IMAGERIE DU BASSIN ET DE LA HANCHE
PARTIE 3

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IRIMED - Lausanne

Fad pad

Anteroposterior (AP) radiograph of the left hip shows that the gluteal, iliopsoas, and obturator fat pads (arrows) surround the hip and are seen to be normal in this case. Bulging of a fat pad would indicate the presence of an effusion in the hip.

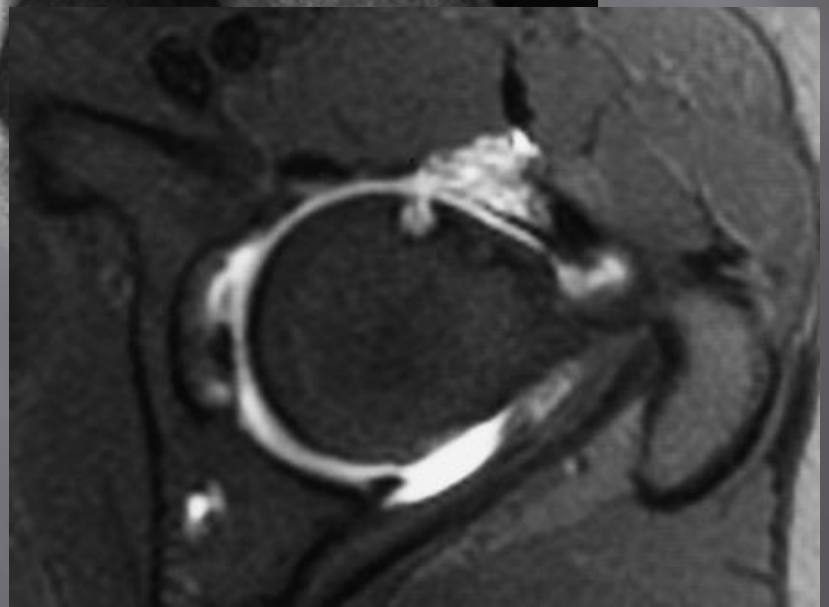
Trabecular pattern.

AP radiograph of the left hip shows prominent trabeculae outlining a lucent triangular region (black arrows) in the superior acetabulum.

This is a normal finding and is usually symmetric.

In addition, the major trabeculae in the femoral metaphysis form a distinctive arc that leaves a relatively lucent area in the medial and lateral femoral head (white arrows).

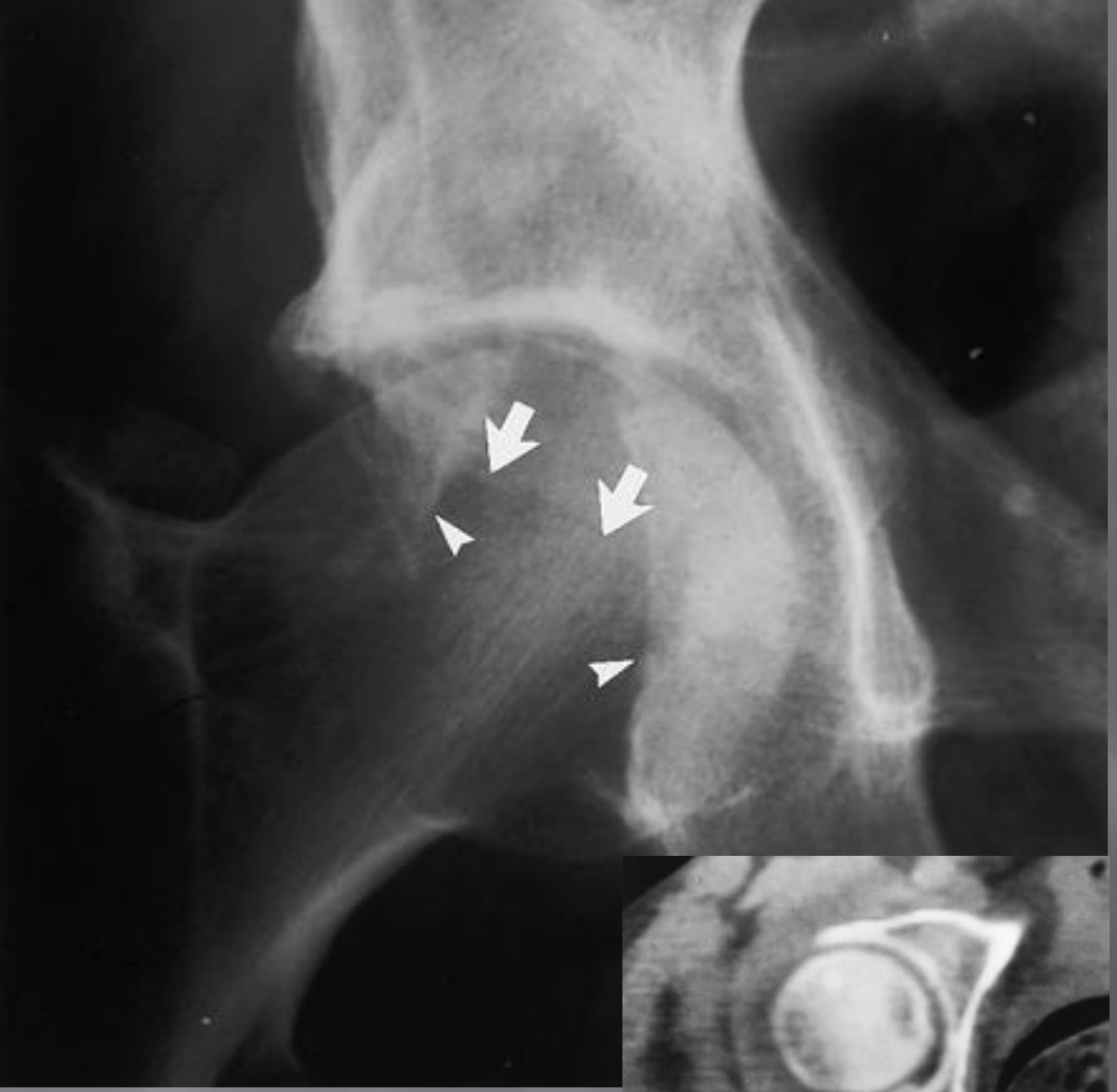
Again, this is a normal appearance and should be bilaterally symmetric.

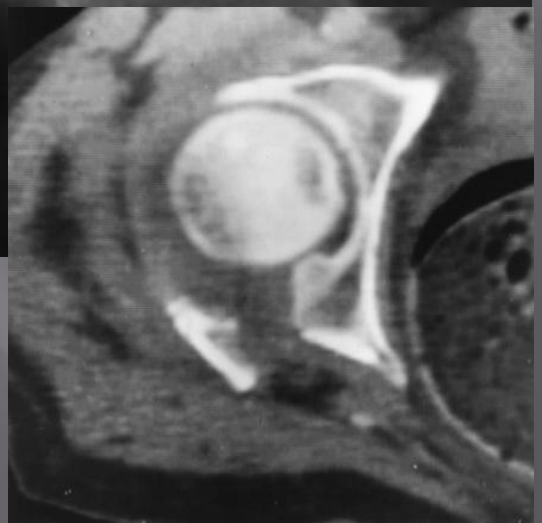


Herniation pit.

(a) AP radiograph of the right hip shows a well-circumscribed, round lucent area (arrow) in the superolateral portion of the femoral neck.

(c) Axial T1-weighted fat-saturated magnetic resonance (MR) arthrogram shows fluid signal intensity within the herniation pit.

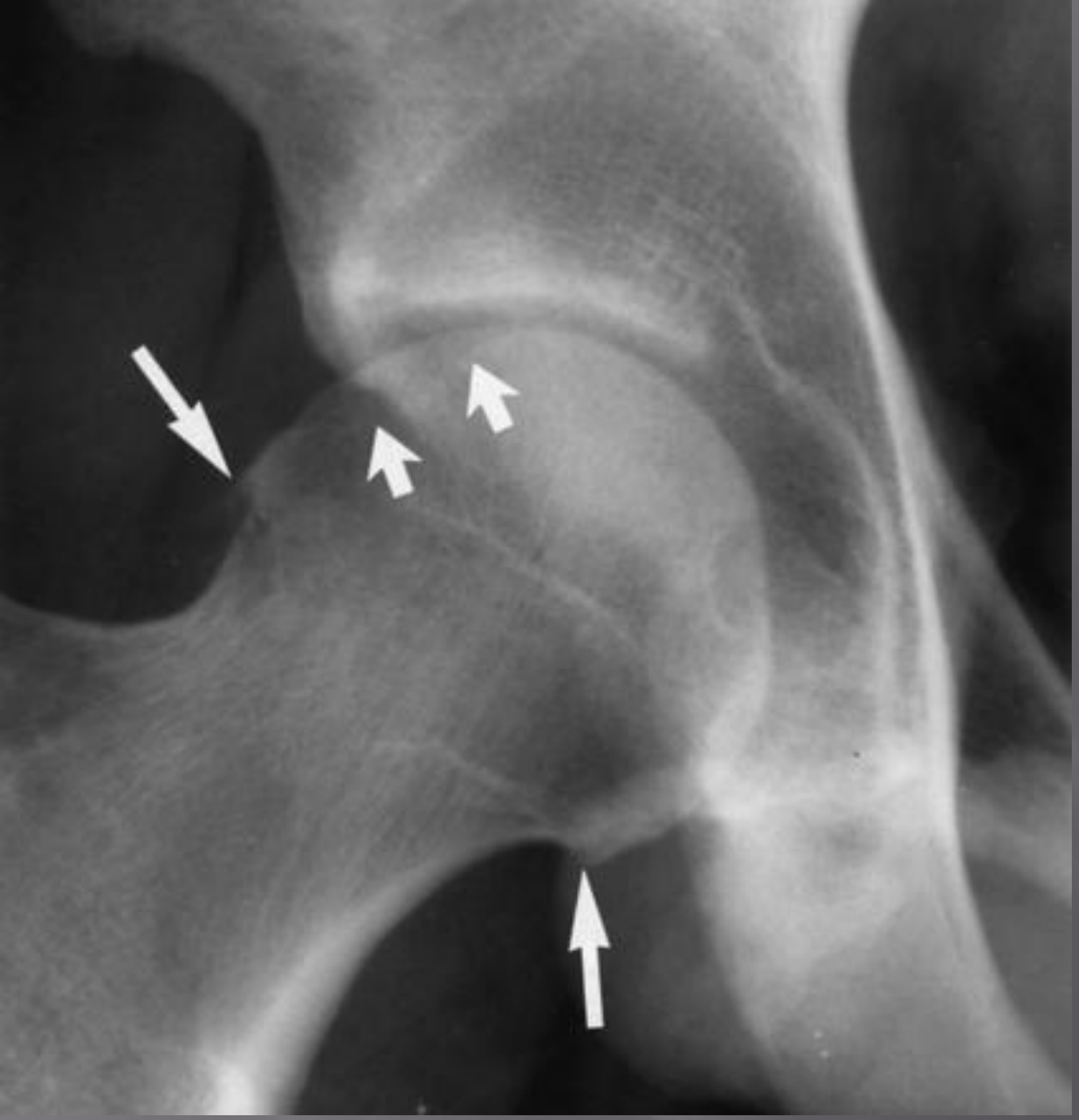




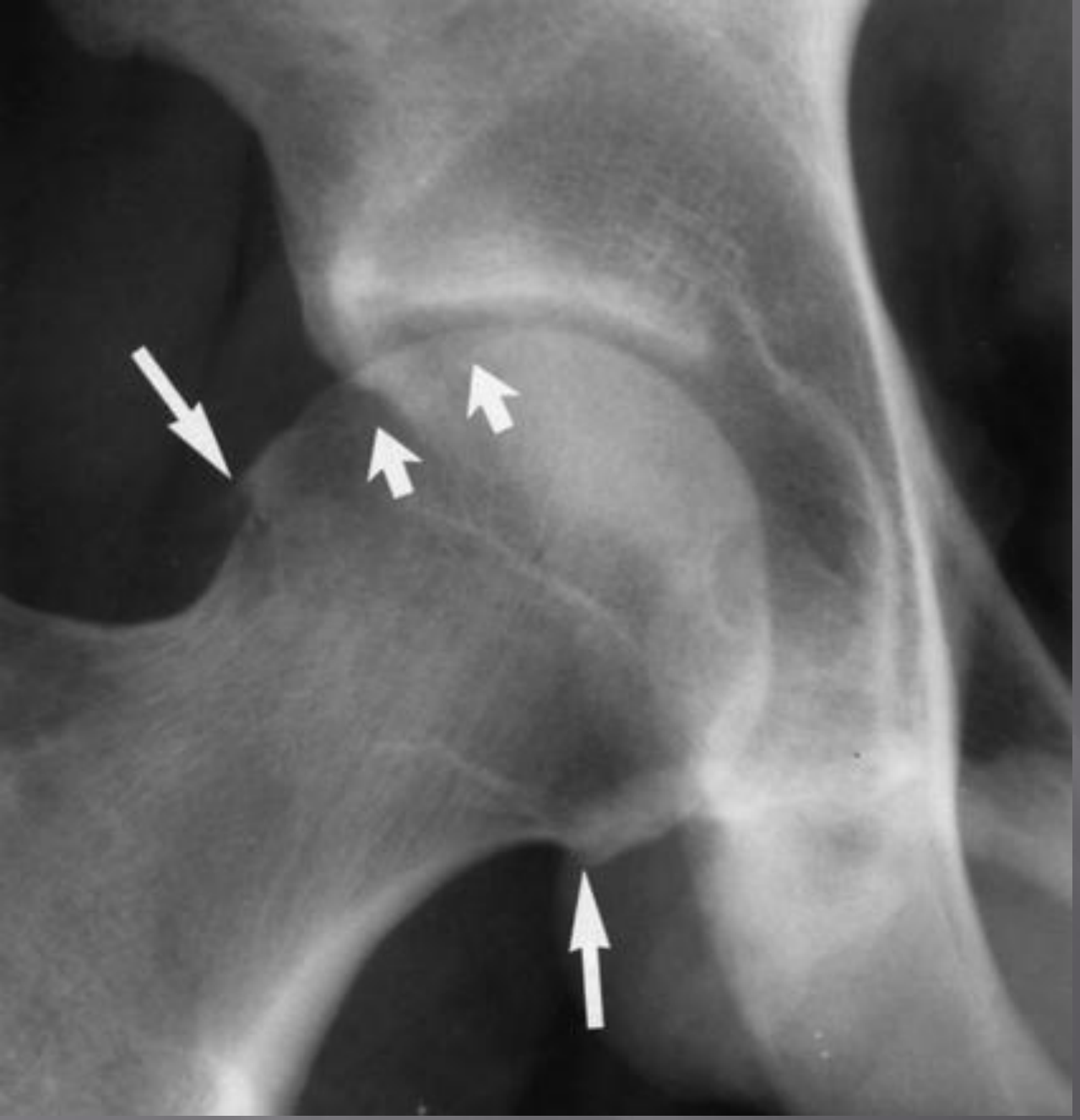
Acetabular fracture.

(a) AP radiograph of the right hip shows a posterior acetabular rim fracture as an interruption of the acetabular rim (arrowheads). The anterior acetabular rim (arrows) is seen to be intact.

(b) **(b)** Computed tomographic (CT) scan shows the fracture



in a 19-year-old man with a history of trauma but no known fracture or dislocation.



Femoral head impaction

in a 19-year-old man with a history of trauma but no known fracture or dislocation.

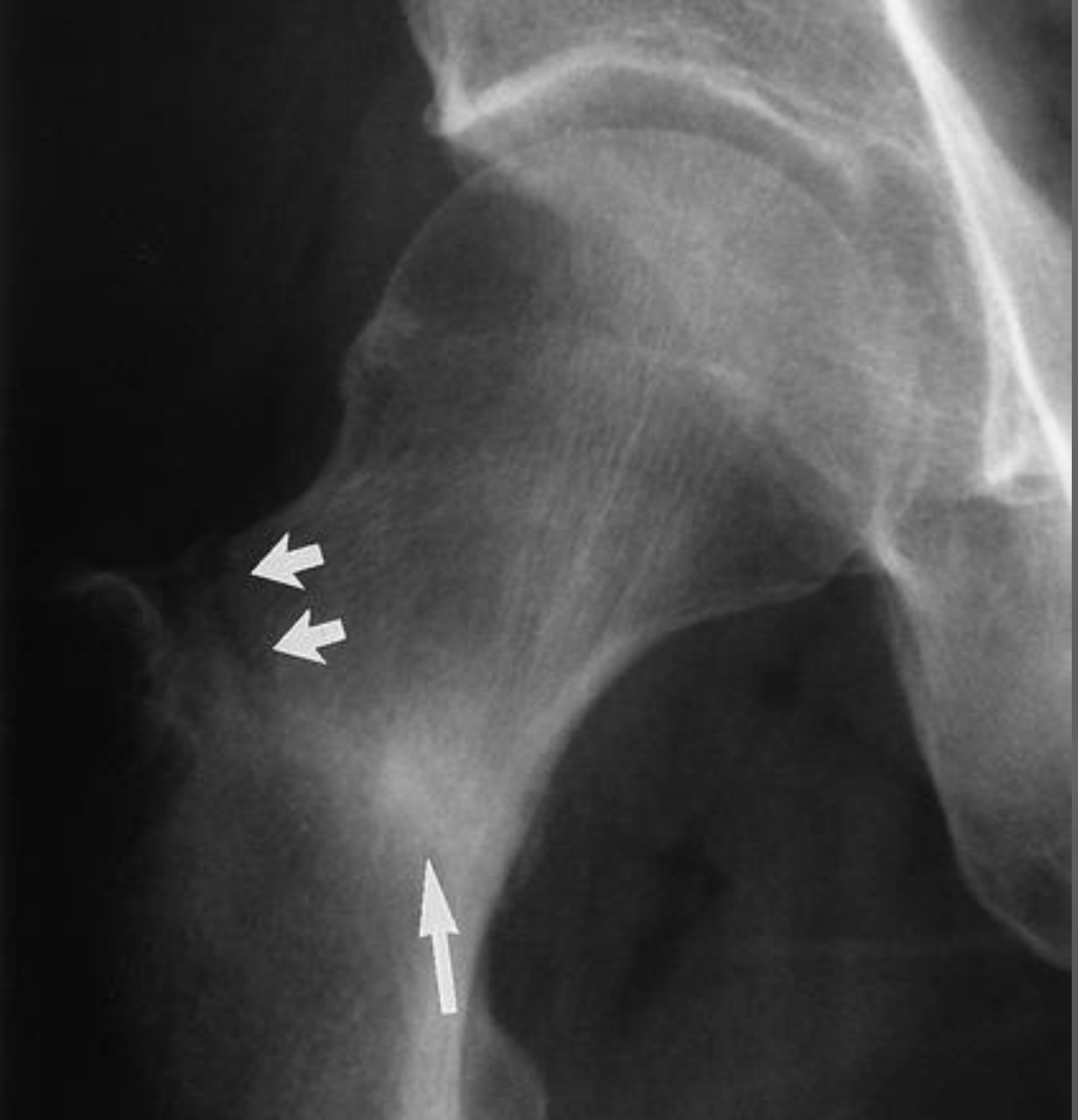
AP radiograph of the right hip, obtained when the patient returned with a complaint of hip pain, shows small osteophytes (long arrows).

Close inspection demonstrates a concave sclerotic line (short arrows) at the weight-bearing portion of the femoral head.
This is not the appearance of a subchondral fracture of avascular necrosis but represents an impaction fracture of the femoral head from transient dislocation

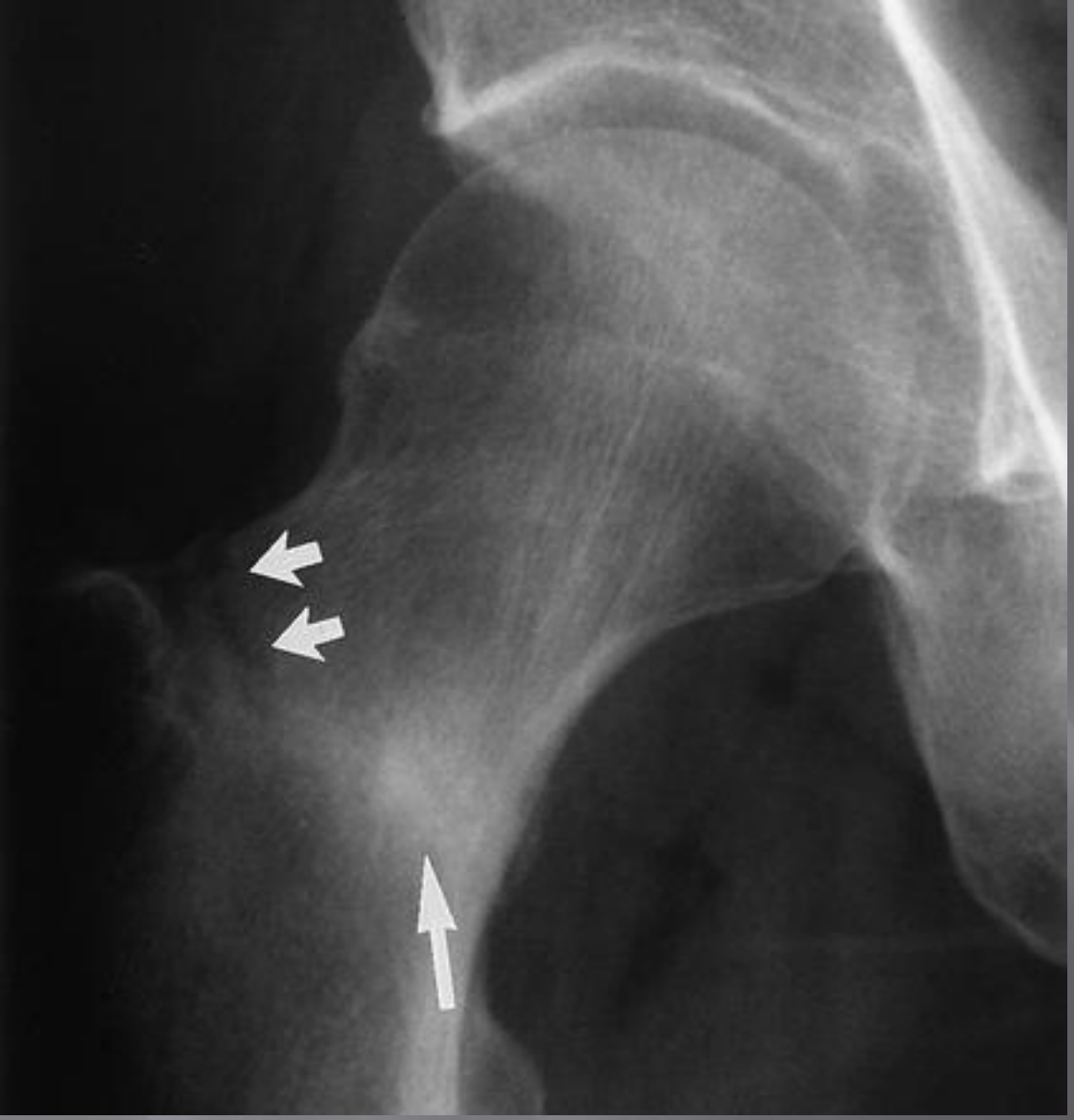
jogger

Stress fracture.

Joggers frequently develop stress fractures at the superior and inferior pubic rami. AP radiograph of the pubic bone shows the fracture as minimal displacement at the superior pubic ramus (arrow). As in other locations of the body, stress fractures can be very difficult to detect because they are rarely displaced



jogger



Subacute stress fracture

in a jogger at the typical location of the medial femoral neck.

AP radiograph of the right hip shows the fracture as an area of sclerosis (long arrow) because it is subacute.
The patient chose to complete a marathon and “ran through the pain,” resulting in completion of this basicervical fracture, as demonstrated by the more acute lucent line (short arrows) extending to the lateral femoral neck.

Joggeuse

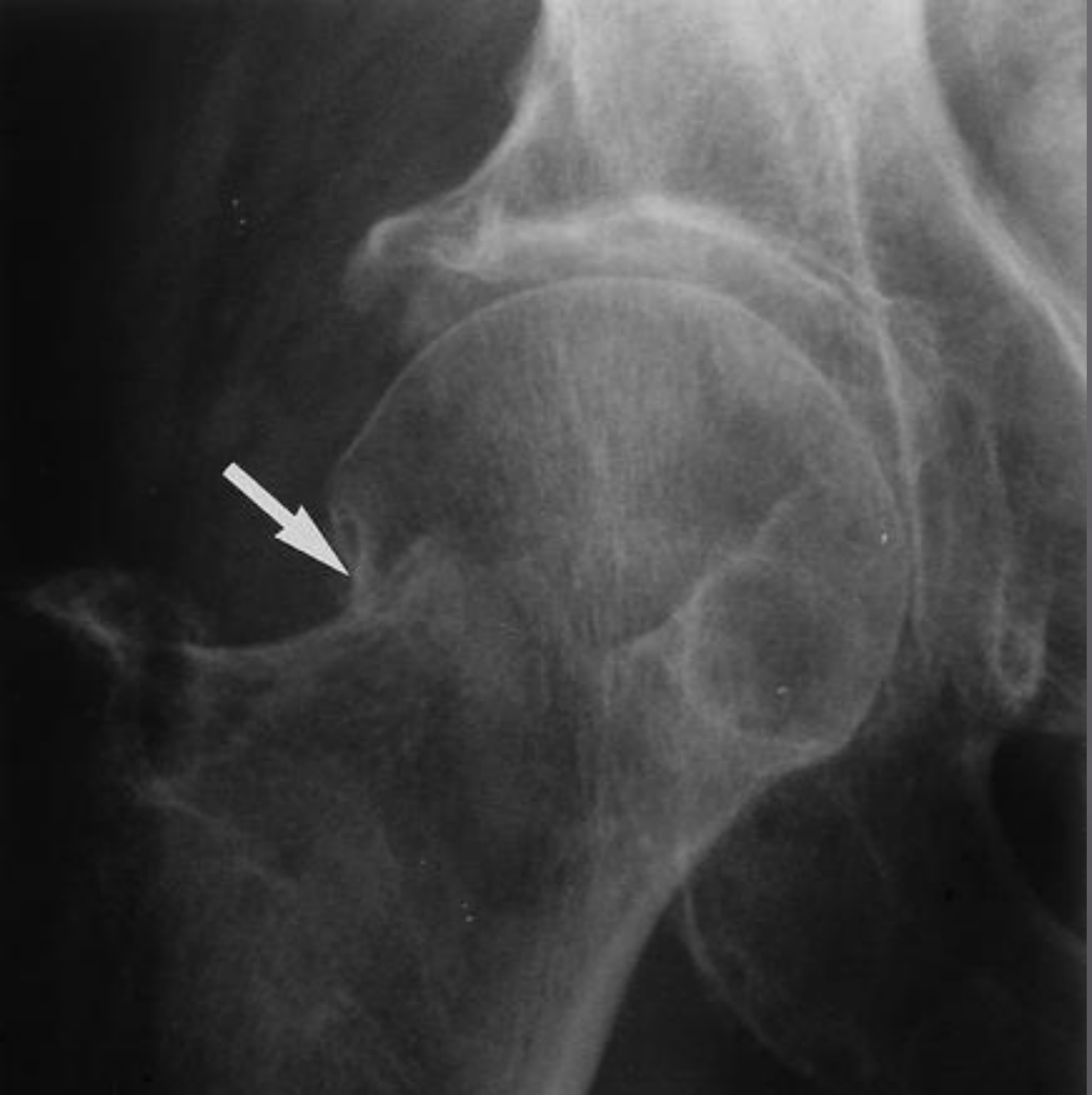
Antécédents du cancer du sein

Douleurs récurrentes

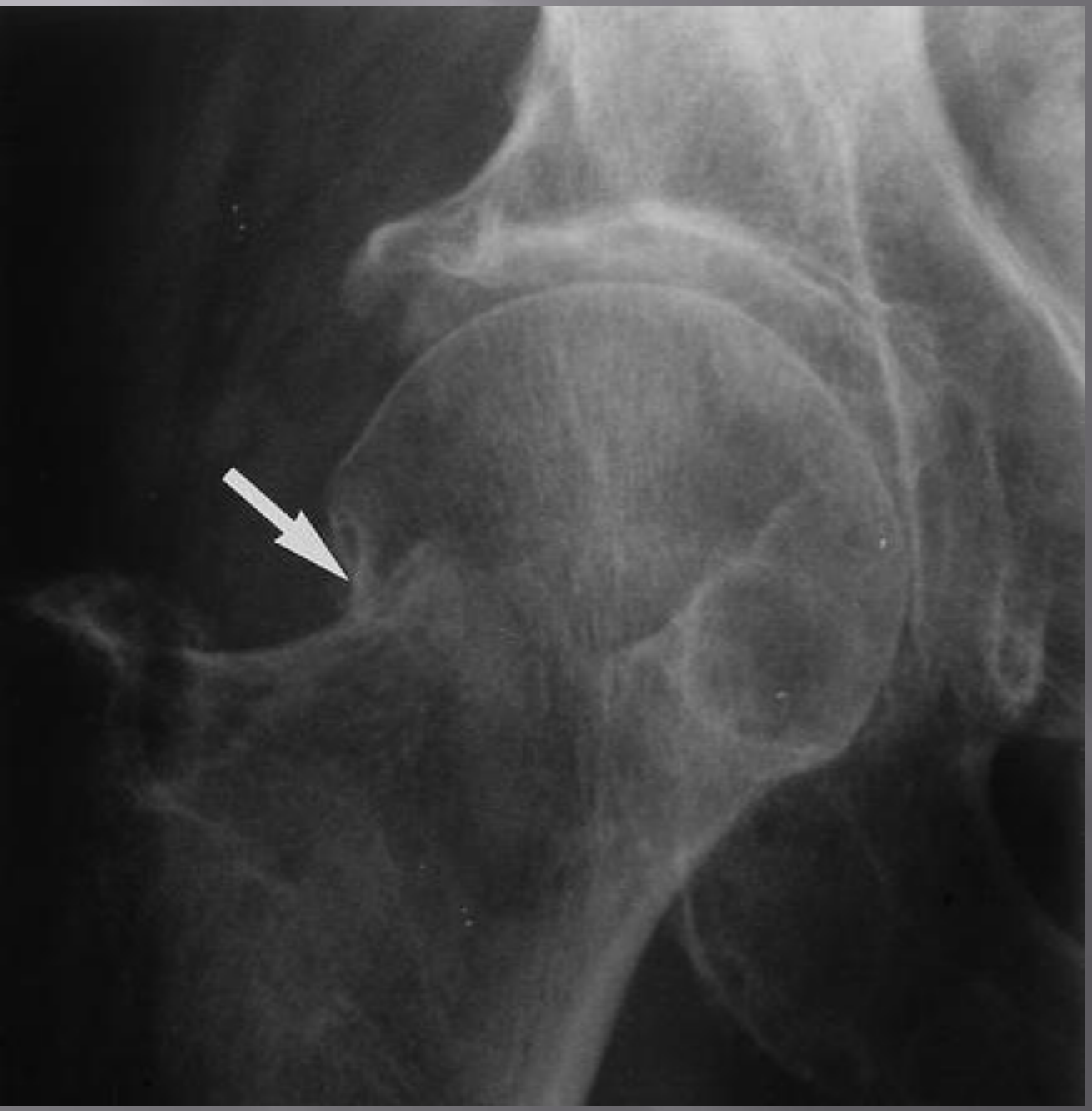
•.Stress fracture.

•AP radiograph of the right hip shows a subacute stress fracture in the typical location of the medial femoral neck, with a lucent line and prominent sclerosis from attempted healing.

• The combination of the location, sclerosis, and a high degree of suspicion led to a correct diagnosis in this case.



Ostéoporose
connue
douleurs

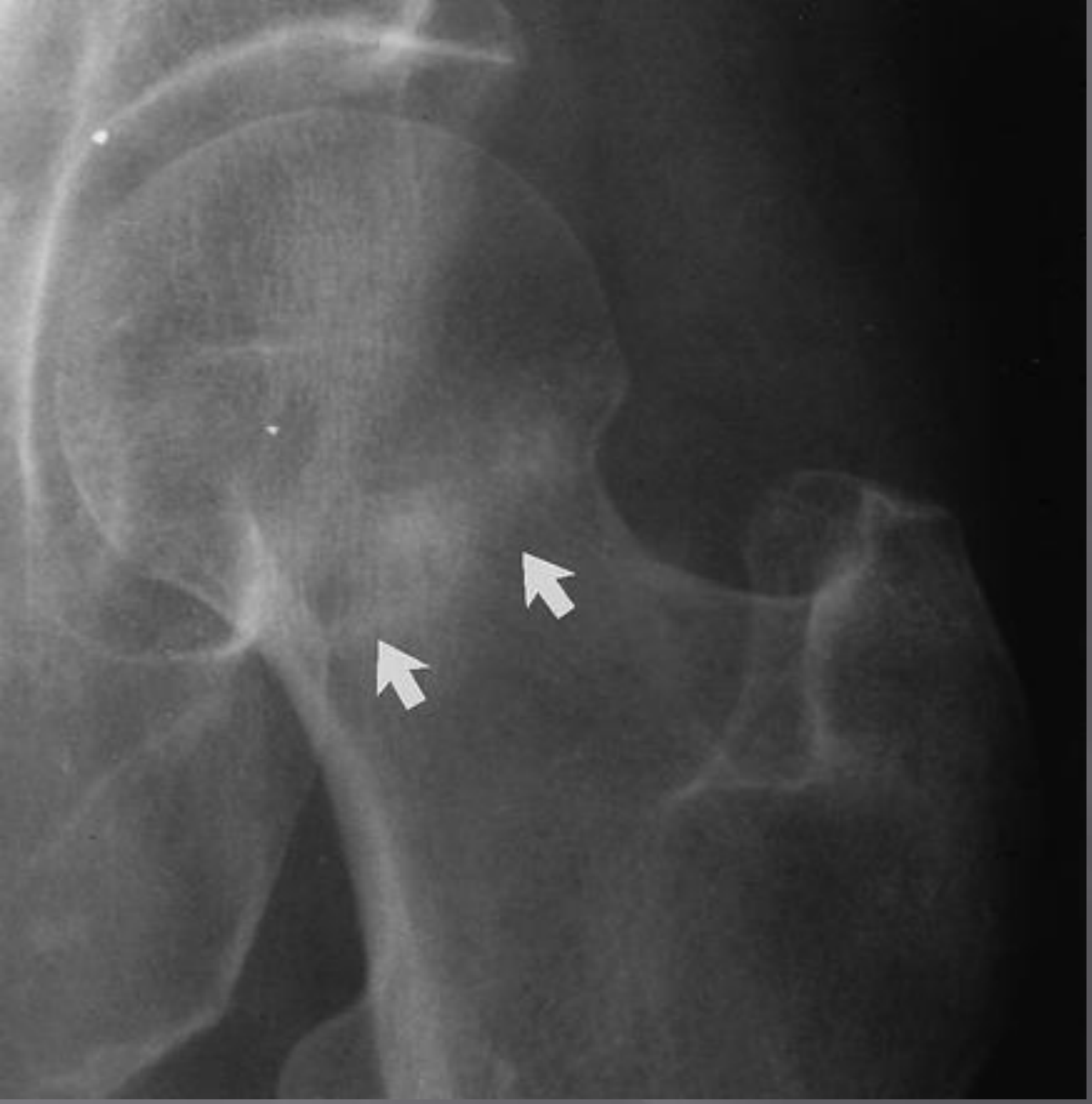


Insufficiency fracture

in a patient with osteoporosis.

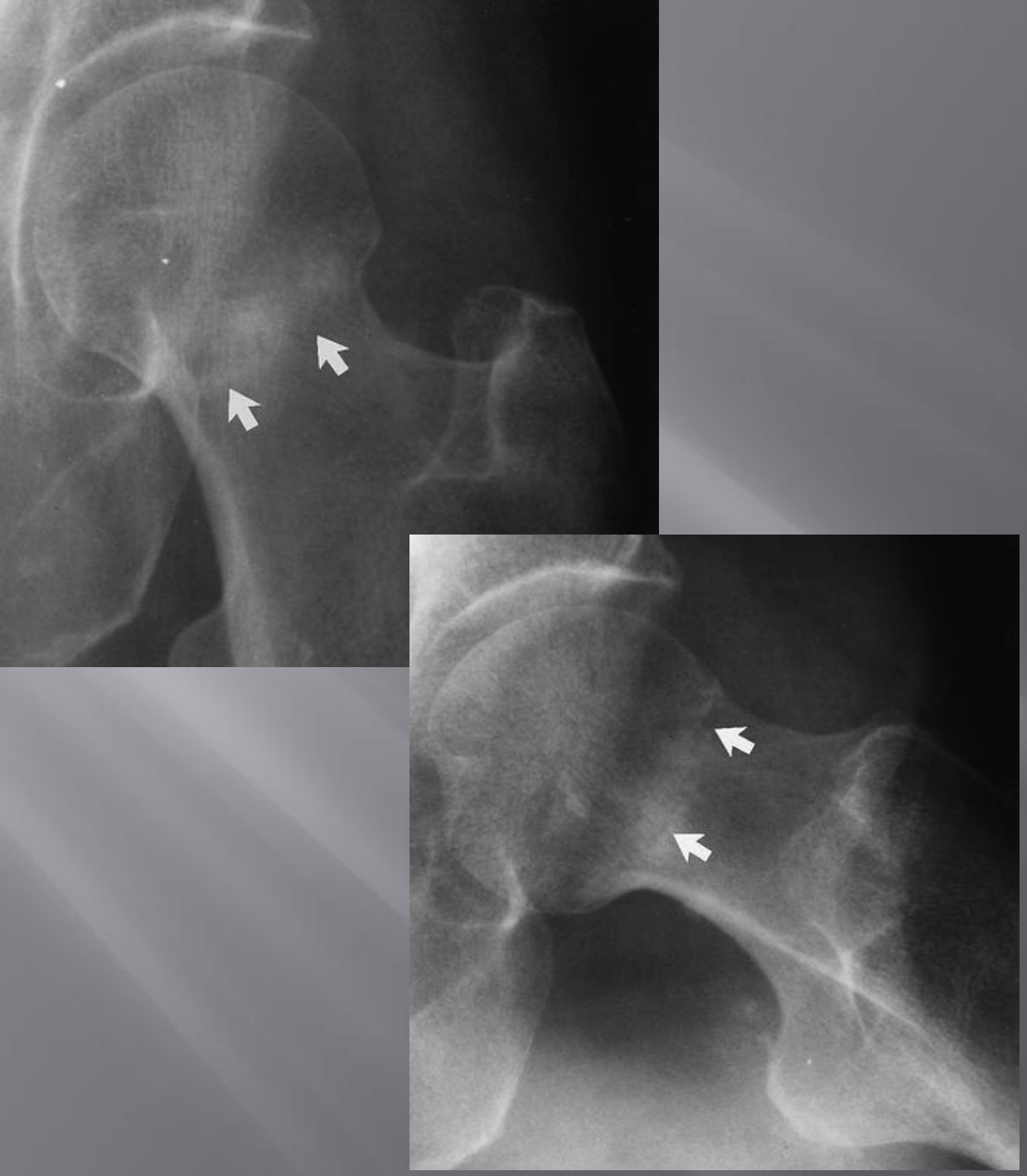
AP radiograph of the right hip shows an insufficiency fracture of the subcapital region as abrupt angulation at the lateral femoral neck cortex (arrow).

The actual fracture line is often not seen in these patients



Ostéoporose connue

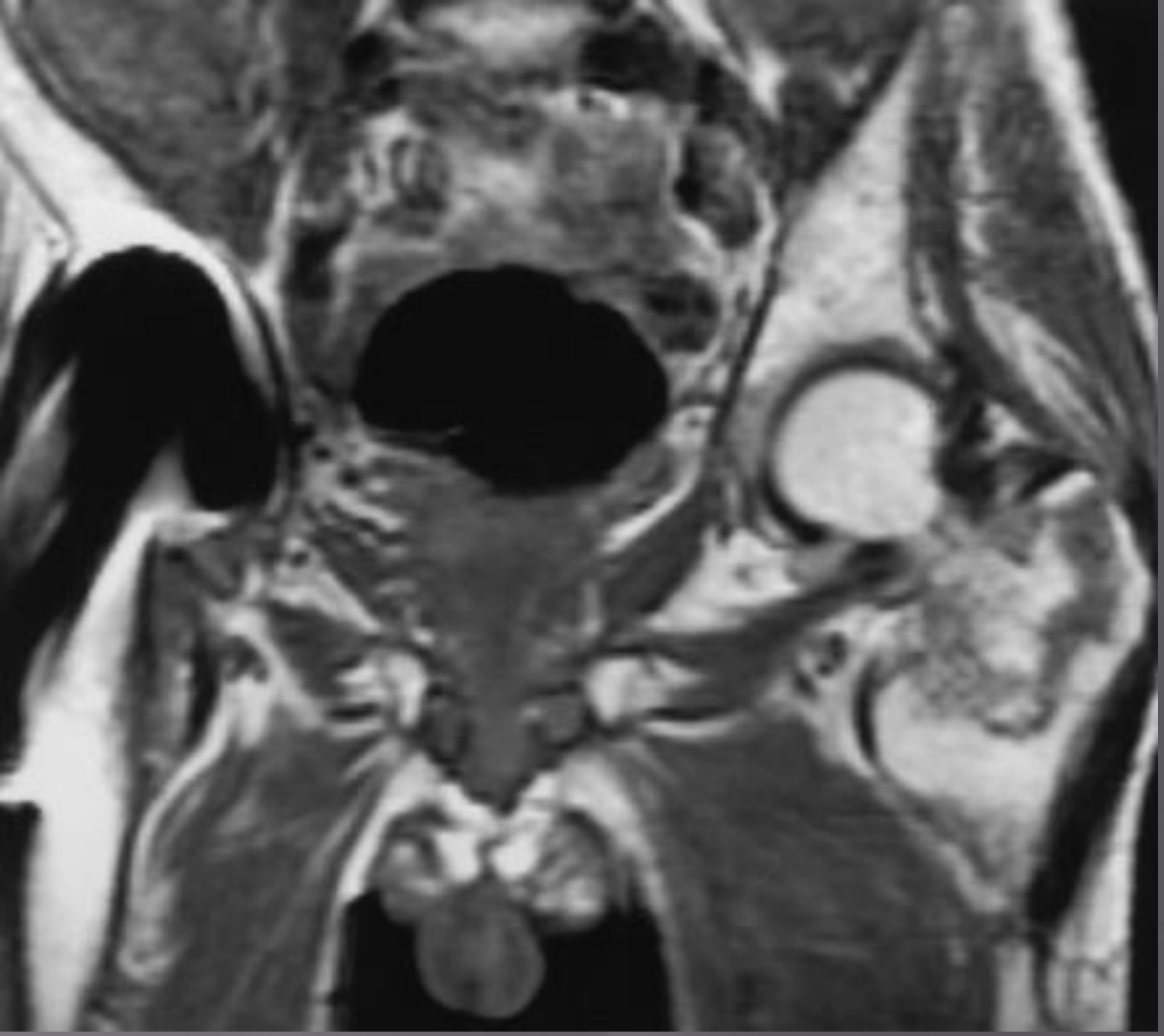
Douleurs aigues



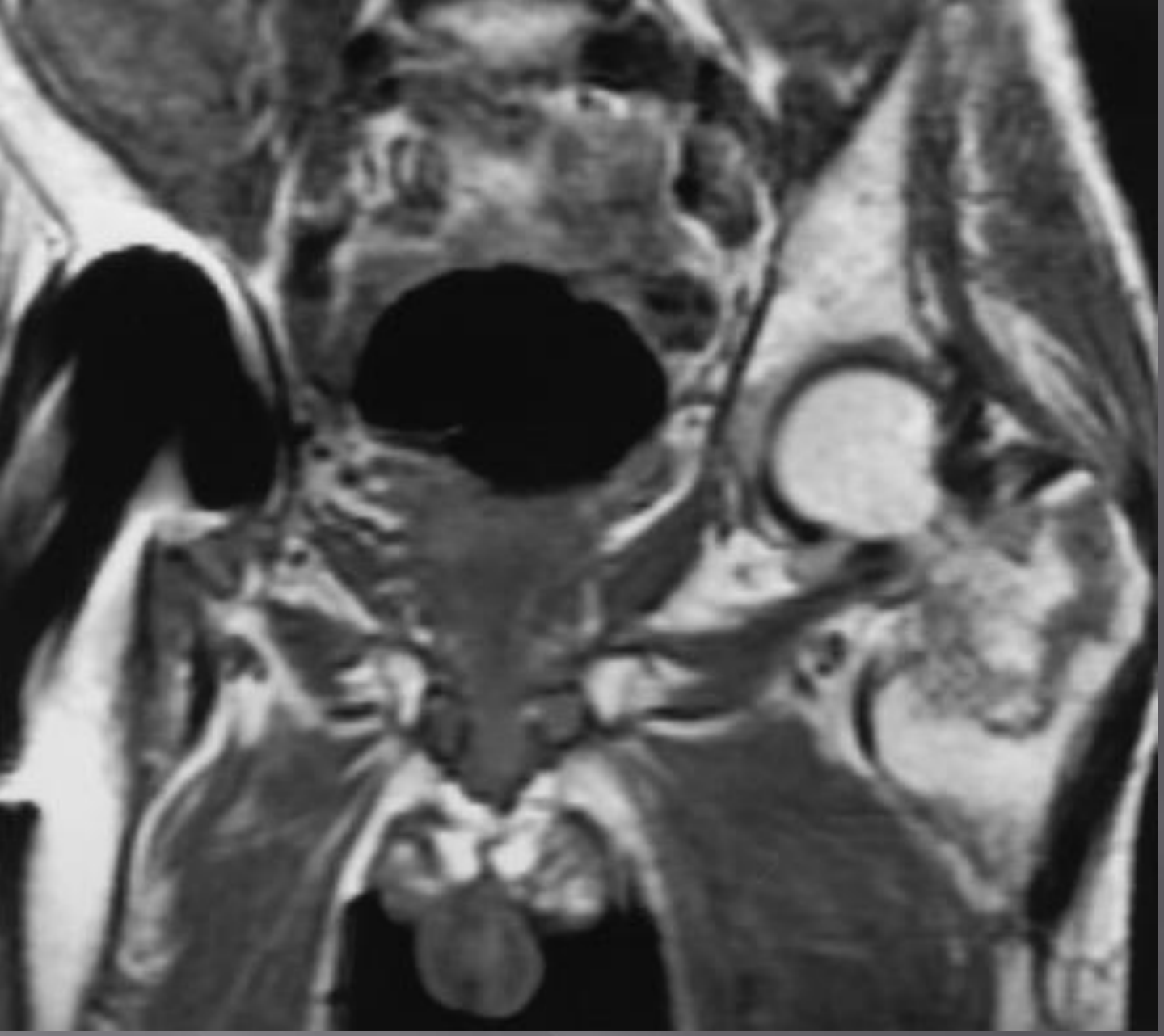
Insufficiency fracture.

a**)** AP radiograph of the left hip shows an insufficiency fracture, detected only as a sclerotic line (arrows) at the subcapital portion of the femoral neck.

(b) Frog-leg lateral radiograph shows the fracture more clearly, as both the sclerotic impaction line and the lucent fracture line (arrows) can be seen. This was an acute fracture, and the sclerosis is due to impaction rather than healing at this point.



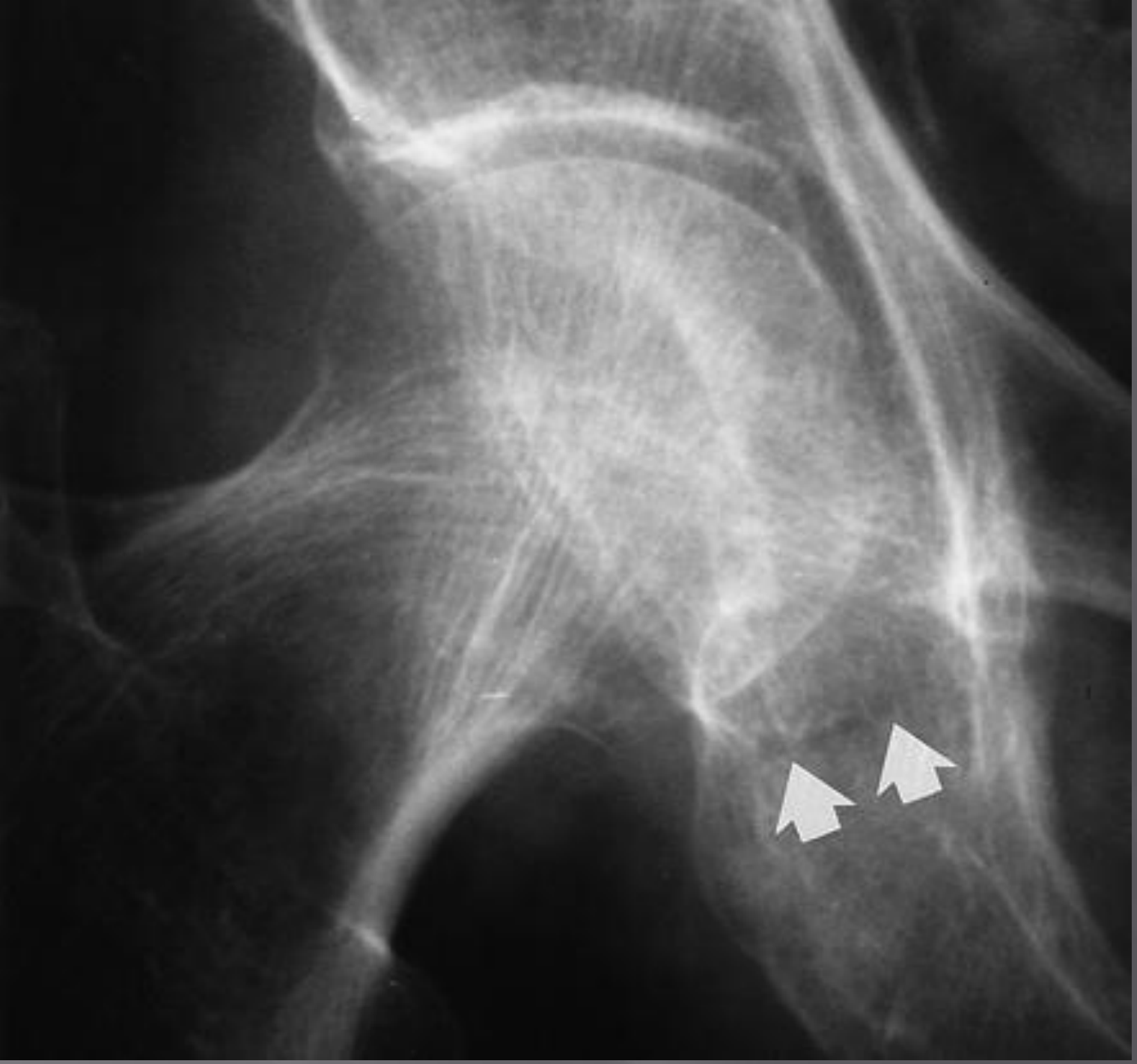
in a 68-year-old man with left hip pain and a completely normal radiograph but high clinical suspicion for fracture



Insufficiency fracture

in a 68-year-old man with left hip pain and a completely normal radiograph but high clinical suspicion for fracture.

Coronal T1-weighted MR image shows a intertrochanteric fracture nicely as a low-signal-intensity line.



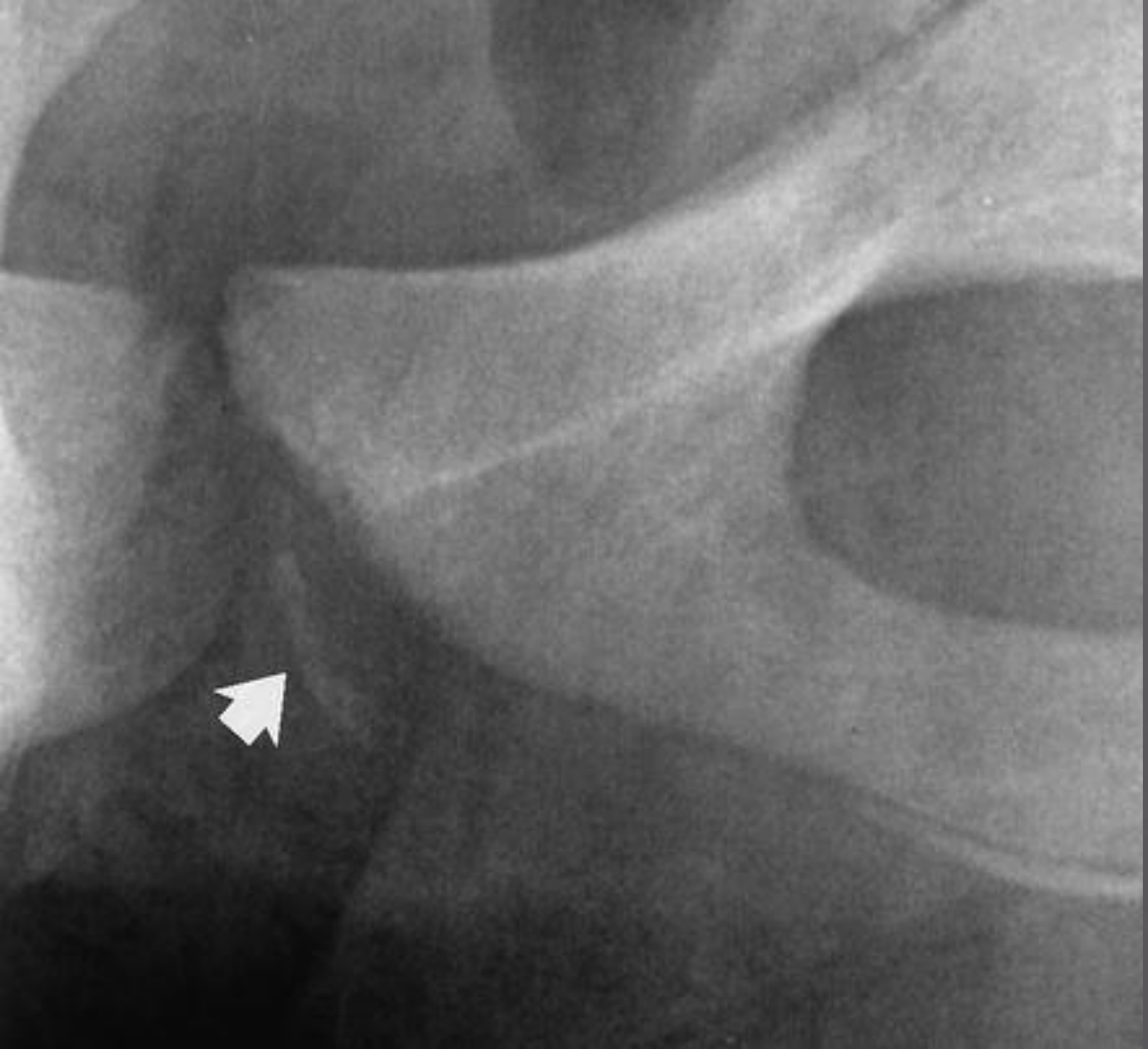
76-year-old woman with osteoporosis and hip pain.

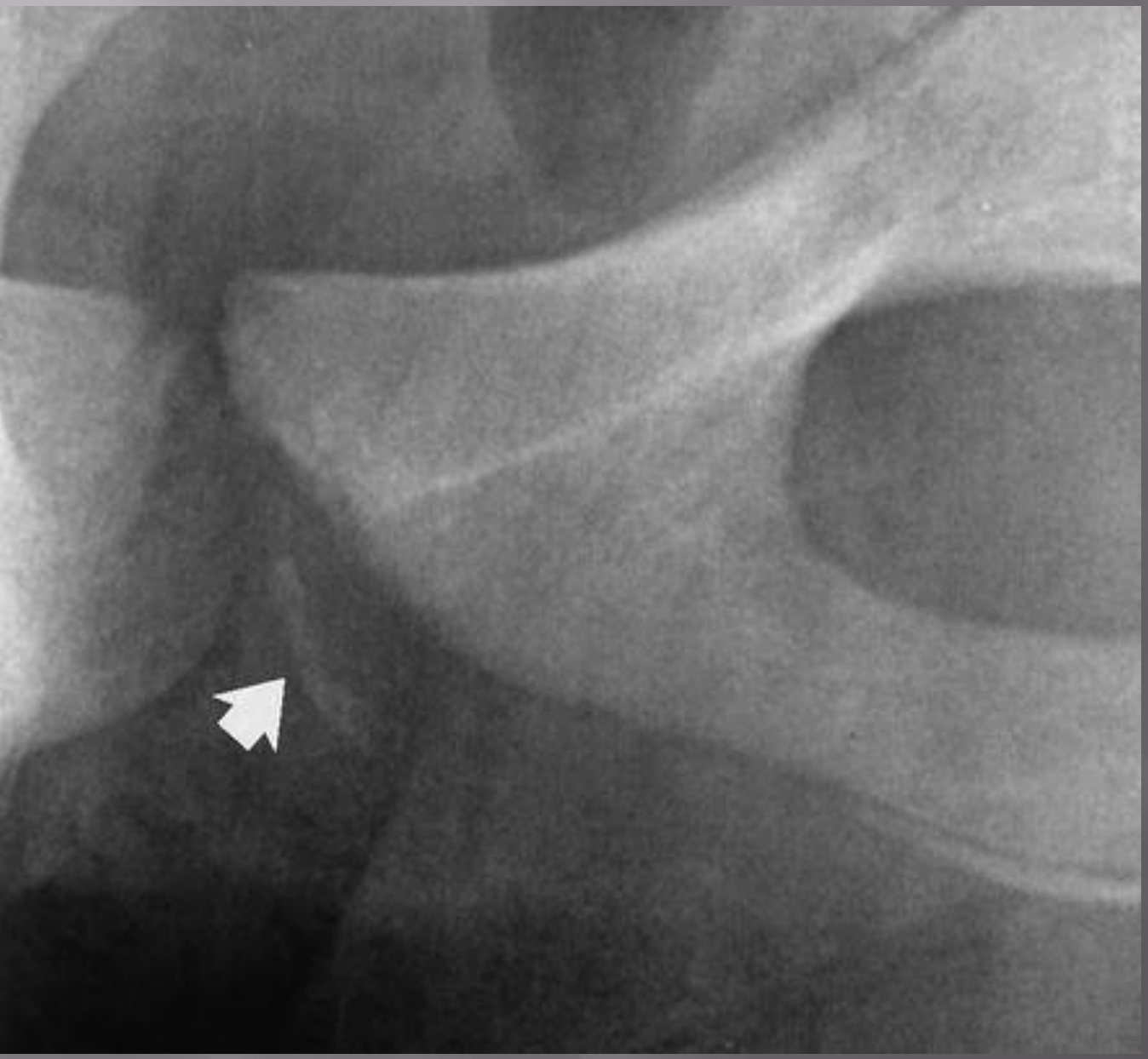
Insufficiency fracture of the acetabulum

76-year-old woman with osteoporosis and hip pain.

(a) AP radiograph of the right hip shows no subcapital fracture, but a fracture line is seen at the inferomedial acetabular wall (arrows).

(b) **(b)** Axial T1-weighted MR image shows the same finding (arrow).





Avulsion fracture.

Oblique radiograph shows a crescentic adductor avulsion fracture (arrow). Note that the donor site is not distinctly seen.

These fractures are recognized by means of their location and shape

Transient osteoporosis

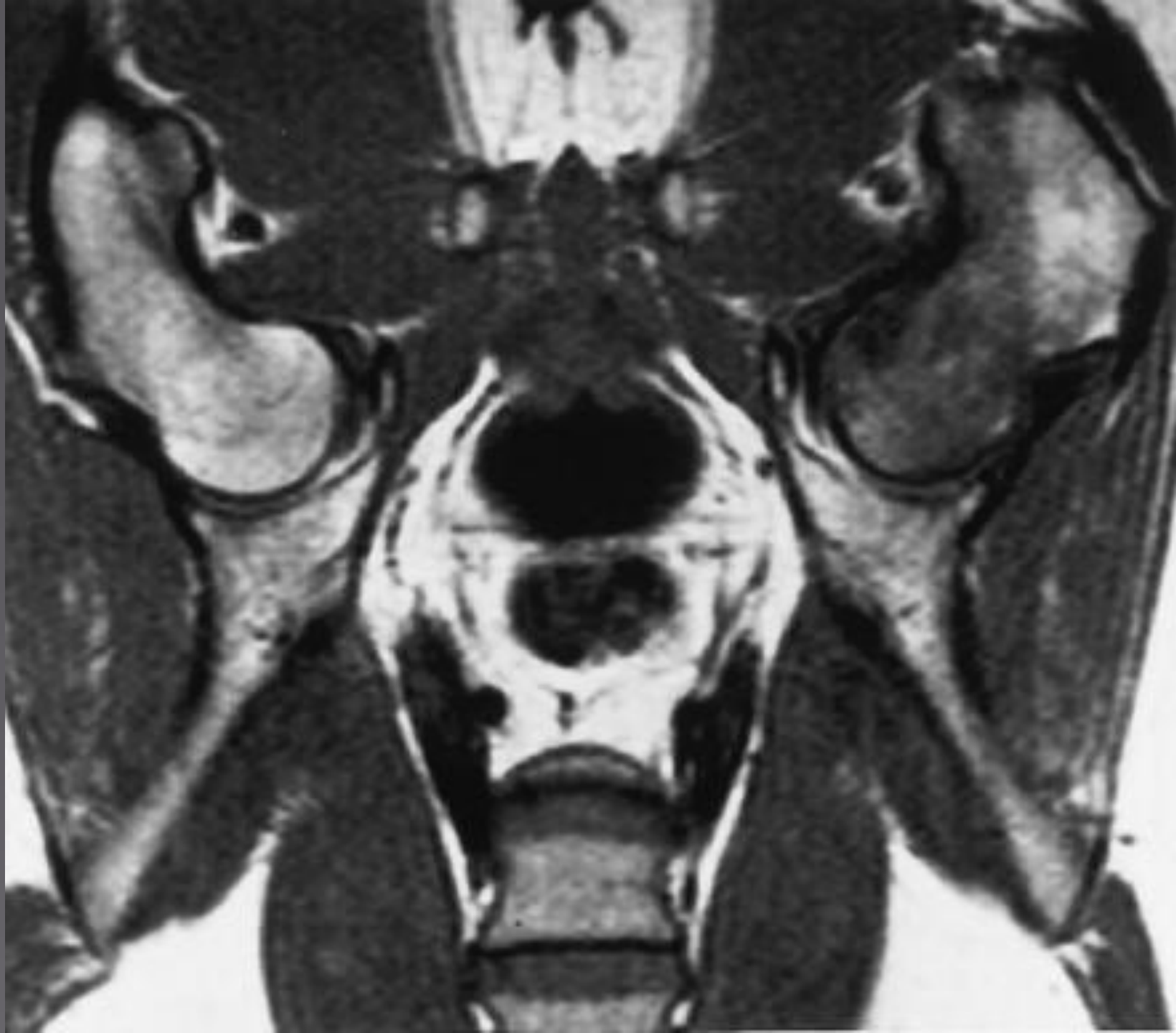
in a 33-year-old man.

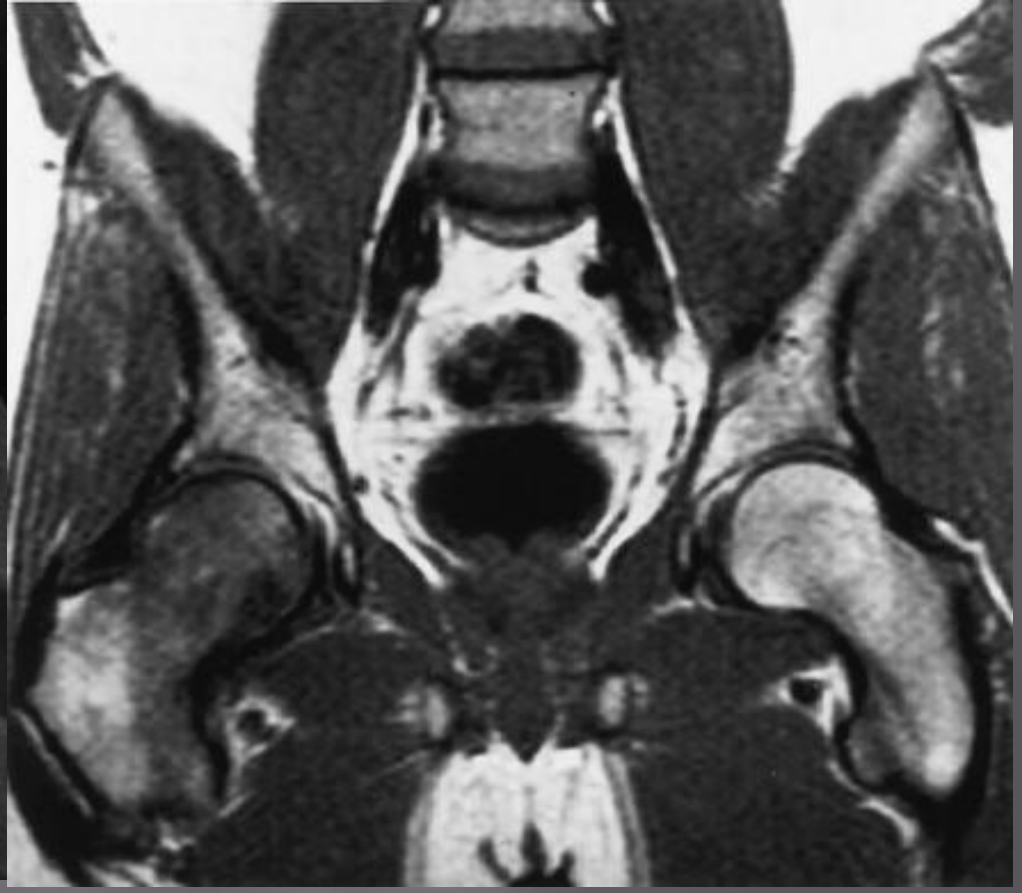
(a) AP radiograph of the left hip shows severe osteoporosis with apparently intact cartilage. The other hip was normal.

(b) Posterior bone scan shows abnormal uptake in the left hip, an expected but nonspecific finding.

Because these two studies alone cannot help differentiate transient osteoporosis from septic hip, aspiration of the hip was performed. The aspirate was negative, and transient osteoporosis could then be assumed as a diagnosis of exclusion. The patient became asymptomatic after 4 months,

and his radiograph returned to a normal appearance, with completely normal bone density.





Transient osteoporosis

in a 45-year-old man with right hip pain.

(a) AP radiograph of the right hip shows findings of osteoporosis..
(b) Coronal MR images show the nonspecific pattern of femoral head edema with low signal intensity on the T1-weighted image

When a negative aspirate was obtained, transient osteoporosis was presumed.
Within 6 months, the patient's symptoms resolved and findings of all imaging studies returned to normal.

Patient sous corticoides
Avec douleurs de la hanche gauche

Avascular necrosis.

AP radiograph of the left hip shows the early sign of sclerosis in the central portion of the femoral head (short arrows), as well as the later sign of subchondral fracture with collapse (long arrow).

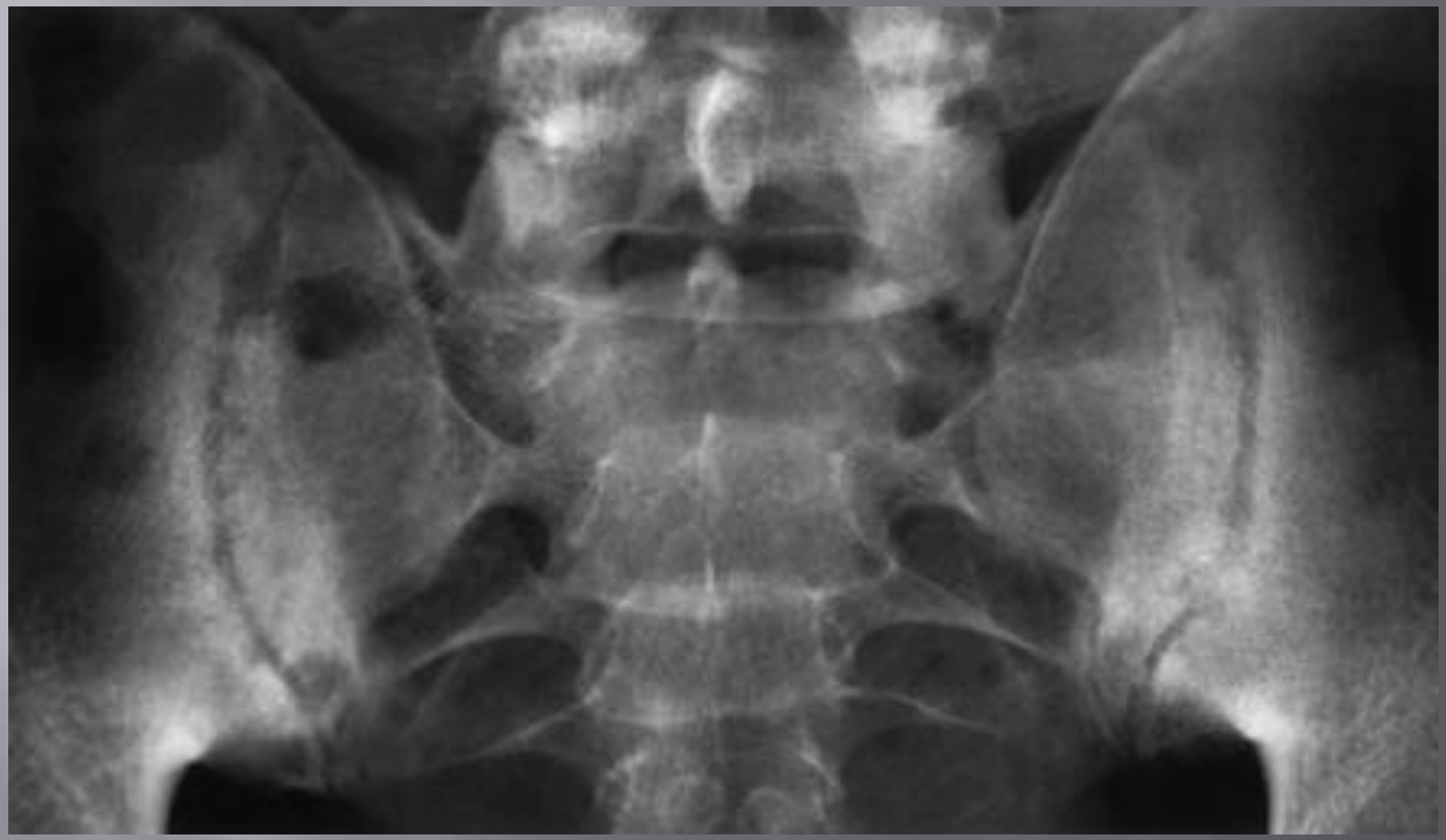
Avascular necrosis

AP radiograph of the left hip shows a fairly obvious subchondral fracture and flattening of the weight-bearing portion of the femoral head (arrow).
Frog-leg lateral radiograph shows the subchondral fracture (arrows) and flattening to even greater advantage.

Nonspecificity of MR signal intensity abnormalities in the hip in a 25-year-old man.

(a) Coronal T1-weighted MR image of the right hip shows abnormal signal intensity in the weight-bearing area of the femoral head. This finding was presumed to represent avascular necrosis. This MR image should not be interpreted in isolation from the radiograph.

(b) AP radiograph shows osteophyte formation (curved arrow), calcar buttressing (open arrow), and subchondral cyst formation in the area of abnormality on the MR image. This combination of findings simply represents osteoarthritis. One should of course wonder why a 25-year-old man has osteoarthritis of the hip.



The answer is easily found in evaluation of his sacroiliac joints.

AP radiograph of the sacroiliac joints shows a bilateral erosive pattern, typical of ankylosing spondylitis.

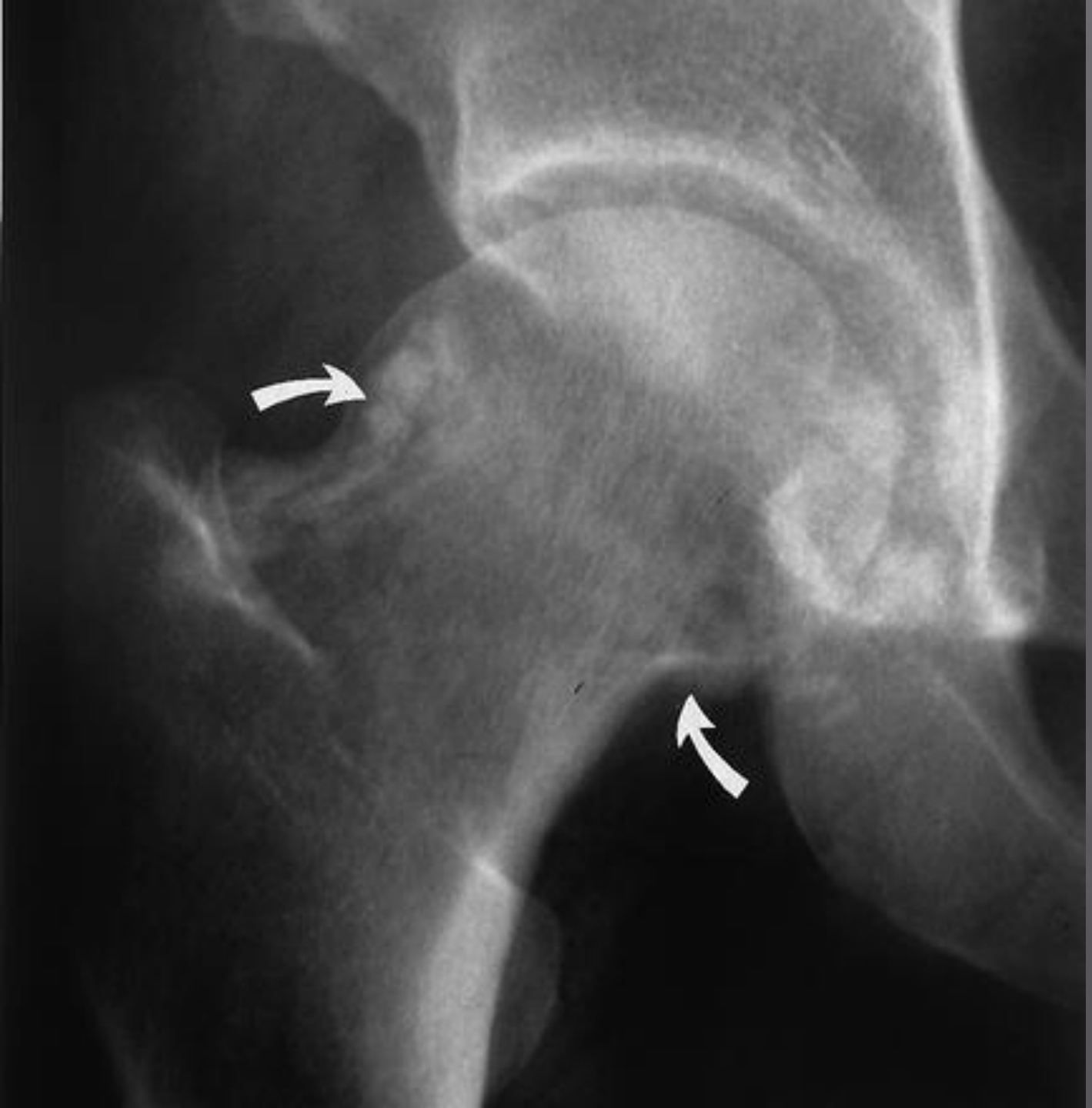
Ankylosing spondylitis commonly involves the large proximal joints and is most frequently found in young adult men.

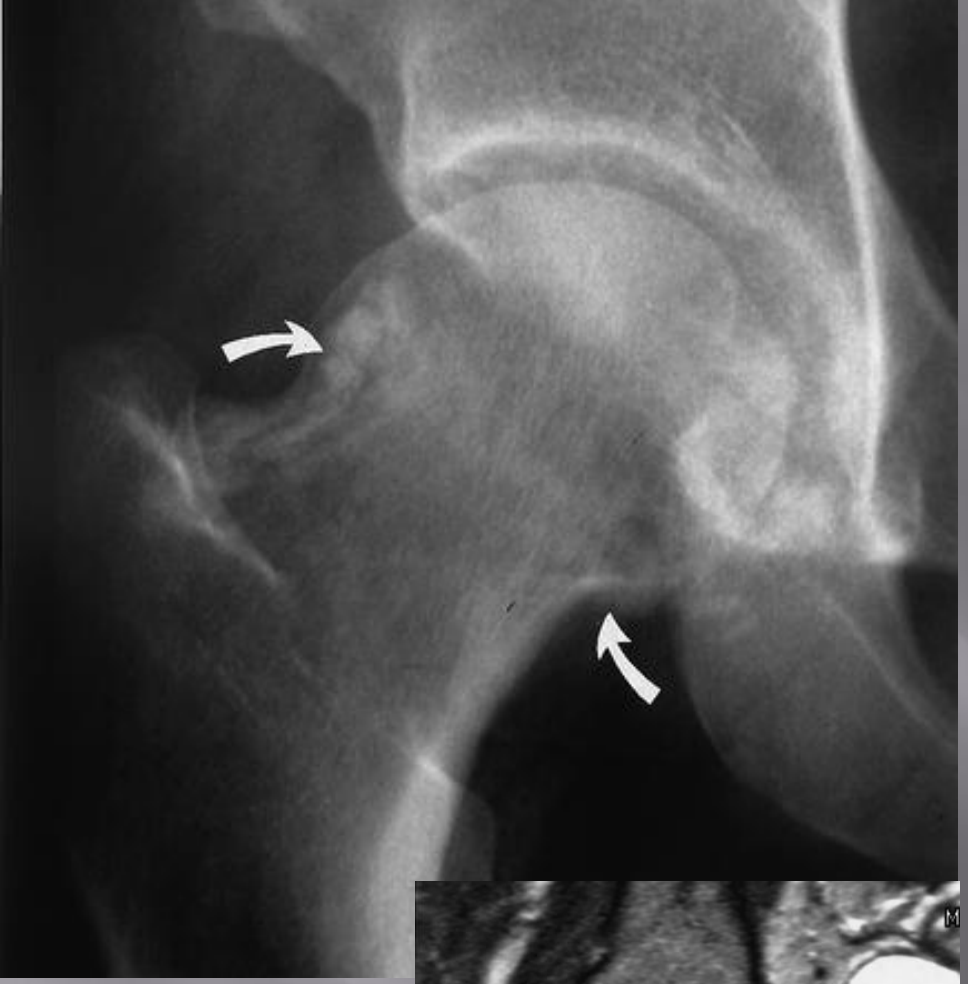
Spondyloarthropathy in a 22-year-old woman with left hip pain. AP radiograph shows subtle protrusio and a ring osteophyte on the left hip (arrow), with a normal right hip for comparison. With the left hip abnormality seen in this young adult, one should look carefully at the sacroiliac joints. In this case, there is bilateral widening and sclerosis of the sacroiliac joints.
The patient has ankylosing spondylitis

Osteoarthritis.

(a) AP radiograph of the left hip shows early osteoarthritis with no significant cartilage loss; the disease is heralded by a small subchondral cyst (arrow) in the acetabulum.
(b) A minimal osteophyte is seen at the lateral margin of the femoral head.

Otto pelvis (primary protrusio). AP radiographs of the right hips in two patients show a variant of osteoarthritis, with primary protrusio and secondary productive change of the hips in a 31-year-old woman **(a)** and, in a more advanced form, in her 49-year-old mother **(b)**



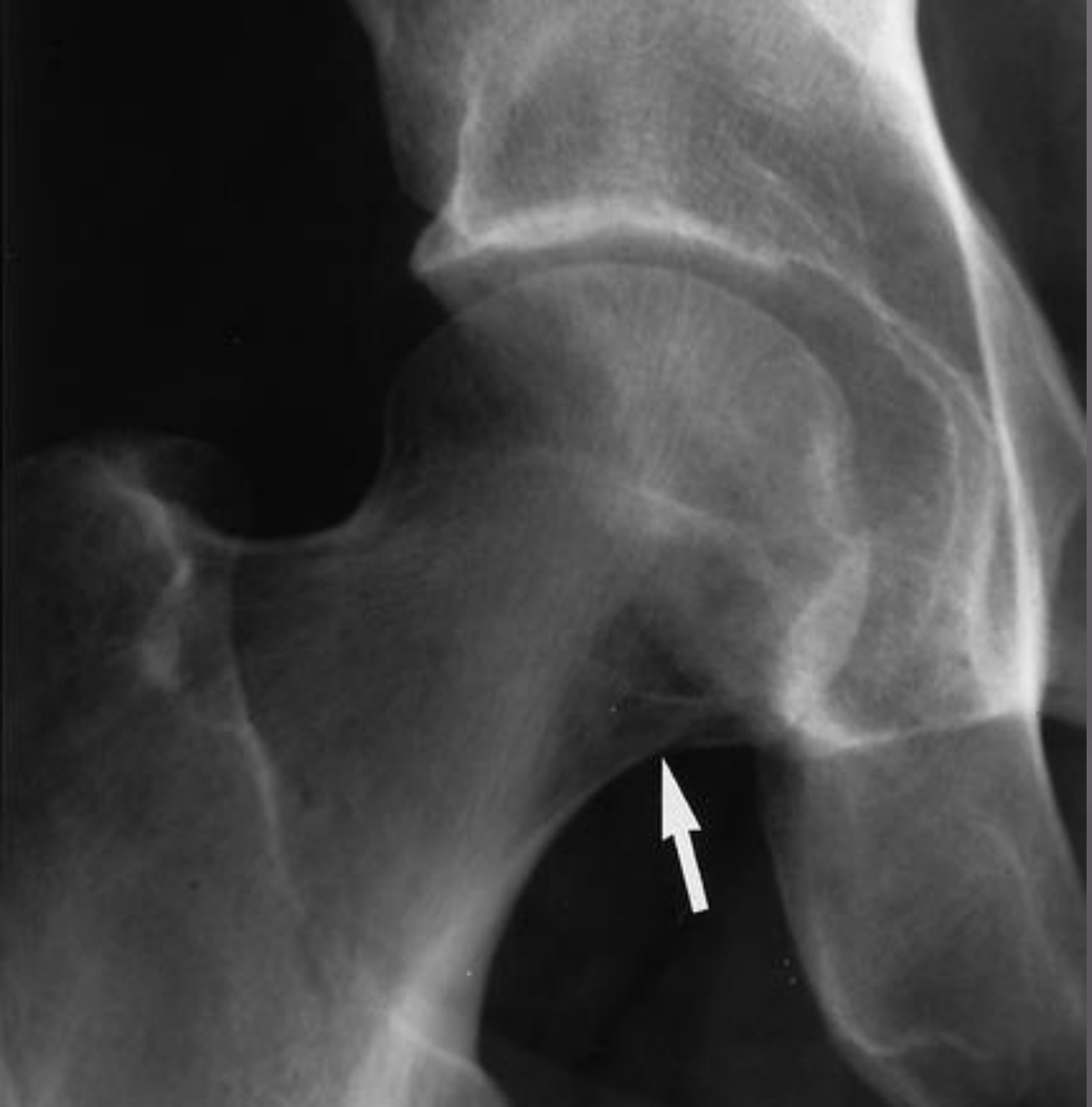


.Synovial chondromatosis in a 31-year-old woman who originally presented at age 28 years with right hip pain; the radiograph obtained then was normal.

Synovial chondromatosis occasionally manifests without radiographic evidence of ossified bodies.

(a) AP radiograph of the right hip shows multiple round bodies in the redundant portion of the hip joint around the femoral neck (arrows).

(b) This finding is diagnostic of synovial chondromatosis. **(b)** Coronal T2-weighted MR image shows an effusion with multiple loose bodies within it (arrow). (However, MR imaging is not needed to make the diagnosis.) It is worth remembering that in this disease process the bodies need not be seen, and indeed erosive change may be seen without radiographic evidence of bodies.



Tumor in a 39-year-old man.

AP radiograph of the right hip shows that the normal expected lucency (arrow) in the medial femoral head and neck region is slightly enlarged).
Disturbance of trabecular pattern may be the only early indication of tumor.
This lytic lesion of the femoral head and neck progressed to a very destructive lesion, which proved to be lymphoma at biopsy.

Tumor.
AP radiograph shows that a destructive lesion is extremely easy to miss. Despite the clips seen over the region of the right sacrum, it is easy to overlook the fact that the posterior iliac wing is missing on the right side (note how easily both the posterior iliac wing and the anterior and posterior sacroiliac joints are seen on the normal left side.

Tumor in a 55-year-old woman.

AP radiograph of the right hip shows an avulsed lesser trochanter (arrow), which proved at biopsy to be due to metastatic thyroid carcinoma. An avulsion of the lesser trochanter should be considered pathologic in an adult until proved otherwise.

Osteoid osteoma.

AP radiograph of the right hip shows that the combination of a small intraarticular nidus and distant reactive bone formation can be misleading. The medial cortex shows tremendous reaction in the region of the lesser trochanter as well as distal to it.
This appearance led to a biopsy of the reactive bone (arrow). The culprit in this case is the small nidus of an osteoid osteoma (arrowheads) located in the medial femoral neck. With an intraarticular osteoid osteoma, the associated sclerosis may be remote from the lesion itself.

. Osteoid osteoma in a 17-year-old boy.

(a) AP radiograph shows an appearance that may be confusing at first glance. A patient of this age should not have osteophytes (open arrows) and buttressing of the medial femoral neck (straight solid arrow). The explanation is the nidus of an osteoid osteoma (curved arrows) in the femoral neck. This should be a plain radiographic diagnosis; however, CT is extremely helpful in providing the surgeon with the information necessary to make a localized resection.

(b) CT scan shows the osteoid osteoma (arrow

Hip dysplasia.

(a) AP radiograph of the left hip shows that there is insufficient coverage of the femoral head by the acetabulum.
(b) The center-edge angle in this case would approach 0°.
(c) (**(b)fal**se-profile radiograph shows that anterior coverage of the femoral head is insufficient, as with lateral coverage