary operation	Cumulative 5-year survival after operation for recurrence	Re-recurrence rate
Biopsy, no or R1/2 resection	0.4	–	100% progression
Wide radical excision	0.74	0.73	23.1%
Compartmental resection	0.61	0.64	9.1%
Amputation	0.7	0.73	30%

All curative treatment groups had similar survival both after the primary operation as well as after the operation for recurrence. The mean survival in the non-curative ('biopsy, no surgery and R1/2') group could be improved by radiotherapy.

518 PUBLICATION

Frequency of continuous cycling in childhood soft tissue sarcoma revealed by analysis of apoptotic fraction

L.M. Ball, C. Riddell, L. Resch, C.L. Lannon, M. Henry, J. Tam, K. Laybolt, A. Pyesmany, M. Yhap, D. van Velzen. *Departments of Haemato-Oncology and Pathology, IWK-Grace Health Centre, Halifax, N.S, Canada*

Purpose: In situ labelling for apoptosis specific DNA fragments (Frag-EL) allowed for the assessment of apoptotic rate and correction of immunocytochemically detected proliferation fraction in a representative series of paediatric soft tissue lesions.

Methods: Non-selected, consecutive, routinely processed diagnostic samples of 29 rhabdomyosarcoma (RMS), 14 Ewings sarcoma and 17 osteosarcoma, were studied for proliferation fraction by immunocytochemistry (cDNA defined monoclonal antibody for a subsegment of the Ki67 antigen, MM1, Novocastra, UK) and in-situ labelling of apoptosis derived DNA fragments (CalBiochem, USA) and routine image analysis (Quantimet 570C). Apoptosis corrected proliferation fraction was calculated as: Ki67 labelling % divided by (100 − apoptosis %).

Results: Apoptosis corrected proliferation fractions of 100%, indicating pathological continuous cycling, were found in 9/29 RMS (9/9 embryonal type), 0/14 Ewings sarcoma and 3/17 osteosarcoma with 6/10 cases deceased at assessment. Apoptotic fractions varied from 51% (7.5–89%) in RMS, 21% (1–58%) in Ewings sarcoma to 48% (23–84%) in osteosarcoma. Arrested or impaired apoptosis (fraction < 1%) was found only in Ewings sarcoma (6/14, 43%).

Conclusion: Proliferation fraction in childhood soft tissue tumours requires correction for apoptotic fraction when assessing relation to outcome.

519 PUBLICATION

Treatment results of synovial sarcoma

Zafer Koçak[1], Melahat Garipağaoğlu[1], Nazan Bozdoğan[2], Cengiz Kurtman[1], Binnaz Çelebioğlu[1], Mustafa Adlı[1], Ahmet Çakmak[1].
[1]Department of Radiation Oncology; [2]Department of Pathology, University of Ankara, Turkey

Background: Synovial sarcoma, a rare soft tissue tumor, arises from primitive mesenchimal tissue cells, characterizes high local recurrence rate. In this study it was evaluated synovial sarcoma patients in term of local control, survival and metastases characteristics.

Methods and Materials: Eighteen patients treated at Ankara University Medical School Radiation Oncology Department between 1979–1995 were evaluated retrospectively. Their ages were between 10–56, female/male ratio were 1/2. Localisations of tumors: truncus (n = 4), extremity (n = 14). Fourteen patients received primary treatment and four patients received salvage treatment after local relapse secondary to surgery. Their stage distributions were: Stage I (n = 2), stage II (n = 7), stage III (n = 8), stage IV (n = 1). Treatment types were: chemotherapy + surgery + radiotherapy (n = 11), radiotherapy + chemotherapy (n = 1) and surgery + radiotherapy (n = 6). Surgery was consisted of Total radiation doses were between 4000–6400 cGy.

Results: Three, 5 and 10-year survival ratios were 52%, 39.5% and 39.5% respectively. Pretreatment tumor volume (p = 0.007) and existence of macroscobic residue (p = 0.05) was found statistically significant effect on survival. Treatment failure was occurred in 10 patients (local relaps: 3, locoregional relaps: 1, distant metastases: 4, both local recurrences and distant metastases: 2). All patients that were received salvage treatment after recurrence secondary to surgery were relapsed again. Tumor grade, monomorphic-dimorphic subgroups, patients age, localization of tumor and using of chemotherapy were not found effect on prognosis.

Conclusion: Primary tumor volume and residual tumor volume were the most important prognostic factors. Treatment result was unsuccessful in patients group that received treatment after relapse secondary to surgery.