HEMANGIOMA OF A DORSAL VERTEBRA WITH COLLAPSE AND COMPRESSION MYELOPATHY

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DURING the winter semester at the University of Berlin (1863), Virchow delivered a lengthy discourse on angiomata in which brief mention was made of a patient with paraplegia who, at autopsy, was shown to have tumors composed of dilated blood channels in the center of both the 10th thoracic and 3rd lumbar vertebrae. Subsequent to this there may be found sporadic reports by pathologists concerning angiomata of osseous structures. In 1917 Hitzrot recorded the first description of the roentgen appearance of hemangioma within bone. Later Perman described the roentgenographic appearance of a verified vertebral angioma. Töpfer, working in Schmorl's clinic, investigated at autopsy 2,154 spinal columns, disclosing a 12 per cent incidence of angiomatous masses in various areas of this structure. In a comparable study of 10,000 cases Junghanns cited an incidence of 10 per cent of vertebral angiomata. These figures have recently been questioned by Lichtenstein and others as being too high because some of the cases included in this study represented so-called "blood cysts." A review of the recent literature discloses reports of hundreds of cases of angiomata of the vertebrae; however, in only about 60 of these was there associated dysfunction of the spinal cord. Five of these 60 were well documented examples in which the vertebral body was partially collapsed; in the remainder the angioma was associated with compression myelopathy caused by narrowing of the vertebral canal by the enlarged pedicles and laminae. This latter phenomenon of thickened pedicles and laminae producing compression of the spinal cord in cases of vertebral angioma has been reported by Bailey and Bucy.

Only true examples of massive collapse of the vertebra with concomitant dysfunction of the spinal cord are included in the present report. The 5 cases of particular interest previously mentioned were reported by Muthmann, Gold, Globus and Doshay, Sandahl, and Holta.

Muthmann's case. A 61-year-old female had progressive paraparesis of 16 years' duration. The clinical diagnosis was tuberculous spondylitis. No operative intervention was carried out because of complicating cardiopulmonary disease. Death resulted from pyelonephritis. Autopsy disclosed 50 per cent collapse of the body of the 6th thoracic vertebra with associated moderate kyphosis. Histologically there was a cavernous hemangioma within the involved vertebral body.

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Gold's case. A male aged 23 had slow onset of paraplegia which was diagnosed preoperatively by roentgenograms as Kúmmell's disease. At operation a hemangioma of the epidural space was found. Death followed shortly after surgical exploration. At autopsy there were found multiple lesions of the thoracic vertebrae with compression of the body of the 6th thoracic vertebra and extension of the tumor into the epidural space at this level.

Globus and Doshay's case. A 13-year-old female had a rapidly developing paraparesis of 1 year's duration which allegedly followed trauma to the back. A laminectomy was performed, following which she died. Necropsy revealed a gross collapse of the 8th thoracic vertebra which had destroyed the centrum, pedicles, and laminae, and invaded the regional epidural space.

Sandahl's case. A female, aged 17, had progressive weakness of both legs for a period of 8 years following an injury of the back. Roentgenograms disclosed compression of the body of the 12th thoracic vertebra. However, at operation an additional lesion, namely a neurinoma of the upper cauda equina, was found and removed. Although previous reviewers of vertebral angiomata have included this case, the description given by the author was not in sufficient detail to evaluate the relative significance of the two lesions. The patient survived but follow up was not reported.

Holta's case. A 66-year-old sailor had acute cervical trauma followed by gradual development of quadripareisis. Roentgenograms showed almost complete collapse of the body of the 4th cervical vertebra with a large bony fragment of the anterior inferior aspect of the body jutting anteriorly. The vertebral column was markedly angulated dorsally at the level of the lesion. Parallel striations were demonstrated radiographically within the involved vertebra and on the basis of this finding a diagnosis of angioma of the vertebra was made. After 2 weeks of cervical traction and deep roentgen therapy he died. Necropsy revealed a cavernous hemangioma of the centrum, pedicles and laminae of the 4th cervical vertebra.

Comment. In these 5 cases there was recorded a slowly developing paraparesis or tetraparesis often progressing to paralysis. It would seem there are three modes of encroachment on the vertebral canal, resulting in compression myelopathy, namely deformation of the centrum subsequent to collapse, extension of the angioma into the regional epidural space, and hypertrophy of the vertebral arch subsequent to angiomatous invasion. In some, the pathogenesis of the implication of the spinal cord appears to invoke more than one of these mechanisms. Even though the excellency of roentgen diagnosis at the present time has aided in resolving the issues in most cases, this was not always true. Many of the early reports indicated difficulty in differentiating angioma from Kúmmell's disease, as well as tuberculosis.

In our clinic 4 patients with compression myelopathy secondary to vertebral angioma have been submitted to therapeutic laminectomy. No postoperative complications ensued in 3 of these. The fourth, however, had a rather rare complication, namely, collapse followed by almost complete disappearance of the centrum of the involved vertebra. The historical account of this case follows.