

## Case Report

## Atypical iliac unicameral bone cyst – An incidental finding in MRI

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## ABSTRACT

Bone cyst is a simple fluid filled lesion which can be diagnosed at any age and can occur in any bone of the body. These are non cancerous unicameral bone cysts (UBC). These are asymptomatic and usually do not cause any complications. Though common in the long bones but can rarely occur in flat bones. The iliac bone is a rare location for the occurrence and can be found as incidental finding while doing computerized tomography (CT) or magnetic resonance imaging (MRI) studies. There is no expansion of the bone with unicameral bone cysts but in our present case there was expansion making it atypical presentation. We present a 22-year male who underwent MRI for Lumbosacral spine for his vague low backache symptoms. There was incidental finding of bony lesion in left iliac bone which turned out to be simple bone cyst. The study of Lumbosacral spine was unremarkable.

**Keywords:** CT, MRI, unicameral bone cyst, low backache.

Jaffe and Lichtenstein studied the bone cysts details in 1942. Two third of these unicameral bone cysts are usually found in proximal part of femur and humerus. The incidence of primary bone lesion is 5%. Pelvic region bone cysts are not that common and found in only 2% of the cases [1]. The entity occurs in the active phase of growth in 3-20 years of life in 80% of the individuals. There is no incidence noticed in spinal region. These occur twice more common in boys than girls. This is often diagnosed as an incidental finding during radiological investigations as happened in our case. These bone cysts in children sometimes disappear with the advancing age [2].

## CASE REPORT

A 22-years old male reported to orthopedic department with complaints of vague type of low backache of over two months duration with no relief with analgesics during

this period.



**Figure 1 - Plain X-ray Lumbosacral spine (anteroposterior view) showing no appreciable bony pathology in iliac bones. Lumbosacral vertebrae and adjoining inter-vertebral disc spaces are well maintained.**

On examination, he was of average built with no previous history of trauma or systemic disease. Systemic examination was unremarkable. All the biochemical parameters were normal. X-ray Lumbosacral spine with pelvis was normal (**Fig. 1**).

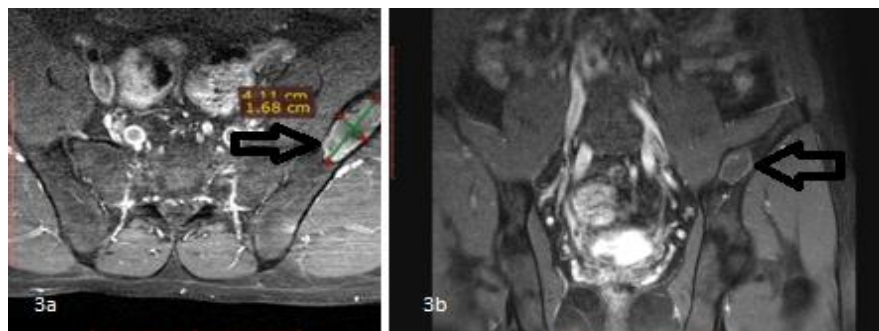
Magnetic resonance imaging (MRI) of lumbosacral spine revealed a well defined expansile oval lesion in left iliac bone. This lesion was hypointense in T1W and hyperintense on T2W sequences. There was no fat suppression seen in STIR sequences and remained hyperintense in appearance (**Fig. 2a, b and c**). Post gadolinium T1W fat suppressed sequences have shown the

peripheral enhancement (**Fig. 3a and b**). Non-contrast computed radiography (NCCT) pelvis, done to delineate the bony lesion, showed hypodense nature of the lesion with expansion and cortical thinning. No fallen fragment sign was seen (**Fig. 4a, b and c**).

The diagnosis was confirmed by aspiration cytology. The fluid aspirated was of similar features as that of synovial fluid and the membrane was lined by flattened cells like that of endothelium. There was no blood seen in the aspirated fluid. The patient has been put on conservative treatment with non-steroid anti inflammatory drugs for pain relief. Physiotherapy was also advised and has been called for the follow up after three months.



**Figure 2 - Non contrast magnetic resonance images. (a) T1W axial section shows a well defined hypointense lesion with mild expansion in the left iliac bone with slightly marrow changes in the peripheral region (white horizontal arrow). (b) T2W axial section shows the said lesion as hyperintense with well defined margins (white arrow). (c) STIR coronal image shows the lesion as still hyperintense without any surrounding edema (white downwards arrow).**



**Figure 3 - Contrast enhanced T1W with fat saturation. (a) axial section shows subtle peripheral enhancement of lesion which measures 4.1 x 1.6 cm (black arrow) (b) coronal section shows better delineation of lesion with mild expansion (black arrow).**

## DISCUSSION

Simple unicameral bone cyst is a fluid filled cavity lined by fibrous membrane. These develop during the growing skeleton when the process of bone formation transiently stops and that gap is filled with the fluid. The exact mechanism is still unknown. The most accepted theory is

that of the outgrowth of the synovial lining which gets surrounded by the growing bone. The other theory is non absorption of the interstitial fluid from the growing bone substance [3]. The pelvic lesions do not cause any symptoms for a long period because of non-weight bearing nature. The location in the ilium is in its open part which confirms almost the same mechanism of formation as that

of long bones. These have to be differentiated from fibrous dysplasia and aneurysmal bone cysts. The cyst having

fluid in our case rules out fibrous dysplasia and absence of fluid-fluid level rules out aneurysmal bone cyst.



**Figure 4 - NCCT Pelvic with bony algorithm. (a) Reformatted axial section shows well defined hypodense lesion in the left iliac bone with expansion and thinning of the peripheral cortex (white arrow). (b) Coronal reformatted section delineates the expansile lesion on left side as compare to right iliac bone (white arrow). (c) Sagittal reformatted section shows the relation of the lesion with adjoining acetabular notch (white arrow).**

There should not be any expansion of the bone but in our present case there was expansion of the bone with thinning of the cortical margins [4]. These types of the lesions may not require any surgical interventions and may be treated on the lines of long bone pathologies with drill hole. There are two types of bone cysts: 1) Active - these are near to the growth plate and can cause fracture in children and 2) Latent - these are far away from the growth plates and remain asymptomatic.

The investigation armamentarium includes all the modalities ranging from simple radiography to CT and MRI. There is sometimes a great dilemma to solve the issue in the simple bone cysts in the facial region [5]. Contrast MRI can differentiate the pathology from others conditions like aneurysmal bone cysts and fibrous dysplasia. CT on the other hand can outline the margins and cortical thinning of the lesion [6,7].

Most of the cysts are treated conservatively and monitoring is done for the follow up for any increase in size as it was done in the present case. Aspiration and filling the cyst with steroids is done to avoid recurrence. In other bigger and complicated cysts curettage and filling with either autograph or allograft is done [8,9]. Recurrence is very common (upto 25% to 50%) and is more common in younger age group.

## CONCLUSION

Unicameral bone cysts are developmental abnormality and commonly seen in long bones. 25% UBCs will heal automatically. These are sometimes seen at uncommon

locations and with atypical features like expansion of the bone but treated in the similar fashion as that of simple bone cysts. Pelvic bone cysts are treated conservatively rather than going for the aggressive treatment.

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