

Vertebral hemangioma

Epidemiology

Vertebral hemangiomas are the most common benign vertebral neoplasms.

The incidence of vertebral haemangiomas is about 10% at autopsy. The majority of haemangiomas are incidentally noted on routine radiographs of the spine. Often, small haemangiomas cannot be visualized on radiographs and are found with more advanced imaging such as CT or MRI, or upon gross dissection. The occurrence of vertebral haemangiomas are seen slightly more in females for unknown reasons and are more symptomatic in the 4th decade of life.

Classification

[Aggressive vertebral hemangioma](#)

Pathology

They are composed of vascular spaces which causes a displacement of bone. In some cases, specifically capillary types, lytic erosion into the epidural space can occur, however rare. They are slow growing and most are not symptomatic.

Distribution

The majority of all vertebral haemangiomas occur in the thoracic spine, but can be found throughout the spine. Radiographic features

Clinical features

They are usually asymptomatic and incidentally detected due to their characteristic features on imaging for other reasons.

Collapse of the vertebral body or encroachment into the neural canal are some of the classic causes of pain. An increase in activity can cause the vertebral haemangioma to become painful, such as starting to exercise, housework and such. This is most likely due to axial loading through the body of the vertebra.

Diagnosis

The classic “corduroy cloth” appearance is strongly associated with vertebral haemangiomas.

CT

Axial CT will show a “polka dotted” appearance due to the thickened vertebral trabeculae.

MRI

MRI shows extraosseous components better and depicts the haemangioma components as fat and water. Thickened trabeculae appear as low signal areas in both T1 and T2 images.

T1: high intensity signal due to its fat component

T2: bright/high intensity signal, usually greater than on T1, due to its high water content

T1 C+: with contrast, significant enhancement seen due to high vascularity



The [cord](#) is unremarkable in calibre and appearance from the base of [skull](#), with no abnormal enhancement or regions of high [T2 signal](#) to suggest [demyelination](#). The canal is capacious at all levels with no cord compression.

No significant degenerative change.

Alignment, vertebral height in bone marrow signal unremarkable.

Incidentally noted C5 and T7 vertebral body [hemangiomas](#).

Differential diagnosis

Metastases usually have decreased signal intensity on T1 and increased signal intensity on T2

Treatment and prognosis

Treatment for most haemangiomas is not necessary. When neurological deficits or severe pain treatment is necessary. In symptomatic lesions, there are many options which must be weighed. Radiotherapy, balloon kyphoplasty or transarterial embolisation with associated laminectomy are some of those options 5. Serious bleeding can be a complication so care must be taken when undergoing open procedures.

Case series

33 patients (Mean 26.9 + 13.2, range: 10-68 years, 18 females). Myelopathy all (5 paraplegic), sphincter involvement (13), and mid back/ lower pain (7). Pre-operative American Spinal Injury Association (ASIA) scores: A(7), B(11), C(6), D(8) and E(1). Majority had single vertebral involvement (30), 3 multiple level. Six underwent surgery earlier (1 alcohol embolization here). Mean surgical time: 124+39 minutes, average blood: 274+80 cc. Mean amount of absolute alcohol injected: 14.6+5.7 cc. (2 requiring 20 & 25 cc). Immediate embolization achieved in all, allowing laminectomy and soft-tissue hemangioma removal easily. Post-surgery, 1 patient had transient deterioration, rest all patients improved (sphincters improved in 9) at a follow up ranging 28-103 months (mean 47.6+22.3). Follow-up ASIA scores: E(26), D(4), B(2) & C(1). All patients showed evidence of bone sclerosis and relief of cord compression on follow-up imaging.

This is largest study in literature showing excellent improvement, low re-operation rates following ethanol embolization and short segment fixation ¹⁾.

Case reports

[Vertebral hemangioma case reports.](#)

¹⁾

Chandra PS, Singh P, K R, Agarwal D, Tandon V, Kale SS, Sarkar C. Long term outcome of treatment of vertebral body hemangiomas with direct ethanol injection and short segment stabilization. Spine J. 2018 Jun 8. pii: S1529-9430(18)30240-7. doi: 10.1016/j.spinee.2018.05.015. [Epub ahead of print] PubMed PMID: 29890263.

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