

Orthopedic Surgery Division

Introduction

The orthopedic Surgery Division deals with tumors of the musculoskeletal system. The ultimate goal of our division is to cure the patients with bone and soft tissue tumors with preserving the body function and to overcome several musculoskeletal problems occurred in cancer patients.

Surgery is the main treatment modality for most bone and soft tissue tumors, but multidisciplinary treatments consisting of chemotherapy and radiotherapy, are also carried out in the division extensively. The Division also provides palliative and supportive care with orthopedic approaches including surgery and physiotherapy for patients suffering from metastatic bone tumors. In order to accomplish best medical care for such spectrum of patients we have made close cooperation with medical oncologists, pediatricians, thoracic, abdominal, plastic surgeons, and radiation oncologists.

Routine Activities

Our division consists of four staff orthopedic surgeons, two orthopedic surgical residents and one physiotherapist. Out patient clinics are held on every weekday at NCCCH and on every Monday and Friday at NCCHE. Usually about 30 patients are hospitalized for chemotherapy, surgery and radiotherapy. We perform 6 major operations weekly. We make efforts to overcome the difficult-in-treat tumors at spine, pelvis and retroperitoneal region, locally advanced bone and soft tissue sarcoma with adjuvant chemo radiotherapy or reconstruction surgery. For advanced cases we perform standard chemotherapy or several clinical trials

Every morning at 8:00, all staff surgeons and residents have a morning conference and make rounds on the 17A and 12A ward. A weekly clinical conference is held every Tuesday from 17:30 to 19:00

to discuss the diagnosis, operative procedures, postoperative rehabilitation schedules, and chemotherapy regimens of each patient with all medical staffs and pediatricians. We also have a preoperative conference about diagnosis and operative procedures of patients every Friday from 19:30 to 20:30. Panel discussions about radiographic diagnosis of bone diseases are held twice a week. Monthly joint clinical pathological conference with pathologist is held on first Wednesday from 18:30 to 19:00.

Research Activities

Our research activities include: (1) the development of new surgical techniques for treatment of malignant bone and soft tissue tumors that are consistent with good function of the affected limbs; (2) the development of the treatment strategy for spinal or pelvic malignant tumors that are the most difficult and challenging field in the musculoskeletal oncology; (3) the establishment of the treatment to overcome the locally advanced or relapsed malignant tumors; (4) the development of minimally invasive treatment method for early stage or less invasive malignant tumors; (5) the establishment of the most efficient treatment strategy for metastatic bone tumors that seriously distress the patients' quality of life; (6) the development of the most effective chemotherapeutic regimens for highly malignant bone and soft tissue tumors.

From the projects listed above, several topics were presented in the year. (I) Final results of the multi-institutional phase II trial for advanced soft tissue sarcomas; (II) Clinical characteristics and therapeutic results of osteosarcoma over 40 years; (III) Review of the strategy and operative indication for metastatic bone tumors; (IV) Results of treatment of Ewing's family sarcoma in NCCCH; (V) Problems of surgical procedures for children of osteosarcoma; (VI) Microsurgical vascularized free tissue transfer for

reconstruction of pelvic ring with spinal instrument devices; (VII) Phase II study of ifosfamide and VP16 for malignant soft tissue sarcoma in single institute; (VIII) The novel triterpenoid CDDO induced-apoptosis and differentiation of human osietosarcoma cells by a caspase-8 dependent mechanism; Gene expression analysis of SYT-SSX1 and 2 with cDNA microarray.

Clinical Trials

(1) A single institute clinical trial of high dose IFO 14gr/m², CDDP 120mg/m² and ADR 60mg/m² neoadjuvant chemotherapy for osteosaroma or bone

malignant fibrous histiocyoma.

(2) A single institutional clinical trial of IFO 2gr/m²/d x 5 and VP16 100mg/m²/d x 5 for advanced soft tissue sarcoma.

(3) We are preparing three multi-institutional clinical trials of neoadjuvant chemotherapy of IFO and ADR for newly diagnosed high grade soft tissue sarcoma (JCOG), VCR, CPM, ADR and IFO, VP16 for Ewing's Family sarcoma and a phase II trial of Glivec for advanced, refractory bone and soft tissue sarcomas with the c-kit strong positive staining.

● H. Chuman ●

Table 1. Newly diagnosed cases

	Number
Benign bone tumor	30
Malignant bone tumor	40
Benign soft tissue tumor	47
Malignant soft tissue tumor	65
Bone metastasis	22
Others	13
Total	217

Table 4. Operation In 2003

	2002	2003
Malignant bone tumor	36	66
Malignant soft tissue tumor	81	87
Benign lesion	114	103
Metastatic tumor	32	53
Other	39	19
Total	302	322

Table 2. Malignant bone tumor newly diagnosed

	2002	2003
Osteosarcoma	12	17
Chondrosarcoma	7	10
MFH of bone		4
Ewing's sarcoma	3	2
Malignant lymphoma of bone		4
Others		3
Malignant bone tumor	26	40

MFH of bone; Malignant fibrous histiocyoma of bone

Table 5. Surgical Procedures in 2003

Spine surgery	14
Wide resection	67
Biopsy for malignant lesions	68
Prosthesis	25
Osteosynthesis for pathologic fracture	12
Amputation	16
Resection	101
Others	19
Total	322

Table 3. Soft tissue sarcoma newly diagnosed

	2002	2003
MFH (myxoid fibrosarcoma included)	24	15
Liposarcoma	25	13
Synovial sarcoma	4	9
MPNST	9	5
Leiomyosarcoma	6	4
Total	82	65

MFH; malignant fibrous histiocyoma

MPNST; malignant peripheral nerve sheath tumor