Epidural spinal lymphoma in an infant

Case report

R. SARASA BHARATI, M.D., AND S. KALYANARAMAN, F.R.C.S., PH.D.
Departments of Neuropathology and Neurosurgery, Madras Medical College, Institute of Neurology, Government General Hospital, and Indian Council of Medical Research, Madras, India

A malignant lymphoma involving the spinal epidural space is reported in a 14-year-old-boy. This is probably the youngest patient reported with a spinal epidural lymphoma.

KEY WORDS: child, spinal cord compression, epidural malignant lymphoma.

Almost all available reports of malignant lymphomas of the brain and spinal cord concern adults, with little mention of the condition in the young.

Case Report

This 18-month-old infant was admitted to the Institute of Neurology, Madras, in June, 1971, because of weakness of both legs of 6 weeks' duration and urinary incontinence for 4 weeks. There was no history of fever or spinal injury. The child was the last of three siblings, all of whom were delivered normally. A few days before admission to our Institute, lumbar puncture at another hospital had revealed a CSF protein level of 4.5 gm%.

Examination. The child was conscious, irritable, and looked ill. Angular stomatitis was present. Both legs showed weakness, but the arms were normal. The plantar response was absent bilaterally and there was loss of sensation below L-1. The rest of neurological examination and that of other systems were normal. Chest films were normal. Spine films showed enlargement and irregular rarefaction of the spinous process of one pedicle of the first lumbar vertebra, with destruction of the other pedicle (Fig. 1). A myelogram showed complete block at L1-2.

Operation. Laminectomy was done from T-11 to L-4. The spinous process of L-1 was thickened, spongy, and infiltrated with reddish tissue with the appearance of a neoplasm. The laminae of L-1 were also thickened and infiltrated with the tumor. There was extensive extradural tumor tissue extending from T-11 to L-4, compressing the cord from behind. This tumor tissue was intimately attached to the laminae of L-1 and L-2 and extended anterior to the dura especially on the right side at L-1 and L-2. Opposite L-3 the tumor was very soft, vascular, and necrotic. The infiltrated laminae and spines were excised, and all the macroscopically visible tumor removed. Since the dura appeared normal it was not opened.
Epidural spinal lymphoma in an infant

The postoperative period was uneventful, and the wound healed well.

**Histological Examination.** The tumor was composed of nearly uniform-appearing cells. Small areas of recent hemorrhage were present. There was no characteristic pattern of arrangement of the tumor cells, which had scanty eosinophilic cytoplasm and large round-to-oval nuclei. Occasional mitotic figures were seen in some areas. Larger mononuclear cells were also seen occasionally; some of the blood vessels were surrounded by mononuclear cells. Neoplastic cells had infiltrated the vessel walls (Fig. 2). Special stains showed no reticulin. Decalcified sections of the bone disclosed involvement by malignant cells. A diagnosis of malignant lymphoma of the lymphocytic variety was made. Subsequent to the histological diagnosis, a lymph node palpable in the right axilla was excised. Histopathological report confirmed the presence of a lymphosarcoma.

**Course.** The patient was given 3000 rads of deep x-ray therapy to the back over a period of 4 weeks. Six months after surgery, chest films and a repeat myelogram were normal. One year after the operation the patient had recovered some leg movement, especially in the hips and thighs. He was able to stand without support. Bladder and bowel control had partially returned. There was no lymph node enlargement or hepatosplenomegaly. Fourteen months after surgery, a chest film revealed two large rounded shadows presumably due to extension of the neoplasm to the lungs. The peripheral blood smear appeared within normal limits. However, the clinical improvement in the legs remained, and lumbar spine films showed no progression of the lesion.

**Discussion**

Metastatic lymphomas of the spinal epidural space are relatively more common than those occurring elsewhere in the central nervous system. The frequency with which either occurs has never been definitely established due partly to the difference of opinion regarding the criteria for diagnosis. While in some centers postmortem confirmation is considered essential, in others clinical symptoms alone have been used.

![Fig. 1. Spine film showing enlarged L-1 pedicle (arrow) and destroyed L-1 pedicle to the left.](image1)

![Fig. 2. Photomicrograph showing a fairly uniform type of mononuclear cell with scanty cytoplasm and large nuclei. H & E, X 400.](image2)
Some histologists are actually reluctant to make a diagnosis. The particular interest of a medical center often determines the intensity of the search for symptoms.

The available reports indicate that the ratio of intraspinal to intracranial involvement varies between 2:1 and 5:1. Reasons for the increased spinal incidence are not clear.

Epidural lymphosarcomas are believed to occur predominantly in patients over 40 and rarely in the young. As lymphomas generally have been reported in patients beyond the age of 30, it is not surprising that central nervous system involvement is mentioned only in those age groups. There have been few reports of the incidence in the young. The occurrence among children is not even mentioned in most of the large series. Rand and Rand mention the case of a 5-year-old child, the only one among 64 cases of intraspinal tumors. Bucy and Jerva, reporting eight cases of spinal epidural lymphosarcoma, included one in a 19-year-old patient. Rodin, et al., described an epidural lymphoma in a 7-year-old boy, and Love, et al., reported its occurrence in an 8-year-old child. Our case is perhaps the youngest patient reported so far.

Nevertheless, a large percentage of generalized lymphomas have been found to occur in the younger age groups as evidenced by biopsy. It is therefore conceivable that central nervous system involvement is more common than realized despite the absence of large convincing autopsy series.

Epidural lymphosarcomas may be seen as circumscribed lesions or may involve long segments of the spinal canal. In our case the tumor extended from T-11 to L-4. Epidural deposits may occur by direct extension through the intervertebral foramina from tumors in the posterior mediastinum or retroperitoneal space, by spread through lymph channels, or by spread from adjacent vertebral involvement. The second route is possible because it has been shown that the intraspinal lymph drains to the mediastinal and retroperitoneal nodes from channels originating in the meninges.

Primary involvement of the epidural space is difficult to diagnose clinically because involvement of much of the reticuloendothelial system cannot be estimated adequately. In our case a lymph node was found to be just palpable in the right axillary region. Attention to this enlargement was directed after the histopathological report was obtained of the epidural tissue removed at surgery. No other lymph node was found palpable, and the liver and spleen were not enlarged. We believe that in our case a lymphoma in the epidural space was secondary to primary involvement of the lymph node, as suggested by the finding of this tumor in one node. Even though the chest film was normal at the time of admission, in view of the enlargement of the axillary lymph nodes, we believe that the primary lesion was in the mediastinal or mesenteric node.

Alternatively, the large size of the tumor in the spinal region suggests that it could have arisen from several sites at the same time, and that the strategic location in the spinal canal simply drew attention to this region first. Regardless of the primary site of origin of the tumor, the diagnosis of lymphoma was verified by biopsy of the epidural tumor as well as of the axillary lymph node, and the histopathological features of the tissue obtained from the two sites were identical.

Acknowledgments

The authors wish to thank Professor B. Ramamurthi, Head of the Institute of Neurology, and the Superintendent, Government General Hospital, Madras, for permission to report this case.

References

Epidural spinal lymphoma in an infant

12. Olivecrona H: Quoted by Zulch, ref 25
18. Sarasa Bharati R: (Unpublished data)

Address reprint requests to: R. Sarasa Bharati, M.D., Institute of Neurology, Government General Hospital, Madras 3, India.