SPINAL OSTEOSARCOMAS
(Report of five cases)

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Five cases of osteosarcomas that were located at the spinal column were evaluated retrospectively. Three of the lesions were primary and two were secondary. Three patients were females and two were males, average patient age at the time of diagnosis was 23.6 years.

Four of the tumors were located at the lumber region and one at the thoracal region. All five of the tumors were high grade lesions, and their surgical stages were one stage IIA, two stage IIB and two were stage III lesions.

All patients were followed after death. Two patients died at the third month after the diagnosis, one died at the ninth month, one at the twelfth month and one at sixteenth month after diagnosis. Two patients were Frankel grade C, Two were grade B and one patient was grade A at the time of death.

It was concluded that the prospects of long term survival for spinal osteosarcoma were actually non-existent if not treat adequately and more radical surgery including spondylectomies are justified.

Osteosarcoma is the most common primary tumor of bone. Its incidence ranges from one to two cases per million. The frequency peaks at the second decade and after the fifth decade the latter being mostly consistent of secondary cases.

The etiology still remains unknown although there are strong suggestions of enviromental factors - especially ionising radiation- and chorosomal aberrations. Especially cases secondary to ionising radiation has a tendency to occur in the axial skeleton.

Approximately 10 percent of osteosarcomas arise in the axial skeleton. The incidence of tumors arising in the vertebral column is reported to be between one and three percent.

With the advent of adjuant therapies, especially chemotherapy, the general life expectancy and prognosis of osteosarcoma patients have significantly improved. The long term survival expectancy, being around twenty percent only about twenty years ago has increased to almost more than eighty percent as is reported from some centers.

The recents developments in the imaging techniques should also be given account for this improvement as it is now possible to diagnose metastatic lesions earlier and to evaluate the local extent of the primary lesions more accurately. Increased rates of survival and modern imaging techniques have made limb sparing segmental resections along with the use of prosthetic replacements increasingly used for tumors located at the extremities.

Most studies of spinal osteosarcoma are limited to case reports. Only a few large series have been reported to date. Although there are sporadic reports of cases with long term survival with limited or no surgery, the median survival times in large series for patients treated with conservative surgical procedures are between six to ten months, with only occasional long term survivors.

Sundaresan et al. have reported the experience of the memorial Sloan Kettering Cancer Center. Their 24 cases were divided into two groups. The earlier thirteen patients were tareted with limited decompressive procedures and radiotherapy, the median survival of these being six months with only one long term survivor. The second group of patients consisted of those who were treated more agressively, including total spondylectomies and recieved better chemotherapy regimens. In this group of patients the authers reported five long term survivors and only one patient had developed metastatic disease.

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MATERIALS and METHODS

Five patients that were treated in Hacettepe University hospitals with the diagnosis of osteosarcoma of the vertebral column were evaluated retrospectively. Three patients were females and two were males. Average age at the time of diagnosis was 23.6 years (range 11-51 years).

Three of the tumors were primary lesions arising in the spinal column, one at T10, one at L5 and S1, one at L4 and L5. The other two were metastatic lesions, one arising in the third month after the diagnosis of the primary in the ileum, located at L4, the other arising 24 months after the diagnosis and surgery for the primary in the distal femoral metaphysis, that had recieved T10 protocol for his primary tumor for twelve months, and developed metastasis in the third lumbar vertebra.

All tumors were high grade lesions, three had surgical specimens obtained from their primary vertebral lesions, two had specimens obtained from other primary locations (i.e. femur and ileum). Histologic grading advocated by Costa et al. was used and the lesions were staged according to the Musculoskeletal Tumor Society criteria.

The chemotherapy regimens used were one T10 and one VAC for metastatic lesions and one CYVADIC and one VAC for the primary osteosarcomas. One patient with primary tumor has refused any kind of therapy. Two patients with metastatic tumors and one with primary have also had radiotherapy.

RESULTS

All tumors were grade 3 histologically. Their surgical stages were IIA for one case located to the tenth thoracic vertebra. IIB for two cases located L4-5 and L5-S1 respectively and III for the metastatic lesions that had developed simultaneous lung metastases.

All patients were followed until death. One patient with the metastatic lesion that had developed at third month died three months after the advent of her metastatic lesions. The other patient that had metastasized in twenty-fourth month, seemed to improve after local radiotherapy, had surgery for his single pulmonary metastatic focus but died sixteen months after the advent of his metastatic lesions because of complications related to the local spread of the vertebral tumor.

The case histories of the primary vertebral lesions were as follows:

- 51 years old male, Stage IIA osteosarcoma of the tenth thoracic vertebral body proven by open biopsy. No further surgery wes performed. Recieved VAC regimen for one year and died of disease at twelfth month.

- 18 years old female, stage IIB osteosarcoma at L 4-5, open biopsy was performed, recieved CYVADIC regimen for nine months and died of disease at the ninth month.

- 20 years old female, stage IIB osteosarcoma with partial cauda equina lesion at the time of diagnosis, underwent decompressive laminectomy and curettage of the tumor but refused any further thrary, died of disease at the third month after diagnosis.

Only one patient had neurologic symptoms at the time of diagnosis. All patients developed neurologic symptoms during the course of their diseases and two were Frankel Grade C, two were Frankel Grade B and one was Frankel Grade A at the time of death.

DISCUSSION

As can be seen from the results of our patients the prognosis for long term survival in spinal osteosarcomas are very poor in contradiction to cases of spinal chondrosarcomas. Only one of our cases have recieved a chemotherapy regimen that should be considered as being appropriate in the current state of the art and that case was the only one that had lived more than one year after spinal involvement. The increased rate of survival in Sundaresan and his associates series may also, at least partially be attributed to the chemotherapy regimens used in the second group of their cases. We probably could have obtained somewhat longer survival periods in our patients with better adjuvant treatment but it should be noted that our cases, like cases reported in other similar series are scattered in a period of more than ten years, and should be considered to have recieved the best therapy known by then.

It should be noted that all of our patients have developed neurologic symptoms despite medical treatment and limited surgery. Our data strongly suggests that more radical surgical treatment, including total spondylectomies of multiple levels if necessary, de-

spite their high complication rates is justified in the treatment of osteosarcoma of the spinal column.

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