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Intra-Articular Osteoid Osteoma as a Cause of Hip Pain (Case Report).

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Abstract
A 16-year-old male patient presented to our clinic with right hip pain that was ongoing for about 2years. The patient visited the outpatient clinic, conservative treatment (including rest, and NSAIDs) was recommended by various different doctors. physical examination, and plain radiography were nonspecific. Early MRI findings shows bone marrow edema, CT done after MRI shows right femoral neck small lucent lesion with lack of the characteristic surrounding sclerosis then we start to think for intra-articular osteoid osteoma later scintigraphy done confirming the diagnosis.

KeyWords: *Osteoid osteoma, lucent lesion, Hip pain.*

I. Introduction

Osteoid osteoma, first described by Jaffe in 1935 [1], is a common bone tumor that represents about 10% of all benign bone lesions [2].
An osteoid osteoma situated near or within the joint causing articular symptoms is termed as an "intra-articular type," which is believed to be a distinct and rare entity with the most common joint involved being the hip joint followed by the ankle, elbow, wrist, and knee [2]. They may be covered by capsule or very near to the capsule and not essentially be within a synovial cavity to qualify as an intra-articular lesion. [3,5]

II. Case report

A 16-year-old male patient presented to our clinic with right hip pain that was ongoing for about 2years. during this time the patient visit the emergency department. The orthopedic physian ask hip ultrasound to rule out septic arthritis, the patient at this visit was little febrile, ultrasound showed minimal hip joint effusion with no turbid content. The pain persisted during resting period and got worse during the night. NSAIDs caused temporary and partial pain relief. There was no local rise in temperature and no deformity of hip or limb length discrepancy seen. The radiograph of both hips was unremarkable [Fig 1]
MRI without contrast of both hips[Fig2] show right femoral neck edema and mild right hip joint effusion the radiologist suggest septic arthritis with reactive bone marrow edema ,the orthopedic surgeon tell the patient is not ill ,no high fever .
CT done later show right femoral neck cortical few millimeters lucency with no surrounding significant sclerosis[Fig3] raising the possibility of osteoid osteoma considering the age and clinical history of the patient .Then skeletal scintigraphy was made showing double density sign means central hotter uptake surrounding by high uptake. SPECT/CT may be useful to confirm that a focal an increased uptake [Fig4] . SPECT images

combined with low dose CT revealed uptake at the site of a nidus considered to be osteoid osteoma Radiofrequency ablation of the osteoid osteoma was performed and the patient fully recovered from pain within 3weeks and no further complaining of hip pain.

Figure 1: Radiograph of the right hip joint A-P view shows no significant abnormalities apart from suspicious focal femoral neck sclerotic lesion.

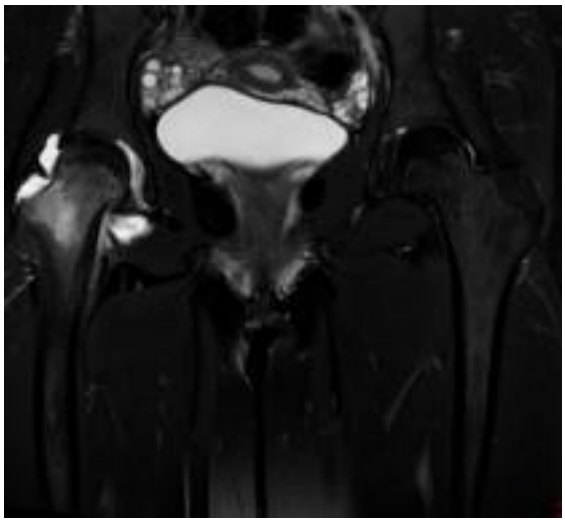

Figure 2: T2 weighted images revealed right small hip joint effusion with diffuse edema of the right femoral neck.

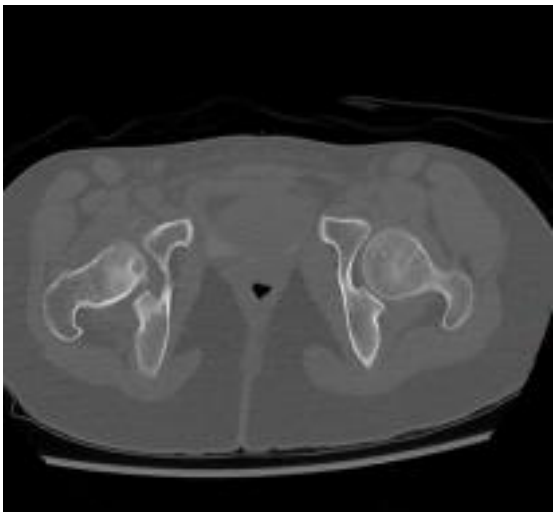

Figure 3: CT pelvis without contrast shows focal small lucency noted at the right femoral head -neck junction with surrounding subtle sclerosis.

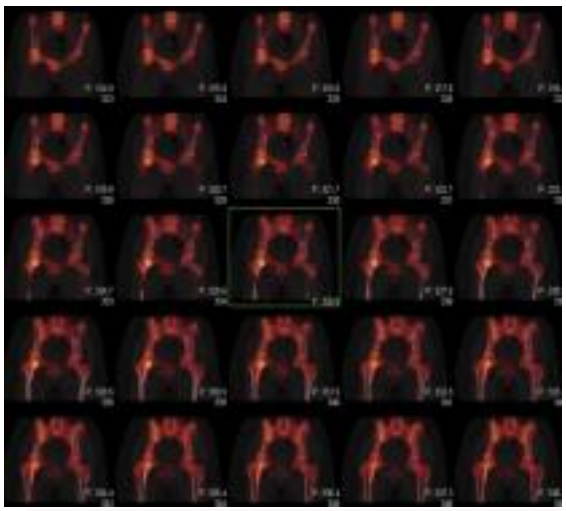

Figure 4: SPECT/CT confirm uptake at the site of a nidus of the osteoid osteoma.

III. Discussion

Classic imaging feature of an osteoid osteoma includes focal thickening of the cortex containing a lucent nidus within. The nidus may or may not have a central sclerotic focus [6,8]

Unlike the other types, an intra-articular type of osteoid osteoma is notorious to mimic the symptoms of a primary articular disease with joint tenderness, effusion, and soft tissue swelling being the predominant features [6].

Even the classic imaging feature is lacking, as the reactive bone thickening is absent or minimal and the nidus may be very small to be detected. The lack of bone thickening in these cases is attributed to the absence of the inner cambium layer within the joint capsule [3].

CT remains the method of choice for investigating intra-articular osteoid osteomas [2]. As in other bone lesions, CT is the main examination tool used for determining the lesion (nidus) and preoperative planning of the intervention. CT scans proved it to be a valuable tool for revealing small nidus, especially if those lesions are in the bones with complex anatomy such as spine or hip [9].

MRI images can also be misleading as the detection of synovitis or bone marrow edema during the early stages of the disease might lead misdiagnose the condition as arthritis or stress fracture of the bone. As in our case, nidus wasn't evident on MRI until that time. Krause et al.'s [13].

Another valuable investigation technique for classic extra-articular located osteoid osteomas is scintigraphy

which shows the characteristic double density sign [10]. However, if the lesion is intra-articular, this sign is usually absent and lesion activity is limited within the joint due to associated synovitis, osteoporosis, and hyperemia [2]. Bone scintigraphy can be used to eliminate other possible lesions located on proximal femur that is associated with hip pain [11,12].

Despite the fact that CT-guided thermoablation is getting more and more popular for treating osteoid osteoma, it has several prerequisites such as assistance from a radiologist and the fact that the procedure has to be performed in either a CT room or an operating theatre equipped with a CT scanner. RF ablation might also cause cartilage degeneration when used for treatment of osteoid osteomas [14,15]

IV. CONCLUSION

The case demonstrates the usefulness of the CT in the diagnosis of intra-articular osteoid osteoma. Although XRAY was unremarkable MRI is of equal importance in early diagnosis. Bone marrow edema finding on MRI in cases having no history of physical overactivity must herald the radiologist about the possibility of an osteoid osteoma and prompt him/her to relook at the CT study for the occult nidus as in this case.

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