CASE REPORT

Twice Recurred GCT of L3 Vertebra With Neurological Deficits Treated by Repeated Surgery—a Long Term Follow Up

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Abstract

Involvement of the spine by GCT is not unusual, constituting 7% of all cases of GCT. Due to axial location, giant cell tumours of the spine may present at a more advanced stage when compared with those of extremities and are more challenging surgically. We present the case of a 33 year old lady with GCT of L3 vertebra which was treated initially with posterior stabilisation followed by intralesional excision and vertebral body reconstruction with a cage filled with iliac crest bone graft. The tumour recurred two times—at 4 and 6 years respectively. These were again treated surgically. Histological picture of the tumour remains the same. There is no evidence of recurrence two years after the last surgery.

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Introduction

Giant cell tumour (GCT) of bone is a benign but locally aggressive solitary lesion that accounts for approximately 5% of all primary bone tumours in adults[1]. The usual age group affected is 20–40 years old. There is slight female predominance. The most common location for this tumour is the distal femur followed by proximal tibia. Involvement of the spine by GCT is not unusual, constituting 7% of all cases of GCT.[2–4] Of the different tumours of the mobile spine, GCT accounts for only 2–4% of cases.[5–7]

Clinical symptoms are primarily pain (often with radicular distribution), weakness and sensory deficits. Radiological studies of spinal GCT usually demonstrate an expansile lesion with bone lysis.[8,9] When GCT occurs in the spine above the sacrum, it usually affects the vertebral body. Extension into posterior elements and paraspinal soft tissues and associated vertebral collapse are often apparent.[4,8] Treatment is curettage with or without grafting.

We present the long term follow up of a case of giant cell tumour of third lumbar vertebra with recurrence. She had undergone surgery three times. In spite of two recurrences, histological picture remains the same. The patient is symptomatically better and returned to work.

Case Report

This is the case of a 26 years old female, mother of a 6 month old child, who presented with a 6 month history of low back pain in July 2007. Pain was radiating to the left foot and associated with numbness of the left lower limb. She was already evaluated

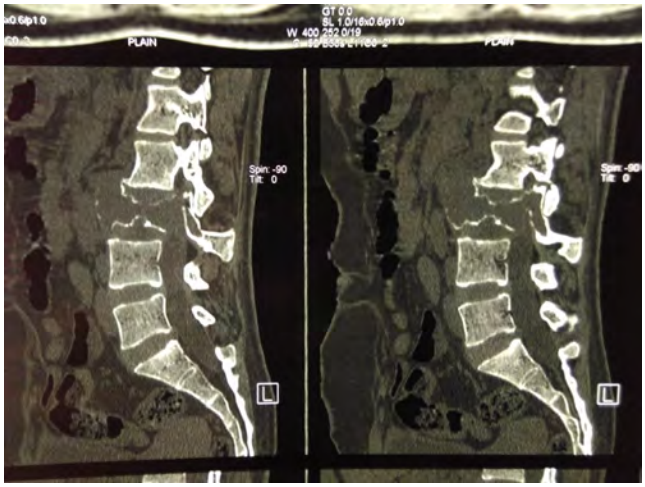

Figure 1. Sagittal view of CT lumbar spine showing destructive lesion of L3 vertebra extending into soft tissues.

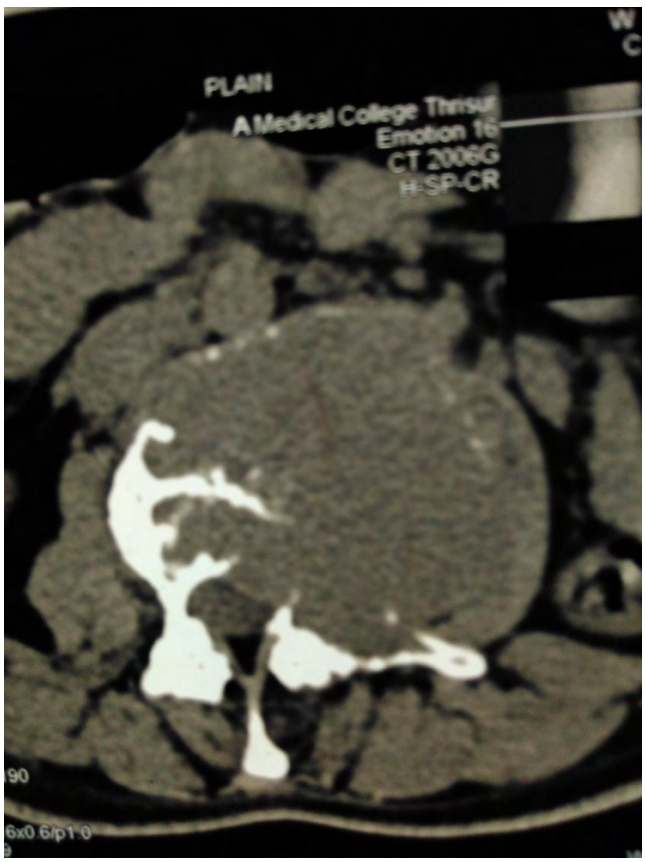

Figure 2. Axial view of CT lumbar spine showing extension tumour into soft tissues.

from another hospital with imaging studies including CT lumbar spine (Figs. 1 and 2) which showed destructive lesion involving L3 vertebra with soft tissue extension.

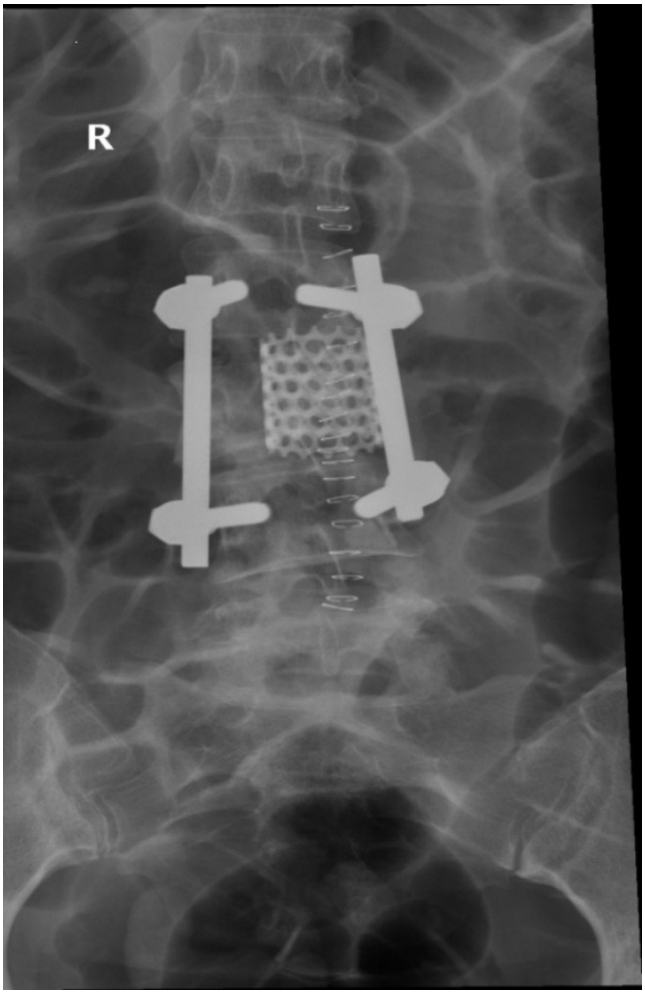

Figure 3. AP view of lumbar spine after pedicle screw fixation and cage reconstruction.

On examination, she had L2, L3 and L4 radiculopathy on the left side. MRI Lumbar spine showed destructive lesion involving L3 vertebra. CT guided Biopsy from L3 vertebral body was reported as consistent with GCT. She was taken up for surgery. Initially, posterior stabilisation with pedicle screw insertion into L2 & L4 vertebra was done. Through an anterior retroperitoneal approach, by a Mini-Lumbotomie, an intralesional excision of the tumour was done. It was followed by electrocauterisation of tumour bed. This resulted in decompression of the involved nerve roots. The anterior vertebral body was reconstructed with a 30 mm HARMS mesh cage filled with iliac crest bone graft through mini-lumbotomie (Figs 3 and 4) Excision biopsy specimens were reported as GCT. She was asymptomatic for the next 4 years.

In December 2011, she had presented again with early features of cauda equina syndrome. CT Lumbosacral spine showed a heterogeneous peripherally calcified soft tissue lesion in the left paravertebral re-

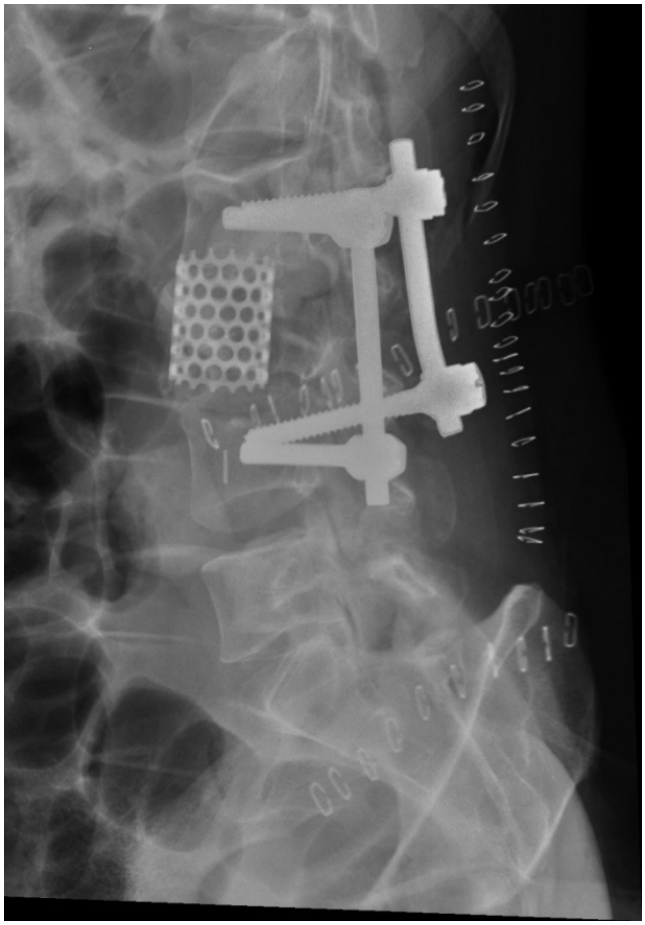

Figure 4. Lateral view of X-ray lumbar spine post operatively showing pedicle screw and cage.

gion infiltrating the left psoas major muscle—features suggestive of GCT recurrence.

Through an incision along the previous scar a retroperitoneal space was developed.

Tumour posterior to the psoas muscle was curetted. Microscope was used to decompress the dura (Fig 5).

Curettage specimen showed GCT recurrence without any aggressive pattern.

Patient returned to work after 6 months of rehabilitation. She was asymptomatic for next 2 years.

Symptoms recurred again in February 2013. She presented with chronic low back ache radiating to right lower limb with L2, L3, L4 radiculopathy, associated with bowel and bladder symptoms and neurogenic claudication. CT lumbar spine (Fig 6) showed an expansile lesion (GCT recurrence) extending into the iliopsoas muscles, with soft tissue mass around the spinal canal. There was no segmental collapse and CAGE was holding the vertebra in spite of destruction. The case was discussed in the institutional tumour board, which recommended a wide resection followed by radiation.

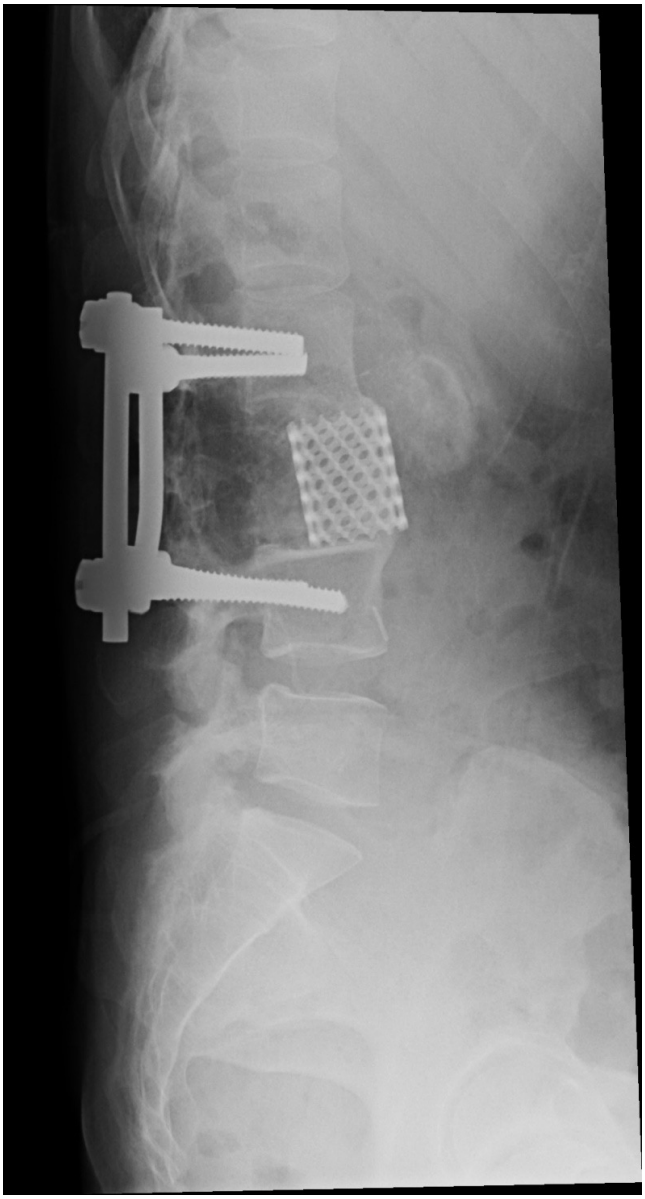

Figure 5. Lateral X-ray of lumbar spine after resection of tumour.

Tumour was exposed transperitoneally with the assistance of an oncosurgeon and wide resection was done. Tumour was removed in toto (Fig 7) Biopsy report came as GCT recurrence. Histological picture was exactly the same as the initial one. She has been asymptomatic for the last 2 years.

Discussion

The commonest bone tumour in the spine is secondary deposits. The incidence of malignant tumours of spine is nearly 5% and benign tumours of the spine is only little more than 1%.[10] Of the benign tumours, giant cell tumour, osteoid osteoma and osteoblastoma are more likely. Although the incidence of hemangioma of the

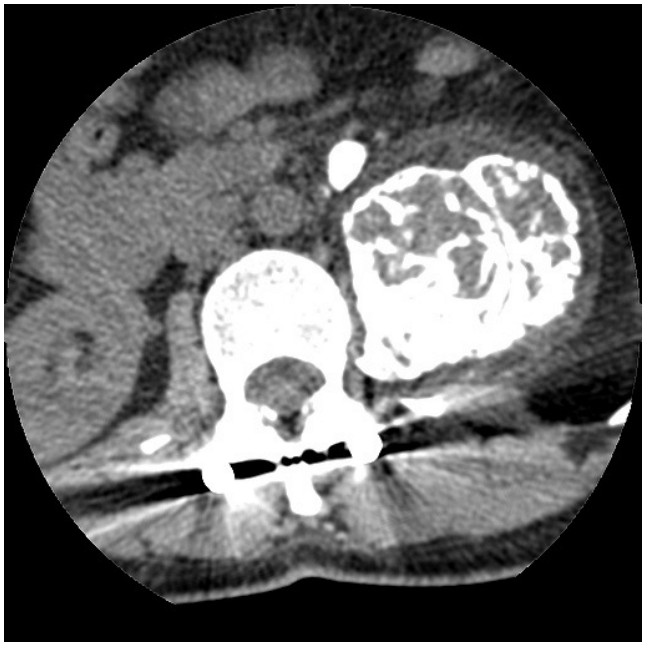

Figure 6. CT scan axial view of L3 vertebra showing the tumour extension into soft tissues.

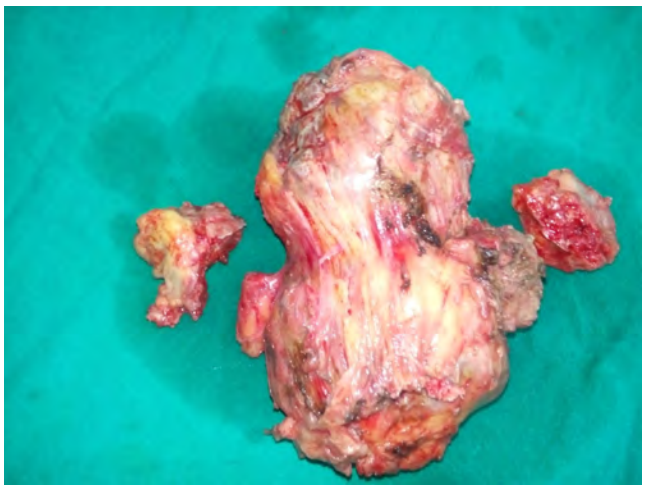

Figure 7. Excised GCT specimen after surgery.

spine is about 10% in general population, only a small percentage develop symptoms.[11,12]

Patients with spinal tumours present with axial pain and some with radicular pain. A lesser percentage present with cauda equine syndrome.[13] The cause of axial pain is because of the destructive effect of the tumour, the cortical breakdown and from extension into canal with compression of the cord.[14,15]

Due to axial location, giant cell tumours of the spine may present at a more advanced stage and are more challenging surgically.

Though classically considered benign, the new WHO classification[16] describes GCT as locally aggressive, rarely metastasizing tumour of intermediate type. Yet curettage and bone grafting is a well accepted method of treatment both in extremities and spine; not radical excision

Steyern *et al.* concluded that local recurrence after curettage and cementing in long bones can generally be successfully treated with further curettage and cementing, with only a minor risk of increased morbidity.[17] This suggests that more extensive surgery for the primary tumour in an attempt to obtain wide margins is not the method of choice, since it leaves the patient with higher morbidity with no significant gain with respect to cure of the disease.

In this case in spite of multiple recurrences, aggressiveness remains the same and there is no evidence of metastasis.

Conclusion

The aggressiveness of Giant cell tumour of vertebra does not increase even after repeated recurrence. In this case even though we did a wide excision, a simple curettage of the lesion can be considered as a treatment for recurrent GCT of the vertebra.

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