BENIGN OSTEOBLASTOMA OF THE VERTEbra

REPORT OF A CASE

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Because of its rarity, the lesion designated benign osteoblastoma may present diagnostic and therapeutic problems. Although nonmalignant, it may be confused with osteogenic sarcomas with an unwarranted poor prognosis. For these reasons, report is made of a typical case followed for 2 years after operation, clearly demonstrating its benignancy and histologic proclivities.

Recent texts on neoplasms of bone give an accurate description of this lesion and a review of the literature by Lichtenstein offers current concepts and terminology. The older synonym, "osteogenic fibroma," has been supplanted by the more accurate and less confusing histological designation of benign osteoblastoma.

CASE REPORT

#948–601. C.G., a 25-year-old married male, was admitted to the Hartford Hospital on May 15, 1959 because of mid-dorsal spinal pain and slight pyramidal tract spasticity of several weeks' duration, thought to be of no great significance. Roentgenograms showed an absence of the left 8th dorsal pedicle with slight involvement of the adjacent posterior vertebral body. Spinal puncture dynamics revealed a complete block with a protein of 1100 mg. and lumbar myelogram confirmed a block at the 9th dorsal vertebra.

Operation was done with the patient in the lateral position, through a hemilaminectomy exposure, with a preoperative diagnosis of extradural lymphoma or other spinal malignancy. An extremely vascular, fibrous and granulomatous tumor was found encircling the lateral edge of the dura mater and its root sleeve at the 8th dorsal spinal level. It had caused complete erosion of the pedicle and invaded the posterior vertebral body adjacent to the pedicle, leaving a grape-sized cavity in the posterior lateral vertebral body. The tumor appeared to be fairly well demarcated without a true capsule and to directly invade the bone, leaving spicules of bone contained within its fibrous portion. It was possible to remove this tumor nearly in toto but with accompanying serious hemorrhage requiring replacement with a total of four pints of blood. After removal, the bleeding appeared to arise from sinuses in the bone, containing scarlet arterial blood which spurted freely and was ultimately controlled with bone wax. At the end of the procedure, the 9th dorsal nerve-root sleeve lay free within a large cavity.

Postoperative Course. Convalescence was rapid except for temporary marked intercostal pain. He was allowed up on the 3rd and discharged on the 8th day, receiving as an out patient cobalt radiation to the amount of 4500 r.

He has remained asymptomatic without neurologic deficit to date (2 years postoperatively). Postoperative roentgenograms (Figs. 1 and 2) at 1, 12, 18 and 24 months showed no change in the vertebral body nor in the deficit of the 8th dorsal pedicle.

Pathologic Examination. Macroscopic. The material consisted of numerous fragments up to 1.5 cm. in diameter and comprising a total volume of 6 cc. Each were of a dark red color and of a gritty calcific consistency. Associated blood clots were present.

Microscopic. Several components were present (Fig. 3). Interspersed among a highly vascular connective-tissue stroma were foci and islands of osteoid tissue. The vascularization in some areas was so prominent as to suggest a capillary hemangiomatous element. Osteoid foci varied from areas of cellular osteoblasts to trabecular patterns with calcification. Mitotic activity was almost absent with only a rare mitosis noted among the osteoblasts. No bizarre or atypical nuclear changes were seen. Concomitant with the osteoblastic activity, osteolysis was present in the form of multinucleated giant-cell osteoclasts. The latter were especially noticeable in apposition to the calcified trabecular areas.

DISCUSSION

The patient described herein was 25 years old at the time the lesion became symptomatic, confirming previous descriptions of its occurrence in older children and young adults. Jaffe, on the basis of 10 personal and 10 other cases gave an age incidence, with rare exceptions, ranging from 10 to 29 years. Lichtenstein noted that 7 of 11 patients were between 6 and 18 years of age. No definite conclusion on sex incidence has been made. Although encountered in long bones and occasionally elsewhere, the vertebral column is the most frequent site, causing compression of the spinal cord with insidiously progressive neurologic deficits manifest initially only by vague pain in the back. The roentgenographic findings are not specific for this lesion and may demonstrate varying degrees of osteoblastic or lytic activity.

The histology has been adequately described and defined and, in essence, the lesion consists of osteoblasts forming osteoid tissue containing

* Since submitting this report for publication, the patient was seen again on May 19, 1961.
Fig. 1 and 2. Roentgenogram (left) and diagram (right) of dorsal spine taken 24 months postoperatively, demonstrating complete absence of left pedicle in the 8th dorsal vertebra. This defect is unchanged from that in films taken preoperatively and at 1, 12 and 18 months postoperatively.

Fig. 3. Photomicrograph of benign osteoblastoma showing osteoblasts producing osteoid tissue. Two multinucleated osteoclasts are also present. The vascularity of the surrounding stroma is evident. Hematoxylin and eosin, X80.