PAIN IN THE HIP AND KNEE

E Paice

Pain in the hip

Perthes' disease of right hip.

Slipped right femoral epiphysis (epiphysis has slipped down and back in relation to neck of femur).

Infected right hip; (left) at presentation and (right) three weeks later.

Hip disease in adults is usually associated with pain on walking or on rolling over in bed, limited movement of the joint, a limping or waddling gait, and shortening of the affected leg. It may be difficult to put on socks and to get up from a low chair.

Irritable hip in childhood

This is a non-specific term for pain in the groin, a limp, and limited movement of the hip joint in all directions in a child. The child should be kept in bed and investigated immediately by general physical examination, plain *x* ray pictures of the hips, full blood count, and measurement of erythrocyte sedimentation rate, with further investigations as necessary to establish a specific diagnosis.

Perthes' disease—Osteochondritis of the epiphysis of the femoral head occurs in boys aged 4–10 years. Plain *x* ray pictures reveal widening of the joint space, narrowing of the epiphysis, and, later, fragmentation of the femoral head. Further deformity of the femoral head may be limited by use of abduction braces or casts.

Infection of the hip joint in a child usually follows bony infection and is rapidly destructive. The child refuses to bear weight on the leg and appears ill. In neonates there are few signs, and the diagnosis is easily missed. *x* Ray changes are late, so if there is clinical suspicion ultrasonography should be carried out to detect an effusion, and any fluid should be aspirated and cultured. An infected hip should be surgically drained and treated with high dose intravenous antibiotics and bed rest.

Slipped epiphysis most often occurs in overweight adolescents. A combination of shearing forces and inherent epiphysal weakness leads to the superior epiphysal plate slipping downward and backward, either suddenly or gradually. There is pain after exertion, and the hip may be held in external rotation. *x* Ray pictures show widening and irregularity of the epiphysis with displacement. Treatment consists of surgical stabilisation of the epiphysis.

Transient synovitis affects children aged under 10 years. It is of unknown aetiology, there are no *x* ray changes, and the condition resolves within two months.

Juvenile chronic arthritis—The hips are often affected in this condition but usually only after it has affected other joints. It is important to monitor hip movement as contractures may develop insidiously, and active physiotherapy and home exercises are needed to prevent deformity.

Infection

Pain is usually the presenting feature with this condition, although systemic features of weight loss, night sweats, and rigors may be prominent. Patients who have pre-existing rheumatoid arthritis or hip prostheses or who are immunocompromised are particularly prone to infection and have fewer systemic manifestations. *x* Ray pictures are often unhelpful at first, and ultrasonography, magnetic resonance imaging, and bone scanning with radioisotopes are more useful. The joint should be aspirated, and the fluid cultured. Treatment consists of surgical drainage, bed rest, and antibiotics.

Causes of pain in hip region

Pain in buttock

- Polymyalgia rheumatica
- Sacroiliitis
- Vascular insufficiency
- Referred from back

Pain in groin

- Diseases of hip joint
- Fracture
- Hernia
- Psoas abscess

Pain in lateral thigh

- Trochanteric bursitis
- Meralgia paraesthetica
- Fascia lata syndrome

Short, externally rotated left leg from unsuspected hip fracture in patient with rheumatoid arthritis.

When a patient with rheumatoid arthritis suddenly cannot walk suspect fracture of the hip or knee

In chronic inflammatory arthritis the knee is usually affected early while the hip is affected late

Soft tissue problems around hip

Overuse from sports or other activities may cause a variety of soft tissue problems around the hip. The adductor or abductor muscles may be strained, the fascia lata may be inflamed, or there may be inflammation in one of the bursae about the hip (the most commonly affected being the greater trochanteric), causing pain and tenderness in the lateral thigh. A tight iliotibial band crossing the greater trochanter may cause a snapping hip, which may be painful. Footballers' "groin strain" is caused by excessive exertion leading to rupture of muscle or tendon fibres. These conditions are best treated by rest, referral to a physiotherapist, or local steroid injection.

Hip fracture

Fracture of the neck of the femur related to osteoporosis has reached epidemic proportions in elderly women. The diagnosis may not be immediately obvious if there is no history of significant trauma. Unsuspected hip fracture is an important reason for sudden loss of mobility in a patient with rheumatoid arthritis.

Osteoarthritis

Primary osteoarthritis usually presents in people aged over 60. The presenting complaint is of pain, often diffuse and sometimes felt more in the thigh and knee than in the hip itself. At first the pain is relieved by rest, but later it becomes constant. There may be tenderness in the groin over the femoral head. An antalgic gait and fixed flexion deformity of the hip are late signs. Conservative measures such as weight loss, non-steroidal anti-inflammatory drugs, physiotherapy, and a walking stick are useful in the early stages, but later total hip replacement is usually required.

Polymyalgia rheumatica

Patients with this condition usually present with pain in the shoulder girdle, but occasionally the pain and stiffness start in one or both hips, especially the buttocks and thighs. The condition is characterised by severe morning stiffness and gelling after sitting, and the erythrocyte sedimentation rate is usually raised. Corticosteroid treatment is dramatically effective.

Rheumatoid arthritis

The hips are affected in about half of patients with rheumatoid arthritis but usually late in the disease. It is unusual for patients with this condition, to present with hip pain. The same is true for the other chronic inflammatory arthritides except for ankylosing spondylitis.

Avascular necrosis

In patients with risk factors for this condition any hip pain should be investigated. *x* Ray pictures and radioisotope bone scans may both show abnormalities, but magnetic resonance imaging appears to be most sensitive for early changes. Risk factors include treatment with heparin or corticosteroids, systemic lupus erythematosus, a history of exposure to increased barometric pressure, high alcohol consumption, pregnancy, and sickle cell disease.

Malignancy

The hip and pelvis are common sites for secondary bony deposits. The pain of malignancy is likely to be severe and unremitting, present day and night, and accompanied by weight loss. Radioisotope bone scanning is more sensitive than plain *x* ray for detecting secondary deposits.

Avascular necrosis of left hip.

Paget's disease of right hip.

Paget's disease

This disease of elderly people is often associated with osteoarthritis of the hip, and it can be difficult to decide which condition is causing the pain. It is wise to treat the Paget's disease before considering hip replacement. After treatment with calcitonin or bisphosphonates, hip surgery may not be required, and if it is it will certainly be easier to perform.

Osteomalacia

This is most often seen in vegetarian Asian women and in elderly people. There may be an associated proximal myopathy, giving a waddling gait. Looser's zones are seen on x ray pictures. Treatment consists of vitamin D supplements (ergocalciferol).

Pain in the knee

Acutely inflamed knee (urate gout).

Common causes of hot, red, swollen knee

- Infection
- Gout
- Reiter's disease
- Pseudogout

A young man with a hot, red, swollen knee and no history of trauma is most likely to have Reiter's disease

Pain and stiffness in the knee result in a limp and limitation of knee movement. Swelling is best seen in the suprapatellar pouch, and an effusion can be demonstrated by fluctuation or the patellar tap. Stability of the ligaments should always be tested.

Hot, red, swollen knee

The knee is the most commonly infected joint, and infection must be considered and excluded in every case but especially in immunocompromised patients. The infective organism is *Staphylococcus aureus* in 70% of patients, but streptococcal and gonococcal infections also occur. Other conditions to consider are Reiter's disease, gout, and acute calcium pyrophosphate crystal arthritis in elderly people. Trauma may cause an acute synovitis or a haemarthrosis. Occasionally rheumatoid, psoriatic, or juvenile chronic arthritis will present in this way. Fluid should be aspirated by an experienced doctor using an aseptic technique. The fluid should be examined by polarising light microscopy for crystals, Gram staining, and culture for organisms. Blood culture, full blood count, and x rays are indicated.

Chronic inflammation

The knee is commonly affected in most chronic inflammatory arthritides, including rheumatoid arthritis, psoriatic arthritis, and ankylosing spondylitis.

Osteoarthritis

Knee pain in middle aged and elderly people is one of the commonest rheumatic complaints, and an even larger number of people have radiological evidence of knee degeneration. Progression of degeneration is unpredictable, but when pain is persistent and unrelieved by conservative measures, such as anti-inflammatory drugs and exercises, consideration should be given to total knee replacement.

Internal derangements of knee

Mechanical disturbance of the knee usually follows a traumatic incident. The patient may present immediately with a knee effusion, which when aspirated may reveal frank blood. Alternatively, the patient may not present until there have been several episodes of the knee giving way, locking, or swelling. In either case orthopaedic referral is indicated.

Chronic knee synovitis in patient with psoriasis.

Osteochondritis dissecans of medial femoral condyle.

Osteochondritis dissecans

In this condition a small piece of bone that has become demarcated from the condyle detaches to become a loose body in the joint. Patients are usually aged 15-20 and complain of knee pain and of the knee giving way, locking, or swelling. Surgical intervention may be required.

Anterior knee pain

This is a syndrome of anterior knee pain caused by athletic overactivity, particularly in teenage girls. Walking up or down stairs or sitting with bent knees aggravates the symptoms. The patella is tender on its undersurface. Arthroscopy is indicated in only the most troublesome cases. It may reveal degenerating cartilage on the posterior surface of the patella, in which case the condition is termed chondromalacia patellae. Physiotherapy, strapping, and, occasionally, surgical intervention may be needed.

Osgood-Schlatter disease

This is a problem of athletic adolescents. There is pain and tenderness over the tibial tubercle, which may be swollen. This is a clinical diagnosis, and x ray pictures are not required. The condition usually responds to avoidance of running or kicking for six months.

Brothers with knee pains and familial hypermobility. (Reproduced with parents' consent.)

Hypermobility

Knee pain related to joint hypermobility is a common problem and may start in childhood. Even without a history of patellar subluxation, recurrent transient knee pain is common and is usually aggravated by such exercise. It is best treated by avoiding activities such as gymnastics and ballet that further stretch the ligaments and by performing isometric exercises.

Growing pains

This term is the name given to a well defined syndrome in children and should only be used in this context. The child wakes in the night with pain in the legs and occasionally the arms. When the limbs are rubbed the pain disappears within minutes. By morning there is no trace of discomfort or disability, and no abnormality is found on examination or investigation. The condition eventually clears up without sequelae.

Medial knee pain

Middle aged and elderly patients may have local tenderness over the medial joint line. This is sometimes called anserine bursitis and is usually relieved by local corticosteroid injection into the tender area.

Infected prepatellar bursa in electrician.

Bilateral popliteal cysts.

Bursae and cysts

Prepatellar bursitis occurs in people whose work involves kneeling and leaning forward, while inflammation of the infrapatellar bursa develops from kneeling upright. If infection is suspected fluid should be removed for culture, otherwise treatment consists of rest. The use of a thick foam cushion to kneel on will help prevent recurrence. A popliteal cyst may cause posterior knee discomfort, which may become acute calf pain if the cyst ruptures. Removal of the cyst is rarely indicated; it is more useful to treat the underlying knee synovitis.

Photographs were prepared by the Photographic Department, Whittington Hospital NHS Trust.

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