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A CANADIAN NATIONAL TUMOR BANK/DATA BASE FOR SOFT TISSUE SARCOMA

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A network established by a cooperative clinical trials group offers a unique opportunity to collect fresh tumor tissue and associated clinical data. A rapid expansion of knowledge in the field of molecular biology, and widespread interest in potential clinical applications, encouraged the Canadian Sarcoma Group (CSG) to organize a workshop*, held in Dec 1990, which brought together scientists and clinicians with a common interest in sarcoma. Experience at a single centre (Mt. Sinai Hospital, Toronto) of banking soft tissue (STS) and osteosarcoma, led to funding* to establish a National tumor bank/data base for STS, under the aegis of CSG. Specialized oncological surgeons from Halifax, Montreal, Toronto, Calgary, Edmonton, Vancouver will provide approximately 125 cryopreserved tumor samples/year, with detailed clinical data, to be stored in two central locations (Toronto & London, Ontario). Lessons drawn from the bank's establishment, funding and initial year (1993) of operations will be described.

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POST - OPERATIVE HDR BRACHYTHERAPY IN THE TREATMENT OF POOR PROGNOSIS SOFT TISSUE SARCOMA

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During the last two and a half years, we have used wide local excision (WLE) and postoperative high dose rate (HDR) brachytherapy in 10 patients with a soft tissue sarcoma that would ordinarily justify an amputation. All 10 cases had one or more features associated with a poor prognosis. These included high grade histology, involvement of neuro-vascular structures, large size, positive or close (less than 5 mm) margins, pelvic site of disease, disease occurring in an area previously irradiated for a different malignancy, recurrent disease after excision and external beam radiotherapy, and recurrent disease after excision and I-125 brachytherapy. The HDR brachytherapy treatment started at least five days following the operation. A total of 6-7 interstitial treatments of 500 cGy each were delivered on a BID basis over 4 days with a minimum of 5 - 6 hours between treatments. Of the 10 patients, 6 have maintained local control at 5, 8, 11, 24, 26, and 28 months following completion of therapy. The seventh patient died at 4 months secondary to pulmonary metastases, but maintained local control. The remaining 3 patients developed local recurrence at 3, 4, and 6 months, One wound complication was reported - a dehiscence over the sacrum secondary to the patient continuously lying on this site after pelvic surgery. We feel that postoperative adjuvant HDR brachytherapy is a viable and significant option following the WLE of a soft tissue sarcoma with adverse clinical - pathological features. Key advantages were the completion of post - operative adjuvant treatment within 10 days following surgery, elimination of radiation exposure to medical personnel and the short treatment time associated with HDR brachytherapy.

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INTRAOPERATIVE BRACHYTHERAPY IN THE TREATMENT OF SOFT TISSUE SARCOMAS

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Soft tissue sarcomas (STS)are very radioresistant tumors and require high radiation doses which may produce severe side effects and may compromise the advantage of conservative surgery. Intraoperative(I.O.) brachytherapy was introduced to increase the total dose in the tumor bed and to spare the adjacent normal tissues. Patients: 61 pts with non metastatic STS (m=34, f=27, age range=8-77 yrs)treated from 2/1979 to 8/1992. Site of the tumor: upper limb 14 cases, thigh 22, gluteal region 5, thoracic or abdominal wall 20. Thirty-nine pts were previously untreated and 22 presented with locally recurrent disease. Tumor size: greater than 5 cm in 30 cases. Histology: malignant fibrous histiocytoma (23), liposarcoma (14), fibrosarcoma (11), others (13). Treatment: Surgery:radical conservative excision 50; non radical excision 11; Radiotherapy: in all patients after tumor removal I.O.implant of plastic guides for afterloading Iridium192 brachytherapy; in 43 cases the implant was followed by external irradiation. Dose: implant 15 Gy - 40 Gy; external irradiation 20 Gy - 60 Gy; implant only 35 Gy - 70 Gy. No patient underwent amputation. No patient had functional sequelae; three pts with tumor localized in the lower limb had a mild oedema; one had a post-treatment pain. Results: 5 local recurrences; 6 distant metastases; both events 7. Four pts with local recurrence were salvaged by surgery +/- further radiotherapy. One patient with lung metastases was salvaged by chemotherapy and lung metastasectomy. Conclusions: intraoperative brachytherapy combined with external irradiation appears to achieve a local control at least comparable to external radiotherapy only with a low incidence of side effects and the advantage of a shorter overall treatment time.

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SOFT TISSUE SARCOMA (STS) OF THE EXTREMITIES. CONSERVATIVE TREATMENT BY SURGERY AND POST-OPERATIVE RADIOTHERAPY.

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According to the modalities of conservative surgery and post-operative radiotherapy, a retrospective study was performed in an homogeneous series.

Population : From 1985 to 1988, 31 patients with a STS of the extremities and free of metastasis were treated by initial conservative resection then by post-operative radiotherapy. Histopathological grade was 1 in 5 cases, 2 in 11 cases and 3 in 15 cases.

Modalities : Quality of surgical resection was judged wide in 12 cases, marginal in 16 cases and insufficient in 3 cases.

An anatomical definition of the target volume was possible in 26 cases. An irradiation of a whole compartment was achieved in 12 cases. The given dose was 50 Gy, a supplementary boost of 10 Gy was performed in 10 patients.

Results : The median follow-up is 68 months, 6 metastatic and 3 local recurrence were observed. Five years overall survival and DFS are 80.5 and 71 % respectively.

Conclusion : These results validate a conservative option for treatment of STS of the extremities with good functional results due to association of wide surgical excision and post-operative RT in an anatomically defined volume with a 45-60 Gy range of dose.

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SOFT TISSUE SARCOMA (STS) OF THE TRUNK. RESULTS OF SURGERY AND POST-OPERATIVE RADIOTHERAPY.

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According to the modalities of surgery and post-operative radiotherapy, a retrospective study was performed in an homogeneous series.

Population : From 1985 to 1989, 20 patients with a STS of the trunk, without visceral involvement or distant metastasis, were treated by resection surgery and post-operative radiotherapy. High grade was observed in all cases (10 grade 2 and 10 grade 3).

Modalities : Quality of surgical resection was judged wide in 9 cases, marginal in 7 cases and not sufficient in 3 cases. Furthermore, for ten patients a second time of surgery was performed. For the definition of the target volume of radiotherapy an anatomical and a compartimental definitions were possible in 16 and 3 cases respectively. Dose of external radiotherapy was 50 Gy; a supplementary boost was given in 8 patients (external RT : 6 cases, brachytherapy : 2 cases).

Results : The median follow-up is 42 months (5-71). Six local relapses (3 in the irradiated volume, 1 in the margins, 2 outside the irradiated volume) and four metastatic failures were observed. Sixteen patients are alive ; eleven are free of disease. Local control of STS of the trunk seems worse to achieve than for STS of the extremities. Quality of resection surgery and anatomical definition of volume of irradiation can explain these difficulties.

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MALIGNANT FIBROUS HISTIOCYTOMA, A SURGICAL DISEASE ?

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Malignant fibrous histiocytoma (MFH), with the exception of angiomatoid, constitute a group of intermediate and high grade malignant soft tissue tumors, presenting in late adult life in the extremities (65%) and retroperitoneum (15%). Conservative surgery and postoperative RTX may offer good local control. Size is the main prognostic indicator, 5-year survival being 40% in tumors >10cm in diameter. Thirteen MFH patients, (5♀, 8♂) out of 81 soft tisssue sarcoma pts were treated. Median age 72.3 yrs (36-89). Seven tumors were in the lower extremity, 2 in the buttock, 3 in the retroperitoneum, 1 in the thoracic wall. The median tumor diameter was 16.3 cm (ϕ 4-30cm).
The retroperitoneal tumors proved irresectable (mean ϕ 26cm). Two patients refused major surgery, and had primary RTX and hyperthermia, with good local control, dying soon after of pulmonary metastases. Six patients had wide excision and RTX. Two patients had an amputation, 1 of them committing suicide after completed rehabilitation. Three pts are alive without disease after 11 (ϕ 4cm), 2 and 1 yrs. Four pts died, 1 of heart failure, 3 of distant met's, surviving 27, 13 and 8 mnths. MFH's, often present in too an advanced stage, preciuding adequate surgery, where advanced age restricts neo-adjuvant chemotherapy. Doctors should be aware of the dismal outcome of deep, seemingly "innocent" large swellings, and apply timely proper diagnostics. All patients should be entered in studies.