

A large giant cell tumor of the sacrum

Advantage of an abdomino–sacral approach

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ABSTRACT

We report a case of giant cell tumor of the sacrum, presenting with sacral pain, swelling, and change of bowel habits. Rectal examination revealed a huge retrorectal mass fixed to the sacrum but not to the wall of the rectum. Abdominal ultrasonography, computed tomography (CT) scan, and magnetic resonance imaging (MRI) showed a huge pelvic mass invading the sacrum. Exploration via posterior (sacral) approach was not successful due to both, extensive bleeding and difficult accessibility. Re-exploration was carried out 2 days later with the patient in lithotomy position. Using abdomino-sacral approach the mass together with part of the sacrum and the whole coccyx were excised. Histopathology reported giant cell tumor of the sacrum with no evidence of mitosis. The patient was symptomless 12 months after surgery and on follow up.

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Giant cell tumor (GCT) of the bone is a distinctive osteolytic tumor of young adults that usually occurs in the epiphysis of long bones, particularly the lower femur and the upper tibia; the sacrum is the third most common site for GCT.¹ Giant cell tumor of the sacrum is second only to chordoma and is commonly benign but has a high rate of recurrence and bad prognosis.² Treatment is difficult due to constraints imposed by the surrounding soft tissues and patients usually present themselves with the disease on its advanced stage.

Case Report. A 35-year-old Sudanese lady presented with pain in the sacral area for 18 months. The pain was dull aching with no radiation to the lower limbs. A year later, swelling was noticed on the sacral area, which was gradually increasing in size. Alteration of bowel habits from once daily to

once every 3 days with no disturbance in sphincteric functions was also noticed.

Examination revealed a healthy young female with normal chest, cardiovascular system and abdomen. Rectal examination revealed a huge presacral mass 10 x 10 cm in diameter, irregular surface, firm in consistency, not tender, fixed to the sacrum but not to the wall of the rectum. Examination of the anal sphincter tone and lower limbs were normal. Abdominal ultrasonography suggested a presacral sarcoma, computed tomography scan gave the differential diagnosis of a sacral chordoma or sarcoma (**Figure 1**). Magnetic resonance imaging showed a huge pelvic mass with possibility of rectal mass, uterine mass, or GCT of the sacrum (**Figure 2**). A limited barium enema showed the rectum was stretched and pushed anteriorly by a posterior pararectal mass (**Figure 3**).

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Both chest x-ray and intravenous urography were normal. The tumor was considered as a locally advanced tumor without extra pelvic spread and no attempt was done for pre-operative biopsy. During operation with the patient in the Jack-knife position, accessibility using a posterior (trans-sacral) approach was difficult and bleeding was extensive, considering the inadequacy of prepared blood, the procedure was abandoned and the bleeding was controlled with gauze packing. Re-exploration was carried out after 2 days with the patient in lithotomy position via an abdomino-sacral approach. Both the coccyx and the lower part of the sacrum together with the mass were excised with the tumor in toto. Histopathology, reported GCT of the sacrum presented no evidence of mitosis. The patient experienced delayed healing of the perineal wound that took 4 weeks. The patient was normal 12 months following surgery.

Discussion. A variety of neoplastic and non-neoplastic lesions affect the sacrum. These include neurofibroma, chordomas, GCT, malignant growth and myxopapillary ependymoma.¹ Giant cell tumor of bone is a locally osteolytic tumor with variable aggressiveness. Pain and neurological disturbances were the most frequent symptoms in patients with GCT of the spine and sacrum.

Surgery should be advised and actively adopted for primary sacral tumors, with the exception of frank malignancy.¹ Although recurrence or malignant transformation in GCT cannot be predicted yet, approximately 96% of patients can be cured and recurrence has no fatal consequences for the patient but may lead to various degrees of disability due to repeated and more radical surgical procedures.³ Prognosis of GCT of the bone is likely to be mistaken if it is only based on the histological picture. On the contrary, considering important parameters, such as tumor location, size and aggressiveness, frequency of recurrences and type of surgical management, one may predict in most cases the clinical outcome of the neoplastic process and therefore close long term follow up is advised.⁴ Treatment of GCT of the sacrum remains controversial. Marginal excision and curettage with or without bone grafting has a recurrence rate of 16-60%, while curettage combined with liquid nitrogen cryotherapy or with chemo or thermocauterization reduced the incidence of recurrence and provided cure for benign lesions.⁵ The use of radiotherapy for GCT is controversial, some authors reported a 14% increase in the risk of malignant behavior and advised that it should be reserved for incomplete resection and local recurrences, while others think it reduced the recurrence rate.⁶ Surgical approach of a retro-rectal tumor are the following. The abdominal approach is

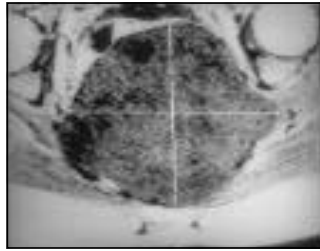


Figure 1 - Computed tomography scan showing a pre-sacral mass.

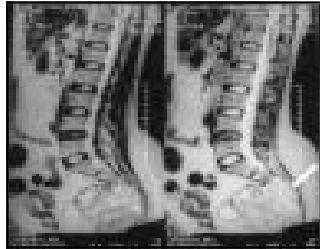


Figure 2 - Magnetic resonance imaging lateral view showing pre-sacral mass.



Figure 3 - Barium enema showing the stretched rectum pushed by the mass.

recommended for high retro-rectal extra-spinal lesions. The posterior (trans-sacral) approach is recommended for low lesions and infected cysts. The abdomino-sacral approach, recently being reappraised,⁷ offered an excellent exposure and control of bleeding in large, highly vascularized GCT of the sacrum. Bleeding was minimized by ligation of both internal iliac arteries and temporary block of the common iliac arteries or the aorta. Recently a multimodality approach consisting of resection controlled cryosurgery and a unique lumbopelvic reconstruction is recommended for huge tumors.⁸ Both pelvic and spinal surgical techniques were required and a rewarding outcome was expected despite the structural and neurologic damage caused by total sacrectomy.⁹ Due to technical difficulties, complications and recurrent rates associated with the mentioned therapeutic modalities when dealing with huge vascular tumors, selective arterial embolization has been introduced as alternative modality or in combination with other modalities. This approach had a 50% durable long term response.¹⁰

In conclusion, benign primary GCT could be resected using abdomino-perineal approach. However, in large vascular tumors, there are several options ranging from conservative selective arterial embolization to radical resection of the sacrum and lumbo-pelvic reconstruction.

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