



OSTEOCHONDRAL LESION OF TIBIAL PLAFOND- A Case report

Introduction:

Osteochondral lesions in the ankle accounts for approximately 4% of all osteochondral lesions. Most osteochondral lesion in the ankle is found in the talar dome. Osteochondral lesions of the tibial plafond is rarely described, hence this case presentation.

Clinical History:

A 23 years old male presented with over 3 months history of:

- 1.Pain in the ankle joint
- 2.Antecedent trauma while playing football is noted.
- 3.No swelling seen.
- 4.X-Ray Ankle reported normal.

Imaging Findings:

Patient referred for plain MR Imaging.

Findings revealed:

An osteochondral defect in the postero-medial part of the articular surface of lower end of tibia measuring 0.5cm in antero-posterior extent on sagittal images and 0.5cm in width on coronal images. Marrow edema was seen in the tibia surrounding the defect.

Marrow edema was also seen in the neck of talus, extending for a length of 1.5cm. The talar and calcaneal articular margins appeared normal.

Final Diagnosis: Osteochondral lesion of the tibial plafond.

Discussion:

Etiology,Pathology and Clinical features:

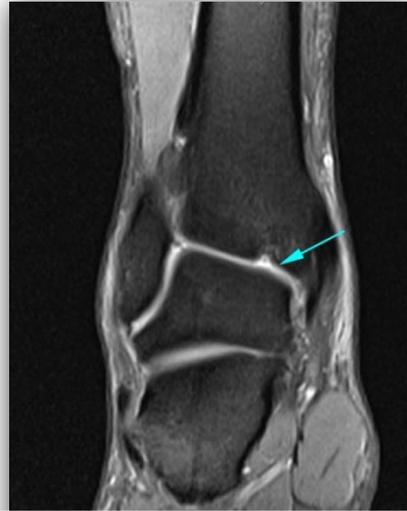
The cause of osteochondral injury in the tibial plafond is unknown. However, a case of mirror image osteochondral defects of the talus and distal tibia suggests trauma as a potential cause of this lesion. A traumatic contact between the talus and the tibial plafond may also lead to it.Trauma remains the best accepted theory for the etiology of all osteochondral lesions. Vascular insult is an unlikely cause of osteochondral injury in the tibial plafond as the ankle joint has a rich arterial supply.

Occurrence is more often in males (67%) than females (33%),usually approximately 25 years of age; though there is second peak of occurrence in the fifth to sixth decades. They are not commonly seen in children.

Classic pathologic findings include a soft, frayed cartilage , subchondral plate defects or cysts , loose bodies, joint effusion and a stable or unstable fragment in the crater.

Clinically the patient presents with some or all of the following.

- Pain: persistent ankle pain after an inversion injury or chronic ankle pain and sprain.
- Stiffness ,swelling and reduced range of movements.
- Ecchymosis.
Catching,clicking,locking or giving away.



PDFS Sag & Coronal: Osteochondral defect in the postero-medial tibial plafond.



PDFS Axial: Marrow edema around the lesion



T1Wi Sag: Hypointense osteochondral defect

Diagnosis: The prevalence of osteochondral lesions in the tibial plafond detected on radiography is unknown. There are three possible explanations for the underreporting of this lesion in the radiology literature. The lesion may not be visible on conventional radiographs, as was the case in our patient.



Radiologists may not be aware of this entity and may not recognize the lesion on conventional radiographs. A less likely explanation is that some patients may undergo surgery without radiologic examination or that the radiographs were not available to the radiologists for review.

The imaging characteristics of an osteochondral injury in the tibial plafond are similar to those of osteochondral lesions found elsewhere in the body. On conventional radiographs, osteochondral lesions of the tibial plafond appears lucent and may contain a loose bony fragment. CT and MR imaging are able to show the exact location and extent of the lesion. Radiographic findings may correspond with arthroscopic staging in only 56% of the patients because fibrosis may provide stability in instances of osseous separation.

On conventional radiographs, the lesions appear lucent, seen best on anteroposterior images. On lateral images, lesion is less apparent. Osteochondral lesion is suggested by a loss of the sharp cortical line. In the ankle joint, helical CT has the advantage of multiplanar capability. On axial scans, osteochondral lesions of the tibial plafond may be initially mistaken for those of the talar dome. However, coronal and sagittal images clearly show that the lesion originates from the tibial plafond. Cortical depression and a loose bony fragment within the osteochondral defect are easily detectable.

Key MR imaging:

- A detached fragment that remains low in signal intensity suggestive of loose body.
- A low or intermediate signal intensity bony defect of the tibial plafond on T1W1 depending on the degree of synovial fluid and fibrous tissue respectively., with adjacent bone marrow edema. Cortical depression is clearly seen.
- Peripheral areas of low signal intensity within the subchondral bone on T1W1 and FS PD images which correlate with reactive sclerosis on CT and plain radiography.
- Abnormalities of the articular surface, including region of cartilage thinning, bowing, nodularity or disruption.
- Accumulation of joint fluid at or undermining the cartilage surface indicating small fissures or breaks.

Value of MRI:

- **Conventional radiographs are not sensitive to early lesions, immobilisation and surgery may be delayed, resulting in arthritis in 50% of cases.**
- **MR imaging is more accurate than CT scan and complements diagnostic arthroscopic examination of tibio-talar joint in early diagnosis.**
- **MR imaging offers ability to assess both the osteochondral defect as well integrity of the overlying cartilage surface. Intact articular cartilage may assist in the decision to use more conservative treatment.**
- **Although ultimate decision in an osteochondral lesion is determined at surgery, pre-operative imaging can help determine whether the lesion is loose.**

Regards,

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N.B: This case is authentic and from the archives of Radiance Diagnostics. For any queries / suggestions/feedback write to us at radiance@radiancediagnostics.in

