CASE REPORT

A rare case of sacral chordoma excised via nerve sparing posterior surgical approach

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Introduction

Chordoma is a rare locally aggressive malignant tumour with predominant involvement of the sacral region. The slow growing nature usually leads to late presentation of the tumour which may preclude curative resection. We report a patient with a sacral chordoma managed with surgical resection via posterior approach.

Case presentation

A 63-year-old Sri Lankan male with a history of diabetes mellitus presented with progressively enlarging lower back lump for 4 months duration. There were associated constipation and progressive perineal numbness without any radiating pain along the lower limbs. He denied any lower urinary tract symptoms or faecal incontinence or difficulty in walking. On examination, there was a sacral subcutaneous lump of 20 x 30 cm with fixity to sacrum. Digital rectal examination showed a reduction in squeeze and resting tones with posterior indentation by a mass without any contact bleeding. There was objective peri-anal sensory impairment. The lower limb neurological examination was unremarkable. Flexible sigmoidsocopy showed a large posterior rectal wall indentation without any mucosal changes. Magnetic resonance imaging (MRI) showed a large mass arising below the level of second sacral vertebra with associated destruction of both anterior and posterior sacral walls, rectal compression and subcutaneous extension suggestive of a sacral chordoma (Figure 1).

After a multi-disciplinary discussion, he underwent an excision of the tumour via a nerve sparing posterior approach (Figure 2). Tumour with part of the sacrum below S2 level was removed. Dural closure of the remaining part of the spinal cord was done with a regional muscle flap. Post-operative recover was uneventful except small area of dermal necrosis of the flap which was managed conservatively. There was initial bladder and bowel dysfunction with incontinence which improved with bladder retraining and pelvic floor exercises within 3 weeks.

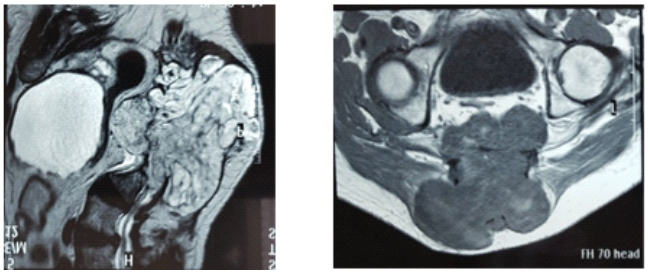

Figure 1: Magnetic resonance imaging (MRI) showing a large mass arising below the level of second sacral vertebra with associated destruction of both anterior and posterior sacral walls, rectal compression and subcutaneous extension

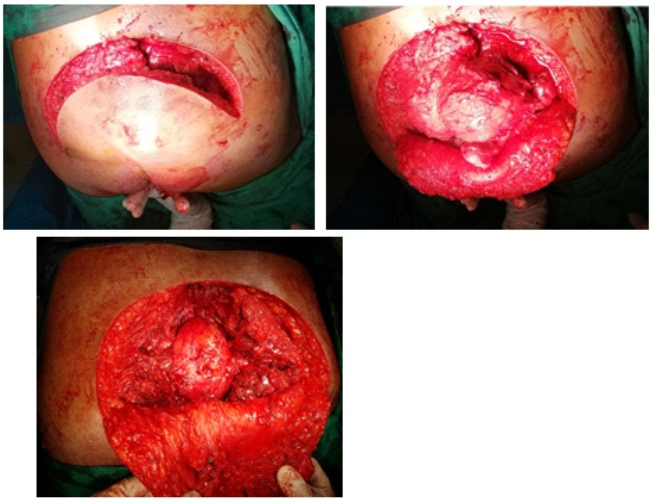

Figure 2: Intra-op image of the dissected sacral chordoma via the posterior approach

The final histology revealed an encapsulated tumour composed of sheets of large round to polygonal cells with microscopic involvement of the medial margin. The immunohistochemistry revealed that the tumour cells were positive for epithelial membrane antigen (EMA) pan-cytokeratin (Pan-CK) suggestive of a chordoma. The Ki-67

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proliferation index was 3%. After a multi-disciplinary meeting, patient was referred for adjuvant radiotherapy. After 2 years of follow-up, he remains free of any disease recurrence.

Discussion

Chordoma is a rare malignant tumour of notochordal origin which is known to occur in the sacrum and accounts for 1-4% of malignant tumours of the bone[1]. Due to the slow growing nature, late presentation is common and is associated with an unfavorable prognosis [2]. The clinical presentation is explained by the compression of the sacral nerve roots which supplies the bladder, bowel, and genital organs and lower limb neurological symptoms in relatively higher lesions. In the reported patient, the main complaint was a mass over the sacral region associated with perianal numbness. Digital rectal examination was suggestive of an extra luminal mass rather than a rectal tumour.

Although the bony destruction is visible with plane X-ray and computed tomography (CT) scan of the sacrum, the extent of soft tissue mass is well delineated by an MRI scan. It will also help in pre-operative planning including the need for spino-pelvic reconstruction [3]. Due to the close proximity to the sacral nerves, surgical excision is challenging and patients recover with variable degree of bladder, bowel and lower limb neurological dysfunction [4]. The involvement of sacro-iliac joints and ligamentous structures may lead to instability of pelvis needing further intervention for stabilization.

The objectives of chordoma management focus on complete removal of tumour while preserving the neurological functions. Surgery approaches include anterior, posterior or combined techniques. The anterior approach involves the surgery via the abdomino-pelvic cavity and posterior approach through the sacral region as in the reported patient. The posterior approach is carried out in many institutions with good post-operative outcomes [4]. For larger tumours, combined anterior and posterior approach has shown lower recurrence rate however, at the expense of neurological function [4]. Posterior approach was selected in the reported patient because of the localized nature of the tumour without rectal infiltration and surgeons' experience. Post-operative bladder bowel dysfunction improved considerably with pelvic floor exercises within 3 weeks. This may indicate a neuropraxia than a complete nerve injury. Post-operative radiotherapy was considered in this patient because of the microscopic involvement of the resection margin. Localized radiotherapy after tumour resection was found to be associated with decreased tumour recurrence[5].

Declarations

Ethics approval and consent to participate: Not applicable

Consent for publication: Informed written consent for publication and accompanying images were obtained from the patient prior to collecting information.

Availability of data and material: All data generated or analyzed during this study are included in this published article

Competing interests: The authors declare that they have no competing interests.

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Learning Points:

- Chordoma is a rare locally aggressive, slow growing malignant tumour associated with a late presentation.
- The objectives of sacral chordoma management focus on complete removal of tumour while preserving the neurological function.
- Posterior approach was successful in our patient without any significant long-term morbidity.