Spontaneous Osteonecrosis of Knee: A Case Report

**Clinical History:**
A 56 years old male presented with over 2 weeks history of:
1. Sudden pain in the left knee joint
2. Antecedent trauma while playing badminton.
3. No swelling seen.

**Imaging Findings:**
- Small arcuate low signal intensity abnormality is noted in subchondral region of articular surface of medial femoral condyle suggestive of insufficiency fracture.
- Intense bone marrow edema is seen surrounding this region

**Final Diagnosis:** Spontaneous Osteonecrosis of Knee

**Discussion:**
*Etiology, Pathology and Clinical features:*

Spontaneous osteonecrosis of the knee (SONK) is characterized by a superficial, necrotic lesion in the subchondral region of the knee joint.
The occurrence of this condition is increasing with the aging of the population, reported incidences being 3.4% among people older than 50 years and 9.4% among people older than 65 years. SONK is generally located in the medial femoral condyle but can also occur in the lateral femoral condyle and the tibial plateau.

Although SONK was previously thought to be the result of local ischemia, current evidence suggests that the cause is **acute subchondral insufficiency fracture**. The fracture results either from conditions that cause chronic mechanical problems and abnormal stresses on the bone, such as meniscal lesions or osteoarthritis, or from conditions that weaken the bone, such as osteoporosis.

The clinical presentation is generally sudden onset of severe knee pain that does not abate with rest. Radiographs in the acute period are generally unremarkable. In the acute phase, MRI shows bone marrow edema surrounding a linear or arcuate fracture in the subchondral bone (as in our case above).

The imaging presentation may depend on the chronicity of the inciting event. An acute insufficiency fracture, for instance, may present with substantial bone marrow edema on fluid-sensitive MR images, but fractures due to chronic abnormal stress, such as those that may be the result of a previous meniscectomy, may present without substantial bone marrow edema and be nonlinear.

Secondary osteonecrosis of the knee is less common than SONK. The pathogenesis is yet undefined, but this entity occurs in patients who also have osteonecrosis of the femoral head. Both femoral condyles are generally involved, and there may be numerous lesions in the epiphysis, metaphysis, and diaphysis. The most common risk factors are corticosteroid use and alcohol abuse. Sickle cell disease and Gaucher’s disease are considered direct causes of osteonecrosis due to either occlusion of the blood vessels that supply the bone or to an increase in intraosseous pressure caused by displacing marrow.

**Conclusion:**

- **Ageing athletes with their expectations to continue exercising with age has increased the incidence of exercise induced injuries among the old.**
- **SONK is a result of acute subchondral insufficiency fracture.**
- **MRI is the modality of choice as it can detect very early bone marrow edema.**

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