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CASE REPORT

GIANT CELL TUMOR OF LUMBAR VERTEBRA: CASE REPORT

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Corresponding Author*C.SHAMSUNDER****Abstract**

Giant cell tumour of spine is uncommon. It is locally aggressive benign tumour with unpredictable outcome. We report a case of 28 year old male patient with a giant cell tumour of the fourth lumbar vertebra. He was treated by preoperative embolisation and L4 hemilaminectomy , decompression of the lesion and L3 to L5 spinal stabilisation with pedicle screw and rods. patient was given postoperative radiotherapy. at follow-up patient was free of pain and ambulant.

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Introduction:

Giant cell tumor is low grade malignant tumor commonly involving ends of long bones, but their cellular origin is unknown. They are aggressive, carry some malignant potential, and are associated with high incidence of local recurrence. Giant cell tumor of the spine remains an intriguing and unpredictable entity. It is the most aggressive of the benign primary tumors of the spine, with a high predilection for recurrences. Most of the available literature reports small series, clearly indicating that it is not a common occurrence. (1,2). Most common site for GCT of the spine is sacrum. They are distinctly rare above the sacrum and present with destruction of the vertebral body and neural arch. GCT tends to be found in individuals in the third and fourth decades of life. Their frequency decreases in later years. Women are affected slightly more than men.(3,4). Spinal GCTs however, often present with the unique problem of spinal cord compression due to extension into the spinal canal. Also, as it is often situated on either side of the neural tissues, complete resection becomes surgically challenging. Here we report a case of GCT of fourth lumbar vertebra in a young 28 year old male patient and its management.

CASE REPORT

Patient presented with chief complaints of low back pain since 2 months and pain radiating to the left lower limb and inability to bend forward. Patient had a history of fall 2 months back. No bowel and bladder disturbance present. On examination spine showed no deformity. Tenderness at L3-L5 vertebra. Movements of back and lowerlimbs were normal. All the reflexes are equivocal. X-Ray of lumbar spine showed lytic lesion at L4 vertebra (fig.1). CT guided biopsy was done at other institution which was diagnosed as Giant cell tumor of L4 vertebra. MRI showed hypointense lesion at L4 vertebra with canal encroachment(fig 2).

Planned Management: L4 HEMI LAMINECTOMY WITH DECOMPRESSION AND L3 AND L5 STABILIZATION BY POSTERIOR INSTRUMENTATION(PEDICLE SCREWS AND RODS)

Pre-operative angiographic evaluation showed tumour feeding coming from lumbar artery which was selectively cannulated and embolised with gel foam.(fig 3) Surgery was planned 24 hours after embolisation. Under General anaesthesia(GA) L3-L5 spinal stabilisation was done with pedicle screws and rods and hemi-laminectomy of L4 vertebra and decompression was done(fig 4). At operation tumour was greyish, friable and vascular in spite of earlier embolisation. Hence no attempt was made to curette the body of L4 vertebra aggressively.

On first post operative day, patient was stable with active knee flexion and extension. No neurological defects were present. Postoperative x-ray was taken which shows posterior instrumentation(fig 5).Tissue sent for histopathology section reveals multinucleated giant cells(fig 6). Osteosclerotic type, intervening shows stromal cells round to oval with uniform cytomorphological features suggestive of Giant cell tumor. After 15th post-op day sutures were removed. Patient was referred to other institution for radiation and he was given 45Gy in 25F 180/fraction, 5 days in a week. Post radiation evaluation showed patient is free of backache. No focal neurological deficit present. Bladder function - normal. Patient was ambulatory without support.

DISCUSSION

GCT in the spine, especially above the sacrum, is a relatively rare entity.(5) They usually arises in the epiphyseal-metaphyseal junction of long bones(75%) and only two to three percent of GCTs are originated in the spine(6). Spinal GCTs most commonly present with pain due to expansile lesion with or without vertebral collapse and spinal instability(7). This often gets compounded by neurological deficit due to encroachment onto the spinal canal(8). Asymptomatic, incidental radiological occurrence is uncommon in spinal GCTs. GCT being highly vascular tumor, DSA aided tumor embolization within 24 hours before surgery is recommended(9). This not only minimizes blood loss, but also permits the surgeon a dry field to carry out optimum tumor excision. In some cases however, DSA shows that a common vascular feeder supplies the spinal cord as well as the tumor. In such cases, embolization cannot be carried out due to risk of vascular infarct to the spinal cord(1).

Complete , extralesional surgical resection would be the ideal treatment for spinal GCTs(10) however, as the tumor is extremely close to important neurovascular structures and has usually broken through the cortex by the time it is diagnosed, extralesional/ en bloc resection is generally not possible. Thus marginal or intralesional resection followed by local radiotherapy is the treatment that is usually resorted to. Thorough intralesional curettage and meticulous excision of as much tumor as possible, is important. The tumor wall, rather than tumor 'substance' has the diagnostic features on histology/ frozen section.

Usually, some microscopic tumor tissue is expected to stay behind , however complete surgical excision and post operative radiotherapy is recommended. Though earlier literature seemed to suggest that irradiation converts benign GCTs to malignant ones, this is no longer true with modern radiotherapy techniques, especially by keeping the total radiation dose under 50Gy(2,11,12)

Close follow up is required to detect recurrence of the tumor. Donthineni et al.(13) noted higher rate of lung metastases from GCT of mobile spine as compared to long bones. Metastasectomy of lung nodules can be considered in view of prolonged survival . Plain radiograph of local site and chest are simple tools to look for any recurrent lesion. Periodic computed tomography and MRI are excellent tools to identify clearly the recurrent lesion and plan necessary treatment.

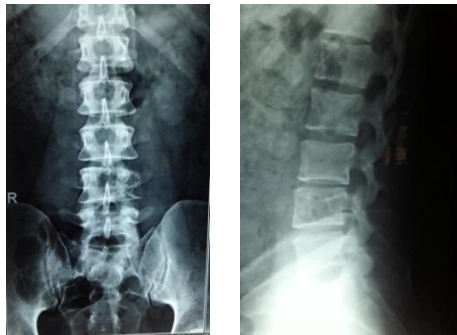


Fig 1 xray shows lytic lesion

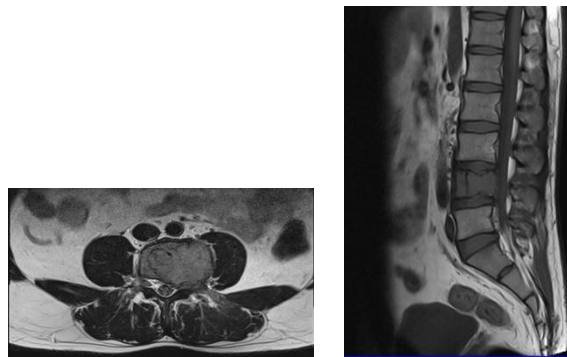


fig 2-MRI shows hypointense lesion at L4 vertebra with canal encroachment

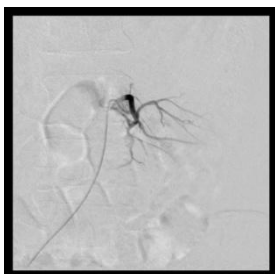
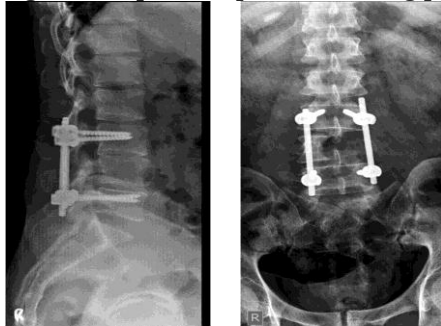
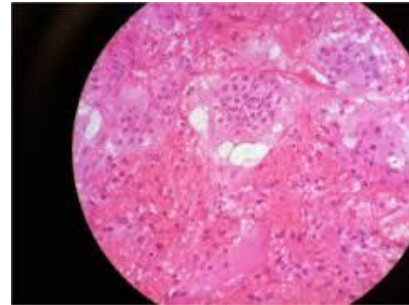


Fig 3-selective cannulation of left lumbar artery**Fig 4-intraoperative picture showing pedicle screws in position****Fig 5-postoperative radiograph****fig 6-histopathology**

CONCLUSION

In the present case, total tumor excision was achieved by intralesional approach and solid reconstruction was achieved by L4 hemilaminectomy and posterior instrumentation using pedicular screw with rod fixation and followed by local radiotherapy. An en-bloc excision could not be carried out, close follow-up is required for any sign of local and distant recurrence. To summarize, GCT of spine are challenging clinical entities. Surgery is a must and careful and regular follow-up is important to diagnose recurrences early.

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