VERTEBRAL HAEMANGIOMATOSIS CAUSING PARAPLEGIA

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Abstract. Two cases of haemangiomatosis are described and details of myelography, operative findings and pathology are given.

VASCULAR tumours of the skeleton, in contrast with vascular tumours of the soft tissue, are rare, and such neoplasms are reported to occur in less than one per cent of bone tumours from several large series.

According to Netherland Committee on Bone Tumours solitary haemangioma accounts for about 0.8 per cent of all primary bone tumours excluding myeloma. About half of the solitary haemangiomata occurs in the vertebral column. Lower dorsal and lumbar area is the most common site of involvement. Of the ten cases of vertebral haemangioma reported by Dorfman and Jaffee, (1971) eight were in the lumbar area. The actual incidence of vertebral haemangiomata is more than that. Most of them are asymptomatic and found on roentgenogram taken for other reasons.

The incidence of vertebral haemangiomata in autopsy material has been about 12 per cent of vertebral column. Multicentric lesion of skeletal angiomatosis with or without soft tissue involvement has also been reported. The incidence of vertebral haemangioma accompanied with epidural haemangioma is relatively rare.

In this article after a brief description of the clinical and laboratory finding of vertebral haemangioma, we are going to report two cases of vertebral haemangiomatosis involving the soft tissues of the epidural space and causing paraplegia.

Clinical Signs. Although most of the vertebral haemangiomata are asymptomatic, and discovered accidentally, symptoms are produced by pressure on surrounding structures and may develop at any age.

Back pain being the most common local sign, development of neurological symptoms depends upon the degree of narrowing of the spinal canal and the progression of tumours. Massive involvement of a vertebral body may lead to collapse of the vertebra and to pressure upon the cord and nerve roots and even to paraplegia. These tumours grow slowly and may undergo spontaneous regression and healing.

The X-ray shows localised osteoporosis of the involved vertebra and the vertical trabeculae of the vertebra may be prominent. This is best demonstrated on a lateral roentgenogram of the spine (fig. 1). There may be posterior bulging of the cortical outline of the vertebra. On microscopic examination two kinds of haemangiomata are identified, cavernous haemangioma being the more common. This consists of large irregular spaces filled with blood and lined by a single layer of flattened endothelial cells and capillary haemangioma consisting of small blood vessels lined by a single layer of cuboidal cells (Rand, 1960; Dahlin, 1967; Edeiken &

FIG. 1a

Roentgenogram of dorsal spine of the case No. I. The sixth dorsal vertebra is more radiolucent than normal with coarse striations. Vertebral body is not collapsed and it is somewhat expanded.

FIG. 1b

Shadow adjacent to T6 vertebra.

FIG. 1c

Myelogram of case No. I showing a complete block at T6 level.

FIG. 1d

Section through the vertebral biopsy. Between the spicules of the bone there are several thin walled vascular channels filled with red blood cells.

Hodes, 1967; Turek, 1967; Aegerter & Kirkpatrick, 1968; Dorfman, Steiner Jaffe, 1971; Spjut *et al.*, 1971; Lichtenstein, 1972; Gutierrez & Spjut, 1972; The Netherlands Committee on Bone Tumours, 1973; Guttman, 1973).

CASE No. I

H. H., 26 years old, male, was admitted to Shafa Rehabilitation Hospital in August 1973 with back pain and difficulty in walking. Two years prior to his admission he had been buried under falling masonry and sustained a fractured pelvis and a fractured right femur. He was treated conservatively. He was progressing and walking very well up to seven months prior to his admission. At that time he started to have back pain in the

mid-dorsal area and difficulty in walking. His symptoms were getting worse. On admission he was unable to walk and complained of back pain.

Neurological Examination on Admission. Spastic paraplegia with hyperreflexia of lower limbs. Bilateral positive Babinski and bilateral ankle clonus; sensory deficit up to T9. C.B.C. and urinalysis were normal. Blood calcium 10. Phosphorus 4.2 Alkaline-phosphatase 1. Examination of spinal fluid revealed protein 230 mg./ml, sugar 50 mg./ml., chloride 111 mEq./ml. Roentgenograms of dorsal spine showed osteoporosis and prominent vertical trabeculae and moderate expansion of the body of D6. The lesion had extended into transverse processes and a bilateral paraspinal soft tissue shadow is seen adjacent to this vertebra (fig. 1b). The vertebral body was not collapsed and the inter-vertebral discs above and below this vertebra were normal. The skeletal survey and I.V.P. were normal. Myelography showed a complete block at D6-D7 level (fig. 1c). It was an extradural type of block.

A laminectomy was performed from T5 to T8. There was a soft tissue mass at T6 level. It was limited to that vertebra but did not have a definitive margin.

The tumour had a deep red brownish colour and it appears to originate from epidural tissues and expanded all around the dura. It was a highly vascular tumour and bled a lot on biopsy. A biopsy of the tumour was carried out but due to a massive haemorrhage it was not possible to excise the whole tumour. A needle biopsy of D6 vertebral body was also carried out.

Pathological Report. Biopsy of soft tissue tumour composed of vascular channels of various shapes and sizes, lined by hypertrophied endothelial cells. Some of these channels were filled with blood and some were empty. There was no evidence of malignancy (fig. 1d).

A needle biopsy of vertebra showed the same pattern of vascular channels, between bone trabeculae.

CASE No. II

N. K., 43 years old, male, was admitted to Shafa Rehabilitation Hospital in June 1972 with difficulty in walking. His right lower limb began weakening 15 years previously following a back injury. It was gradually getting worse, but he was able to ambulate with two crutches. In the past 12 months his left lower limb began weakening. On admission he was unable to walk at all.

Neurological examination on admission showed bilateral paraparesia with bilateral hyperreflexia of lower limbs and bilateral positive Babinski. He had a marked atrophy of the right lower limb and a sensory deficit of up to T8-T9 level. Routine laboratory studies were normal. Examination of spinal fluid revealed protein 126 mg./ml. glucose 57 mg./ml., chloride 115 mg./ml. Radiography of the dorsal spine showed osteoporosis with coarse vertical trabeculae and partial collapse of D9 (fig. 2). Disc spaces above and below this vertebra appeared normal.

Myelography showed a complete block at the lower border of D8 vertebra (fig. 2). There was also irregularity of the contrast column at D5-D6 level. A laminectomy was performed from D4-D9. There was a soft deep red brownish tumour at D9 which did not have a definitive margin. It was very vascular and bled profusely on operation. An excisional biopsy was done but due to massive bleeding it was not possible to excise the tumour completely. The dura was opened and there was no extension of tumour intradurally, but there was slight adhesion at T5-T6 level. This was probably due to arachnoiditis.

Microscopic section of the tumour showed large vascular spaces lined by endothelial cells and filled with blood. There was no evidence of malignancy. Neurological symptoms of both patients did not improve after surgery, and despite post-operative radiation, spasticity of case No. I gradually became worse.

FIG. 2

Myelogram of case No. II. There is a complete block at T9 level. T9 vertebra partially collapsed.

SUMMARY

After a brief discussion of vertebral haemangioma, two cases of vertebral haemangiomatosis involving the soft tissues of the epidural space, and causing paraplegia were reported.

RÉSUMÉ

Après une discussion sur l'hémangiome vertébral trois cas d'hémangiomatose vertébrale avec atteinte des tissus mous de l'espace épidural ayant causé une paraplégie ont été rapportés.

ZUSAMMENFASSUNG

Nach einer kurzen Diskussion vertebraler Haemangiomata werden zwei Fälle von vertebraler Haemangiomatosis mit Affektion von weichen Gevebe beschrieben, die eine Paraplegie verursachten.

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