



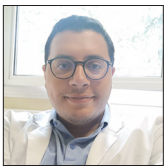
Case Report

Successful total *en bloc* resection of a lumbar vertebra for a giant cell tumor: A case report

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Received: 11 April 2023
Accepted: 06 March 2025
Published: 11 April 2025

DOI
10.25259/SNI_322_2023

Quick Response Code:



ABSTRACT

Background: Giant cell tumor (GCT) is a benign neoplasm that most commonly arises in the long bones; when these tumors rarely present as primary spinal bone tumors, they may exhibit local aggressive behavior, warranting extensive surgical resection.

Case Description: An 11-year-old female presented with lower back, radicular pain, and paraparesis. The magnetic resonance imaging showed an L5 tumor with an extension into the spinal canal. Total *en bloc* spondylectomy of the L5, vertebra revealed a GCT. Postoperatively, the patient did well for 3 months.

Conclusion: GCTs of bone are aggressive benign bone tumors that rarely involve the spine. Gross total surgical excision is the treatment of choice for these lesions that exhibit high local recurrence rates.

Keywords: Giant cell tumor, Lumbar spine, Total *en bloc* spondylectomy

INTRODUCTION

Giant cell tumors (GCTs) comprise just 5% of all primary bone tumors in adults. They most commonly affect the appendicular skeleton, with only 2–4% found in the spine,^[6] typically localizing to the sacrum. Total spondylectomy with reconstruction/stabilization typically constitutes the treatment of choice.^[5] Radiotherapy can be given following subtotal resection. However, residual tumor size/extension to adjacent soft tissues are the major prognostic factors signaling an increased risk for local tumor recurrence.^[7] Here, an 11-year-old female underwent a successful L5 spondylectomy to achieve a gross total tumor removal followed by a fusion.

CASE REPORT

An 11-year-old female presented with lower back pain and paraparesis (i.e., 3/5 motor function). Lumbar magnetic resonance and computed tomography studies revealed an osteolytic L5 lesion, resulting in vertebral collapse and extending into the anterior spinal canal. This resulted in thecal sac compression but sparing of the posterior elements [Figure 1].

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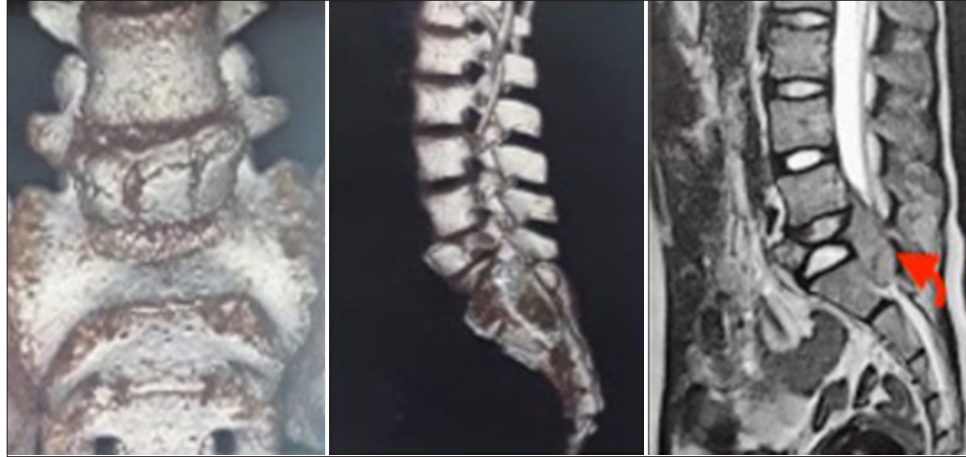


Figure 1: Magnetic resonance imaging and computed tomography showing the tumor-infiltrating the body and the posterior arch of L5 with extension into the spinal canal (Red arrow: The extension).

Operative procedure

Using a standard midline posterior approach, an *en bloc* resection of the entire posterior elements of the L5 vertebra was completed followed by a transpedicular corpectomy of L5 (i.e., including osteotomes). This was followed by vertebral body replacement with a titanium mesh cage inserted into the corpectomy site and by posterior stabilization with pedicle screws/rods (i.e., L3, L4 above, and S1 below) [Figure 2]. The histologic examination confirmed the diagnosis of a GCT. Postoperatively, the patient was discharged on day 6 with no complications, and at 3 postoperative months, was asymptomatic.

DISCUSSION

GCTs of the spine are rare and usually involve the sacrum. Although typically benign,^[3] they have a high local recurrence rate but rarely metastasize (i.e., 1–4% risk typically found in the lung) or undergo malignant transformation (i.e., 5–10%).^[2] Surgery should include total *en bloc* spondylectomy (i.e., in one piece) or gross total tumor removal with an adequate margin of contiguous disease-free tissue.^[1] Junming *et al.*, for 22 TCG of the cervical spine, reported a 71% recurrence rate following subtotal vertebrectomies versus a lower 7.7% rate utilizing total vertebrectomy.^[4] Adjuvant irradiation should be considered, especially if there is no clear tumor margin. Notably, these resections can be greatly facilitated with preoperative selective arterial tumor embolization to reduce intraoperative blood loss.^[5]

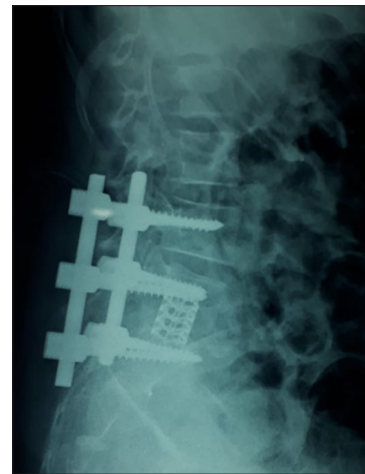


Figure 2: Postoperative X-ray showing the pedicle screw.

CONCLUSION

GCTs involving the spine are rare and typically involve the sacrum. Gross total tumor resection is the treatment of choice, but there is still a relatively high risk of local recurrence, usually necessitating accompanying adjunctive radiotherapy.

Ethical approval: Institutional Review Board approval is not required.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship: Nil.

Conflicts of interest: There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation: The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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How to cite this article: Hmamouche OM, Lakhdar F, Hammoud M, Benzagmout M, Chakour K, El Faiz Chaoui M. Successful total *en bloc* resection of a lumbar vertebra for a giant cell tumor: A case report. *Surg Neurol Int.* 2025;16:134. doi: 10.25259/SNI_322_2023

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