

CT Findings of a Thoracic Vertebral Hemangioma Presenting with Acute Neurological Symptoms

Akut Nörolojik Semptomlar Gösteren Torakal Vertebral Hemanjiyomunun BT Bulguları

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ABSTRACT

Vertebral body hemangiomas are benign lesions and account for 4% of all spinal tumors. The most common histological type is cavernous hemangioma. These tumors generally locate in the vertebral body as a solitary lesion. Multiple lesions are seen in approximately 25-30% of vertebral hemangiomas. Mostly they are asymptomatic and incidentally found with radiological studies. Symptomatic vertebral hemangiomas are rare and represent <1% of all hemangiomas; however, if untreated, they may cause local or radicular pain and neurological deficits ranging from myeloradiculopathy to paralysis. In this case we aim to present preoperative and postoperative Computed Tomography findings of a cavernous hemangioma that caused sudden motor deficit and was localised to the thoracic vertebra corpus and posterior elements.

KEYWORDS: Spine, Cord compression, Vertebral hemangioma, Computed tomography

ÖZ

Vertebral hemanjiyomlar benign lezyonlar olup tüm spinal tümörlerin %4' üne neden olur. En yaygın histolojik tip kavernöz hemanjiyomdur. Bu tümörler, genellikle vertebra cisminde yerleşen soliter lezyon şeklindedirler. Yaklaşık %25-30 olguda ise lezyonlar birden fazla sayıda görülür. Çoğu asemptomatik olup görüntüleme yöntemleri ile rastlantısal olarak bulunur. Semptomatik vertebral hemanjiyomlar nadir olup tüm hemanjiyomların %1 inden azını temsil ederler ancak tedavi edilmezse lokal yada radiküler ağrıya ve miyeloradikülopatiden paralize kadar uzanan çok çeşitli nörolojik defisitlere neden olabilirler. Biz bu olguda torakal düzeyde vertebra korpusu ile posterior elemanları tutan, hızlı motor defisite yol açan hemanjiyomun cerrahi öncesi ve sonrası BT bulgularını tartışmayı amaçladık.

ANAHTAR SÖZCÜKLER: Vertebra, Kord kompresyonu, Vertebral hemanjiyom, Bilgisayarlı tomografi

INTRODUCTION

Vertebral hemangiomas are present without symptoms in approximately 10% of the population usually located in the lower thoracic and lumbar vertebra, and are often multifocal (8). These tumors generally involve a solitary lesion localized in the vertebral body. Symptomatic vertebral hemangiomas are rare and represent <1% of all hemangiomas; however, if untreated, they may cause local or radicular pain and neurological deficits ranging from myeloradiculopathy to paralysis (1,8). Vertebral hemangiomas can cause neurological symptoms by means of multiple mechanisms. The most common is enlargement of the vertebral body, which leads to narrowing and distortion of the spinal canal. The other mechanisms are extraosseous extension of the tumor into the epidural space, compression fracture, and bleeding from the tumor into the epidural space (2,3). In this case we aim to present preoperative and postoperative Computed Tomography (CT) findings of a cavernous hemangioma that caused sudden motor deficit and was localised to the thoracic vertebra corpus and posterior elements.

CASE REPORT

This 30-year-old man without medical or surgical history presented to the emergency department with a 3-week history of severe back pain and left lower extremity pain that began in the thigh and ascended into his left buttocks and down his left leg. He also complained of urinary incontinence. On neurological examination, the patient demonstrated decreased motor strength in hip flexion (1/5), leg extension (1/5), and dorsiflexion (1/5) bilaterally. Strength in his upper extremities was 5/5 in all muscle groups. Laboratory studies yielded normal values. Radiographs found no evidence of a vertebral pathology. CT imaging demonstrated diffusely thickened, vertically oriented trabeculae in the T4 vertebra body and posterior elements as well as expansile appearance of the left lamina and transverse process. Additionally, CT images at the T4 level demonstrated the presence of severe spinal canal compression (Figure 1). Two days after admission, surgery was performed to relieve the cord compression. A prominent vascular tumor was found invading the bilateral lamina of T4 vertebra. A bilateral laminectomy was performed.

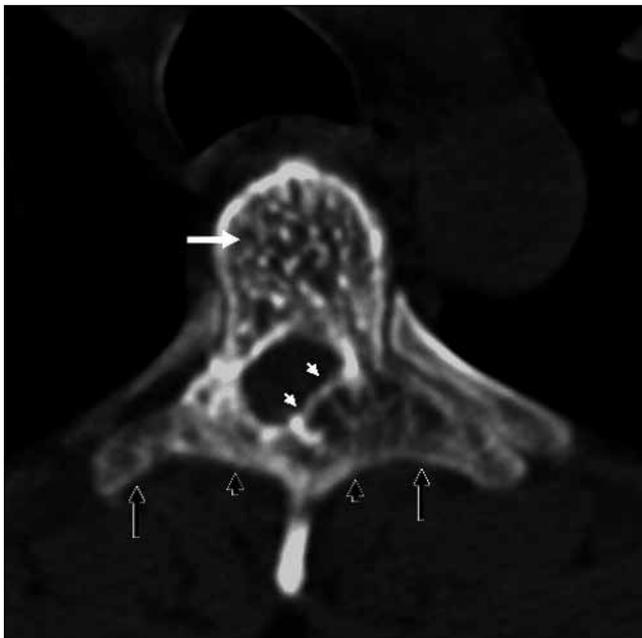


Figure 1: Axial CT scan in bone window settings shows the characteristic 'polka dot' appearance (trabecular thickening involving most of the vertebral body) (white arrow). The hemangioma seems to extend into bilateral lamina (black arrowhead) and transverse process (black arrow) of the vertebra. The lesion is also compressing the spinal canal (prominent on the left) (white arrowheads).

Pathology examination of the surgical material confirmed the diagnosis of cavernous hemangioma. Two days after the operation, this patient's clinical symptoms improved significantly. The postoperative CT showed complete decompression of the spinal canal (Figure 2A, B). Two weeks later, the muscle strength was 4/5 in all extremities.

DISCUSSION

Vertebral body hemangiomas are benign lesions and account for 4% of all spinal tumors. Hemangiomas are frequently asymptomatic and are discovered incidentally on imaging studies. An active lesion with spinal cord compression or nerve root compression is seen rarely (1). The clinical onset of spinal cord compression is usually progressive over many months but may be acute.

Hemangiomas are benign neoplasms of cavernous, capillary, or venous origin. The most common histological type is cavernous hemangioma (5). Hemangiomas are often found in the lower thoracic or upper lumbar spine, usually involving only a single vertebra. Multiple lesions are seen in approximately 25-30% of vertebral hemangiomas. Characteristics seen more often in symptomatic lesions include location between the T3 and T9 vertebral bodies, involvement of the entire vertebral body, involvement of the posterior elements, irregular trabeculation, expanded and indistinct cortex, and presence of a soft-tissue mass (5,6). There may also be varying degrees of collapse and loss of

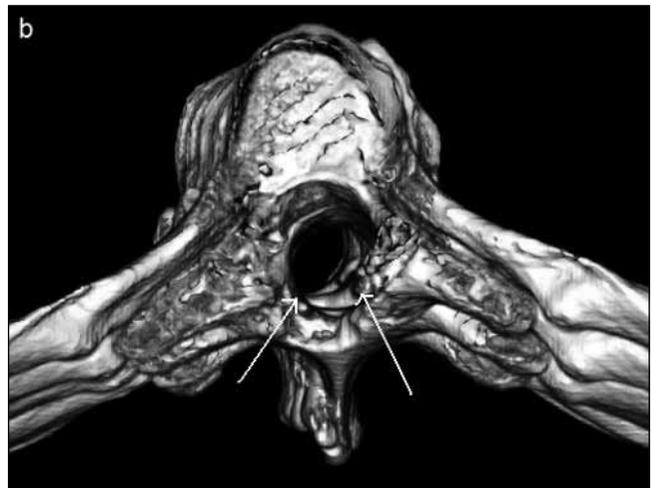
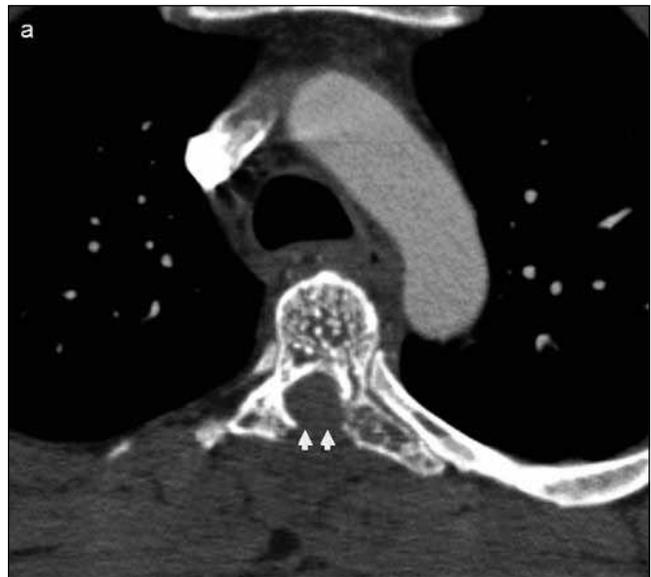


Figure 2: A postoperative axial CT image in soft-tissue window settings **A**) and axial SSD (surface shaded display) 3D image **B**) shows the adequately widened and decompressed spinal canal (arrows).

vertebral height with extensive involvement. This may result in paraplegia (compression of the spinal cord), radiculopathy (nerve-root impingement), or loss of function in the bladder or bowel.

On plain films, the thickened vertical trabeculae of hemangiomas cause parallel linear densities described as having "corduroy cloth" appearance or may show lytic foci with "honeycomb" trabeculations (7). A CT scan is the diagnostic procedure of choice. It shows a lucent lesion with the characteristic "polka dot" appearance, which represents the transverse cuts through the thickened vertical trabeculae. CT can be utilized to determine the extent of vertebral involvement and any site of spinal cord compression (5,4). Magnetic resonance imaging plays the significant role in the diagnosis of the vertebral hemangiomas. T1-weighted and

T2-weighted MR images of hemangiomas reveal increased signal intensity because the lesions contain fat and water (5).

There are a number of treatment options for vertebral hemangioma, ranging from observation to surgical resection to radiation. Radiation therapy and embolization therapy can be performed for medically refractory pain. Surgery is indicated when the hemangioma has caused neurological deficits (5). Acute spinal cord compression requires decompression by laminectomy (1,2).

In conclusion, hemangiomas are frequently localised to the columna vertebralis but they rarely cause acute neurological symptoms. CT scans can demonstrate the extent of vertebral involvement as well as the site of spinal canal compression. Acute neurological deficits which are rapidly progressive due to compression should be considered for immediate surgical decompression.

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