Final diagnosis

Acute cor pulmonale and pulmonary vasculitis.

Keywords: pulmonary hypertension; rheumatoid arthritis; pulmonary vasculitis; cor pulmonale; breathlessness

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Knee pain – a false lead

Rosemary Morgan

A 78-year-old man was admitted to hospital via his general practitioner with a three-day history of severe pain in his left knee and poor mobility. He lived alone and until this admission had been independently mobile and self-caring. He was cognitively intact. There was no history of falls or trauma. He had a history of gout; his last flare up had been more than two years ago and he had been taking allopurinol on a regular basis since. Acute gout had previously affected his big toe (first metatarsophalangeal joint) on the right foot but no other joints had been affected.

On examination he looked well but was in pain and afebrile. Examination of his left knee revealed it to be exquisitely tender with a small effusion. It was not red or hot compared to the right knee which also had a small effusion. Inspection revealed both limbs to be equal in length. An X-ray of his left knee showed osteoarthritis of the joint but nothing else. His initial full blood count, serum urea and creatinine, random blood glucose, rheumatoid factor, C-reactive protein and erythrocyte sedimentation rate were all within the normal range. Blood cultures were negative. Aspiration of the left knee yielded 6 ml of clear straw-coloured fluid only, both Gram stain and polarised light microscopy were reported as negative. His serum uric acid level was 0.48 mmol/l. He was commenced on regular indomethacin and cold compresses were applied to his left knee, a provisional diagnosis of osteoarthritis being made. Twenty-four hours after admission, despite regular analgesia, he was still complaining of pain and was given a corticosteroid injection into the left knee. Tests for prostatic specific antigen and liver function tests were normal. On further inquiry he still denied any history of trauma but recollected that three days prior to admission he had turned suddenly whilst getting food out of his fridge and his painful left knee had developed from that time. On day 3 of his admission he still had pain and a pelvic X-ray was requested (figure).

Figure Pelvic X-ray

Questions

- 1 What is the diagnosis?
- 2 Why did he have 'knee' pain?
- 3 Why was there no obvious abnormality on inspection of both limbs?
- 4 What two factors predispose older people to this condition?

Department of
Medicine for the
Elderly, Wirral NHS
Trust Hospital, Arrowe
Park Road, Upton,
Wirral, Merseyside
L49 5PE, UK
R Morgan

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Answers

QUESTION 1

The pelvic X-ray shows a left femoral neck fracture.

QUESTION 2

The 'knee' pain was referred pain from the hip to the knee. Branches of the femoral, sciatic and obturator nerves all give twigs to both joints. The geniculate branch of the obturator is the main conveyor of pain referred from hip to knee.

QUESTION 3

Fracture within the hip capsule has prevented significant external rotation.

QUESTION 4

Older people are predisposed to this condition due to an increased incidence of falls with age, and the age-related increase in osteoporosis.

Discussion

The incidence of hip fractures doubles every five years after the age of 50.¹ This increasing incidence results from the decrease in postural stability with increasing age leading to an increased incidence of falls,² and the fact that bone mass decreases linearly with age.

Hip fractures are generally divided into three types; femoral neck, intertrochanteric, and subtrochanteric. Fracture of the femoral neck and the intertrochanteric region make up 97% of hip fractures. Femoral neck fractures are located in the area distal to the femoral head but proximal to the greater and lesser trochanters and are considered intracapsular because they are located within the capsule of the hip joint.

Intertrochanteric fracture occurring between the greater and lesser trochanters of the femur is extracapsular and is usually obvious on inspection, the leg being externally rotated at 90° degrees. However, an intracapsular fracture (femoral neck fracture) shows only 40° of external rotation as the capsule prevents further rotation.³ This may partly explain why there was no obvious external rotation on inspection in the above patient. Although most patients with hip fractures give a history of preceding trauma, some patients with severe osteoporosis may fracture simply from a rotational movement. All doctors should be aware of this and not exclude a diagnosis of a femoral fracture simply because there is no history of preceding trauma.

Referred pain from the hip to the knee is well known to occur in osteoarthritis of the hip,⁴ but that it can also occur in hip fractures may be less well appreciated. The only pain that the above patient complained of was in his left knee.

Summary points

Hip fractures:

- may occur without a history of trauma
- inspection may not show the typical shortened externally rotated leg
- pain may be referred to the knee
- a normal anteroposterior pelvic X-ray and lateral view of the hip does not exclude the diagnosis of hip fracture

Diagnosis of hip fractures may be difficult and consequently delayed in patients with impacted abduction fractures of the neck of the femur, who may have very few symptoms, being pain free and able to walk.³ Another difficulty that arises in diagnosis is that radiographs (an anteroposterior view of the pelvis and a lateral view of the hip) may not show a fracture. An anteroposterior view obtained with the hip internally rotated 15–20° will provide an optimal image and may reveal a fracture not evident on the standard anteroposterior view. If this radiograph is also normal but there is a high index of suspicion of a femoral fracture technetium-99 m bone scanning or magnetic resonance imaging is appropriate.⁵ While a bone scan is a sensitive indicator of an unrecognised hip fracture, in elderly patients the fracture may not appear until two or three days after the injury.⁶ Doctors should also be aware that not all patients with hip fractures give a preceding history of trauma. On inspection, not all affected legs will be obviously shortened and externally rotated. Some patients may have no pain (impacted fracture), whilst others may have only referred pain to their knee or groin. Normal radiographs do not necessarily exclude a diagnosis of hip fracture and further investigation should be considered. Although most hip fractures are easily diagnosed there are pitfalls for the unwary.

Patient outcome

Following diagnosis the patient went to theatre for a left hemi-arthroplasty. At operation, bone from the fracture site was sent for histology which showed osteoporotic bone. He was discharged home 19 days after admission, independently mobile and pain-free.

Final diagnosis

Left femoral neck fracture presenting as knee pain.

Keywords: hip fracture; referred pain

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