

Fatigue fracture neck of femur in a patient with severe osteoarthritis of hips

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Intracapsular fatigue fracture neck of femur is a well-known entity in young athletes. Such a fracture in an elderly patient with severe osteoarthritis of the hip joint has not previously been reported. We present a case of a 70 year old lady who presented with severe pain in her right hip following a lengthy bicycle ride.

ABSTRACT

A 70 years old lady presented to the accident and emergency department with a history of severe pain in her right groin for the previous 10 days. She was also unable to put any weight on her right lower extremity. There was no history of trauma or pyrexia. The pain started after a long bicycle ride. She took analgesics and rested herself in bed, but the pain deteriorated.

CASE REPORT

She was a very keen cyclist and used to go for rides regularly. She only very occasionally had mild dull ache in her hips, not significant enough to seek medical advice. She was a non-smoker and was not on any medication except eye drops for dry eyes.

On examination she was in agony due to pain. Vital signs were within normal limits. Attempted right hip movements were severely painful and restricted and she was unable to raise her leg actively. There was no tenderness on manual compression of the pelvis. Examination of the lumbar spine and right knee did not reveal any abnormality. Results of motor, sensory and vascular testing of right lower limb were normal.

An AP radiograph of her pelvis was obtained which showed changes of severe osteoarthritis in her hips, worse on the left side (fig.1). It failed to show any evidence of bony injury. As the pain was very severe and of acute nature, it was decided to perform an MRI scan to rule out a fracture. This showed an intracapsular stress fracture of the neck of the right femur (fig.2). The patient was advised to take oral analgesics for pain and mobilise non-weight bearing for six weeks and was discharged to home. She remained in distress due to right hip pain, which unfortunately failed to settle. Taking into account that she had severe osteoarthritis in her right hip, we replaced it with a cemented total hip arthroplasty.

Stress fractures are thought to be secondary to cyclic loading (micro-trauma) that exceeds the reparative ability of bone. These injuries are most commonly



fig. 1

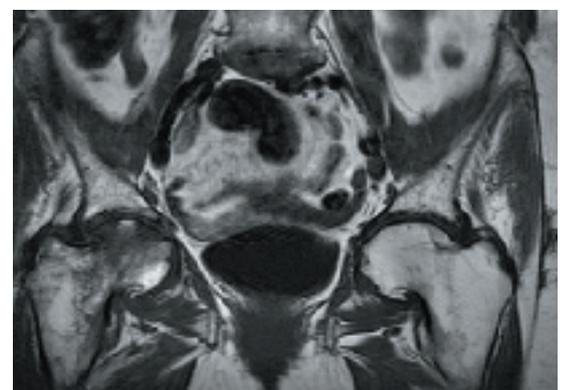


fig. 2

Discussion

seen in soldiers or long distance runners doing endurance training and in severely osteoporotic patients^{3, 4, 6, 12, 13}.

They are termed fatigue fractures when occurring in normal bone exposed to excessive repetitive loads, and insufficiency fractures when osteoporotic or weakened bone fails under normal daily activities². Stress fractures can be difficult to diagnose given the variable presentation, lack of acute trauma and often negative radiological findings. The presenting symptom of a stress fracture of the femoral neck is usually pain in the groin, perhaps radiating to the knee, and is aggravated by exertion. The pain is characteristically worse the longer the exertion is continued and is reduced somewhat with rest. Stress fractures have been noted in patients with abnormal femoral neck anatomy¹. Stress fracture of the hip is a rare complication of total knee arthroplasty that occurs most often in patients in whom a significant deformity of the knee has been corrected, particularly those with poor mobility before surgery⁹.

If initial plain radiograph is negative and the symptoms persist or are suggestive of a stress fracture, a bone scan or MRI is the study of choice to establish the diagnosis⁵. Decreased marrow signal is seen at the fracture site on MRI T1 Weighted images; peri-fracture oedema may or may not be present².

Radiological findings present in stages, progressing from a normal film through sclerosis to a disruption of the cortex and displacement. Bone scintigraphy may be positive two or more weeks before plain film changes appear⁷. In a study 90% of patients showed resolution of abnormal MR signal intensity on STIR imaging within 6 months of the initial diagnosis of stress fracture of the femoral neck. Such data can be helpful in examining patients with recurrent symptoms who undergo repeated MR scans. When an abnormal MR signal intensity is seen more than 6 months after an original injury, such abnormal signal intensity is likely to represent new injury¹¹. Delayed diagnosis can lead to displacement, prolonged disability due to pain, non-union and avascular necrosis^{7, 8}.

Two types of stress fractures have been described in neck of femur³. Tension type fractures start on the superior cortex of the neck and extend transversely. They have high risk of displacement. Compression type fractures are seen on the inferior cortex and they are usually stable fractures. Later a third category to describe displaced stress fractures¹⁰ was added.

Tension type fractures are best managed by prophylactic stabilisation and activity restriction. Whereas compression type fractures resolve with modified weight bearing. Where possible displaced fractures

should be reduced before surgical stabilisation. If closed reduction does not succeed then fixation in situ is recommended. Open reduction can further threaten the already precarious blood supply to the head of femur.

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