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A 30-year-old Indian man presented with difficulty in squatting and pain in both thighs that were referred to his knees. On examination he was noted to have restricted hip flexion and internal rotation. The knee joints were normal. The patient has asthma and had previously treated with oral steroids. He also admits to previous excess alcohol intake. A plain radiograph of the hips is shown (**Panel**).

Q: What is the diagnosis?

Answer: refer to page 185

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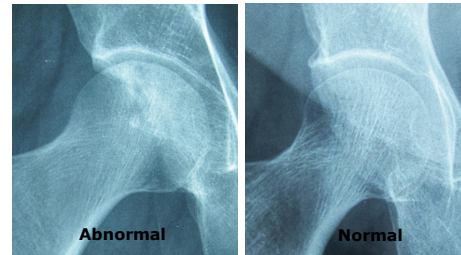
Osteonecrosis of the hips

Although the pathogenesis remains unclear, in osteonecrosis, there is death of bone and marrow cells leading to eventual destruction of the hip joint. Generally it occurs earlier in life, typically before the age of 40. The risk factors for osteonecrosis can be divided into direct and indirect causes (Table).¹

The most common presenting symptom is hip pain. In approximately 80% of cases joint involvement is bilateral. Presentations are often late as pain is often attributed to other reasons, therefore a high index of suspicion is needed for early detection. Painful flexion and internal rotation of the hip joint are typical findings. Untreated will lead to eventual collapse and flattening of the femoral head, causing degenerative changes of the hip joints leading to osteoarthritis.¹

Earlier in course of the disease, plain radiographs maybe normal. The gold standard for diagnosis is magnetic resonance imaging.² Abnormalities on plain radiographs include the changes in the bone density, sclerosis and cyst formation (**Panel**) which become more marked as the disease progresses. Later, there is loss of sphericity of the femoral head, and a pathognomonic crescent sign indicating subchondral collapse can be seen. In the advanced stages, signs of degeneration of the hip joint can be seen. Several classification systems are available and based on

Direct causes	Indirect causes
Trauma (e.g.. hip dislocation)	Corticosteroids
Haematological disorders	Alcohol abuse
Gaucher disease	Systemic lupus erythematosus
Dysbaric osteonecrosis	Renal failure
Sickle cell disease	Hypercoagulable states



radiological findings.

Treatment depends on the stage and degree of involvement of the femoral head; non-operative and operative. The non-operative treatment is limited to earlier stages where the degree of involvement is less than 15%. This includes bed rest, reduced weight bearing on the joints and non-steroidal anti-inflammatory drugs (NSAIDs). Bisphosphonates also have a role in delaying the progression of the disease.³ However, even with non-operative treatment, a majority will progress. Operative management is reserved for later stages of disease. These can be head preserving or joint replacement procedures. Head preserving procedures include: core decompression, vascularised fibula grafting and rotational osteotomy. Total hip replacement is the definitive treatment once collapse has occurred and degenerative changes to the hip joint have developed.¹

REFERENCES

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- 3: Agarwala S, Shan S, Joshi VR. The use of alendronate in the treatment of avascular necrosis of the femoral head: follow-up to eight years. J Bone Joint Surg Br 2009; 91:1013-8.