RECURRENT GIANT CELL TUMOR OF SUPERIOR PUBIC RAMUS: CASE REPORT

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ABSTRACT*:*
GIANT CELL TUMOR (GCT) OF BONE IS A BENING, LOCALLY AGGRESSIVE TUMOR THAT TYPICALLY AFFECTS THE EPIHYSEAL OR METAPHYSEAL REGION OF LONG BONES. GCT OF THE PUBIC RAMUS IS A VERY RARE ENTITY. WE PRESENT THE CASE OF A 19 YEAR OLD FEMALE DIAGNOSED AND TREATED FOR GCT OF THE SUPERIOR PUBIC RAMUS AT AGE 16 WHO PRESENTED WITH PAIN OF THE RIGHT INGUINAL REGION. THE IMAGING STUDIES REVEALED A LYTIC EXPANSIVE LESION OF THE SUPERIOR PUBIC RAMUS AND HISTOPATHOLOGY CONFIRMED THE DIAGNOSIS OF RECURRENT GCT. SURGICAL EXCISION OF THE TUMOR BY ANTERIOR APPROACH AND GRAFTING WITH CANCELLOUS BONE ALLOGRAFT WAS PERFORMED. GIANT CELL TUMOR OF THE PELVIC BONE IS A RARE ENTITY BUT IT SHOULD BE CONSIDERED ALONG OTHER DIFFERENTIALS, EVEN FOR UNCOMMON AGE GROUPS. RECURRENCE IS POSSIBLE EVEN YEARS AFTER THE SURGICAL TREAMENT WHICH INVOLVES EXCISION WITH OR WITHOUT GRAFTING.

KEY WORDS: GIANT CELL TUMOR, PELVIC, CURETTAGE, RECURRENCE.

INTRODUCTION

Giant cell tumor (GCT) was first described by Sir Astley Cooper in 1818, and accounts for up to 9.5% of primary bone tumors.[4] GCT of the bone is a benign, locally aggressive tumour that typically affects the epiphyseal or metaphyseal region of long bones, most commonly involving the distal femur, proximal tibia, distal radius and proximal humerus in order of frequency.[5] It typically presents in adults between age of 20 to 50 with localized swelling and pain.[6] Females are slightly more affected than males.[7] Giant cell tumor of pelvis is uncommon, accounting for only 1.5 to 6% of cases of GCT.[8] In the pelvis ilium is the most

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[4] Murphey MD et al., From the Archives of AFIP, 1283-1309.
[5] Reid et al., World Health Organization classification of tumours, 309-312.
[6] Blake et al., Large pelvic giant cell tumor: A case report, 1050-4.
[7] Sanjay et al., Treatment of giant-cell tumor of the pelvis, 75:1466-75.
[8] Cheng et al., Periacetabular giant cell tumor, 67:537-41.

common site of involvement; ischium and pubis are less frequently involved.[9] The most commonly recommended treatment for giant cell tumors of bone consists of intralesional procedures such as curettage, and filing of the defect either with bone grafts or bone cement. The local recurrence rate depends on the surgical treatment and can be up to 40%.[10,11,12,13]

CASE REPORT

A 19 year old female presented to our clinic with dull pain localised to the right inguinal region, right hip joint and pubic region for the last 4 months. The female patient also complained of difficulty walking for last several weeks caused by the hip joint pain. Her medical history was significant for a primary giant cell tumour of the right superiour pubic ramus diagnosed at age 16 and treated with curettage.

Physical examination revealed a hardly palpable immobile, bony, hard mass on the right aspect of the pubic region. The right femoral and other peripheral pulses were normal and no inguinal lymphadenopathy was noted. There was no local warmth and erythema of the overlying skin. The right hip joint range of motion was within normal limits and the neurological examination of lower extremity was without any deficit. Systemic examination of the patient was unremarkable.

The routine laboratory results were within the normal limits. The serum calcium level was 9.6 mg/dl, serum phosphorus level 3.8 mg/dL and alkaline phosphatase level was 161 IU/L (Normal: 40-136 IU/L).

Plain x-rays of the pelvis showed a well-defined, medullary in origin, lytic lesion involving the right superior pubic ramus.(Fig.1) Chest x-ray did not reveal any abnormality.(Fig.2).

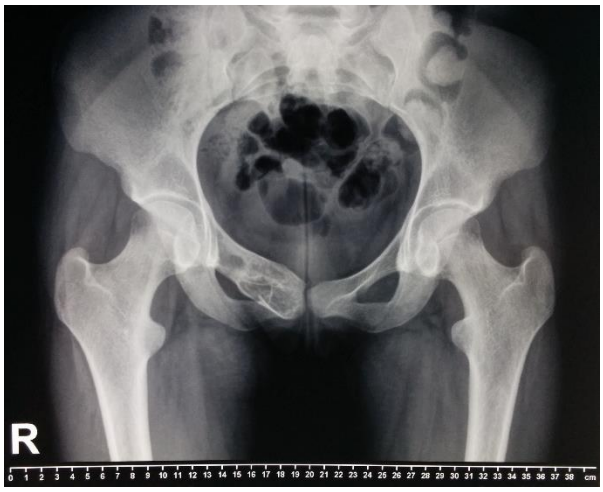

Fig.1 Lytic bone lesion involving the right superior pubic ramus.

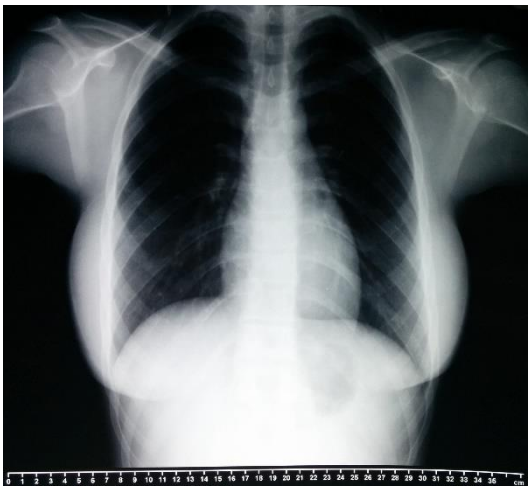

Fig.2 Chest x-ray showing no pulmonary lesions

[9] Patne et al., Giant-cell tumor of the pubic bone: A case report, 15:1148.
[10] Campanacci M., Bone and soft tissue tumors, 117-51.
[11] Campanacci M. et al., Giant-cell tumor of bone, 69 (1): 106-14.
[12] Blackley et al., Treatment of giant-cell tumors of long bones with curettage and bone-grafting, 81 (6): 811-20.
[13] Balke et al., Treatment options for recurrent giant cell tumors of bone, 135 (1): 149-58.

A computed tomography of the pelvis was performed (Fig.3), confirming the expansive lytic lesion of 64mm x 22mm arising from the right superior pubic ramus which does not break through the cortex, with an internal pattern uniform in appearance, excepting the presence of a few widely scattered fine lines of increased density. A whole body bone scan performed using Technetium 99m-MDP, which revealed increased fixation of the radioisotope in the tumoral region. (Fig.4)

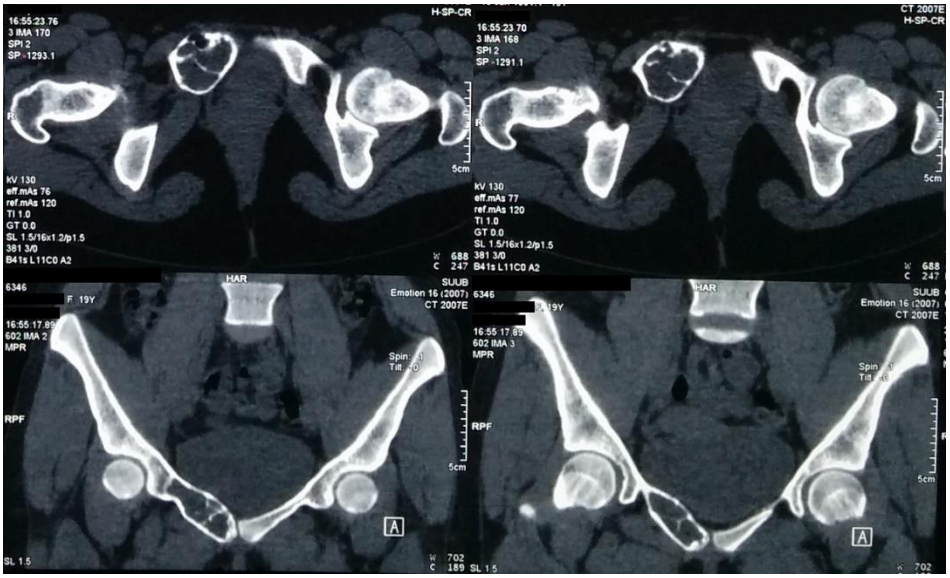

Fig.3 Pelvis CT-scan showing a lytic bone lesion of the right superior pubic ramus

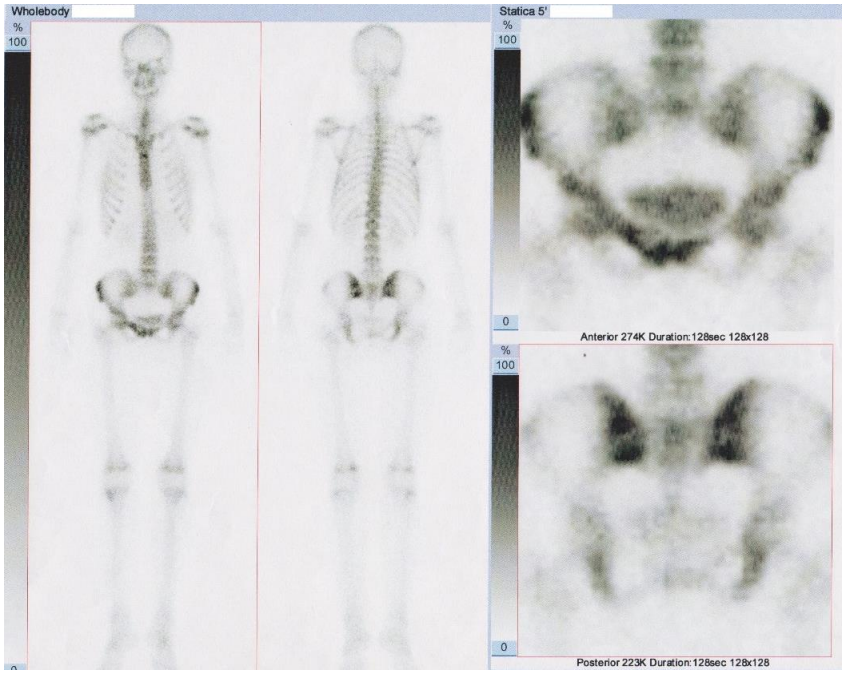

Fig.4 Technetium 99m-MDP bone scintigraphy showing increased fixation of the radioisotope in the superior right pubic ramus area

An incisional biopsy of the mass and the subsequent histopathological examination of the samples confirmed the diagnosis of recurrent giant cell tumour of bone. The histological appearance was one of uniformly scattered multinucleated giant cells within a background of mononuclear stromal cells with frequent mitoses, but with no cellular atypia. Therefore a second surgical intervention was performed which comprised an anterior approach of the tumoral site, thorough curettage (Fig.5) and grafting (Fig.7) with secured and freeze-dried cancellous bone allograft.(Fig.8) The surgery was not followed by adjuvant radiotherapy or chemotherapy. The postoperative evolution of the patient was uneventful.

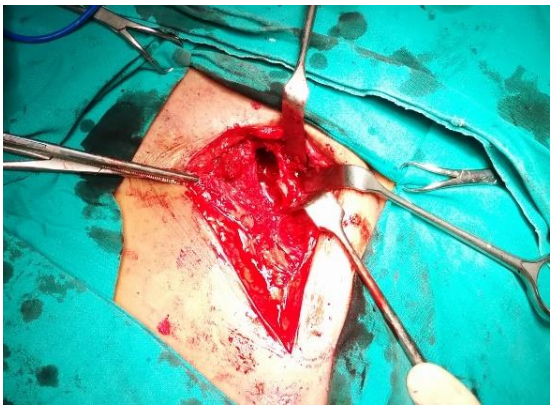

Fig.5 Intraoperative view of the lesion after curettage

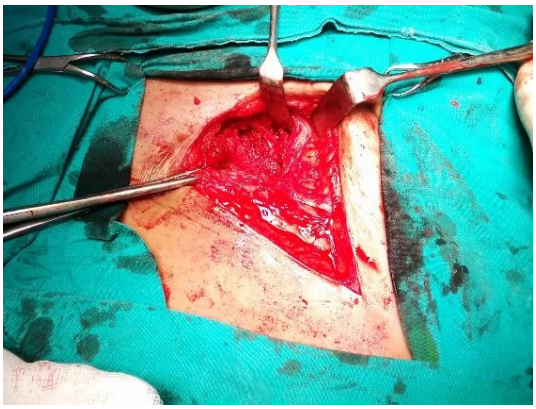

Fig.6 Intraoperative view of the lesion after grafting

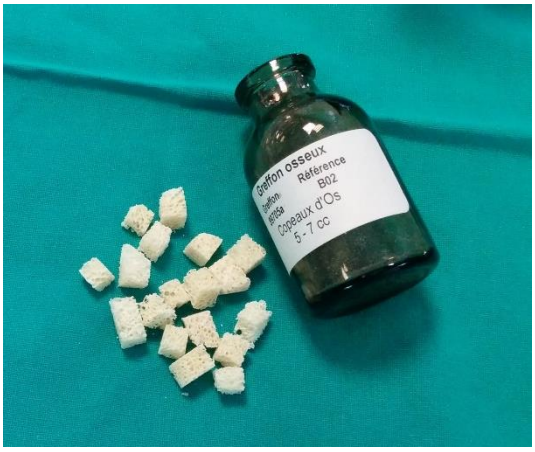

Fig.7 Freeze-dried cancellous bone allograft used

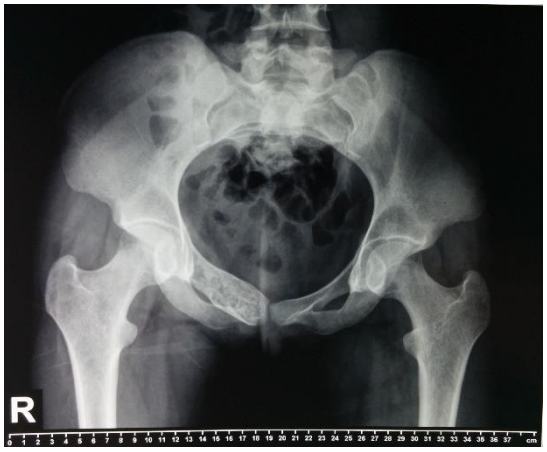

Fig.8 Postoperative x-ray

DISCUSSION

Treatment of giant cell tumours of the pelvis is particularly challenging, owing to the difficult anatomical location and the locally aggressive nature of the lesion, added to the relatively long time usually required to achieve the diagnosis.[1] Giant cell tumors of bone rarely affect the pelvis. Leggon et al.[2] indicated that the local recurrence rate for GCT of the pelvis and sacrum seems higher than for any other location. There are different modalities of

[1] Enneking WF., The anatomic considerations in tumor surgery, 483-529.
[2] Leggon R E et al., Giant cell tumor of the pelvis and sacrum, (423): 196-207.

treatment of pelvic GCT. Radiotherapy has high rate of recurrence (44%) and poses a high risk of subsequent soft tissue sarcomas (12%). The risk increases with time, so that the rate might be even higher with a longer follow-up.[3] Thus treatment should be essentially surgical which involves surgical excision. The choice of treatment should be individualized to allow for the least possible morbidity without compromising the oncological outcome. Excision can be extralesional which achieves 90% local tumor control but poor functional outcome[4] or it can be intralesional which has a higher local recurrence rate but with good functional outcome.[5]

Moreover giant cell tumors of bone have their peak incidence in the second and third decades of life.[6] There are very few series that document giant cell tumor of bone (GCT) in the immature skeleton, and the reported incidence in literature varies from 1.8% to 10.6%. The biological behavior of the disease is similar to that seen in adults, except a marked female preponderance.[7]

The reported case demonstrates all the characteristics of a typical bone giant cell tumor case (clinical presentation, radiological appearence, recurrence histological appearance) but its relatively rare location and even more uncommon age of occurance and recurrence makes it a unique entity.

CONCLUSION

Curettage with or without resection is the treatment of choice of GCT involving the pelvic bones, which provides a good local control but a possible recurrence should be considered even at years after the curative treatment. A diagnostic of GCT must be considered along other differentials (aneurysmal cyst, osteolytic osteogenic sarcoma, solitary myeloma, reticulosarcoma, eosinophilic granuloma, chondroblastoma) of an expansive, lytic lesion even for age groups very uncharacteristic for this type of tumor.

[3] Tucker M A et al., Bone sarcomas linked to radiotherapy and chemotherapy in children, 317 (10): 588-93.
[4] Gitelis S et al., Intralesional excision compared with en bloc resection of giant cell tumors of bone, 17:1648-55.
[5] Bloodgood JC., The conservative treatment of giant cell sarcoma, 56:210-39.
[6] Balke M et al., Giant cell tumor of bone: treatment and outcome of 214 cases, 134 (9): 969-78.
[7] Puri et al., Giant Cell Tumor of Bone in Children and Adolescents Journal of Pediatric Orthopaedics, 635-639.

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