

# Painful and swollen knees

---

10th February 2015

By Guest Writer |

0 Comments

---

KNEE effusions can be caused by trauma (acute), systemic disease (acute or recurrent) or by overuse (recurrent). The history provides the diagnosis the majority of the time and is confirmed with a careful clinical examination.



The most common traumatic causes of knee effusion are injury to ligaments or menisci or a fracture. The most common non-traumatic cause is arthritis, but crystal deposition (gout/pseudogout) is also common and it is important not to miss an infection or tumour. A joint effusion without trauma is a very specific sign of joint inflammation, but other symptoms that suggest joint inflammation include pain, warmth and erythema.

Aspiration of the knee is often required to establish the correct diagnosis and treatment. This fluid should be sent to the laboratory to look for crystals and organisms as well as for culture (M,C&S).

## History



PROMOTED

## Latest treatment approaches in advanced RCC

It is important to know if an acute injury to the knee has occurred or if the swelling evolved spontaneously. Any history of previous injury, treatment and surgery should be obtained, and understanding the time between the injury and swelling is helpful.

Fractures and meniscal tears tend to swell quickly, but the swelling from an ACL injury typically gets worse overnight and is much more problematic the day after the injury.

Osteoarthritis may swell the day after being very active, and rheumatoid arthritis may swell without any activity at all.

## Traumatic Injury

Patients will rarely be able to bear weight on the limb if there is a fracture (usually a high-energy injury). A popping sound with giving way may indicate an ACL injury, and pain with twisting, kneeling or standing from sitting may indicate a meniscal injury. Isolated meniscal tears do not usually cause much swelling but chondral injuries certainly do.

## Spontaneous

Swelling without trauma is often the first sign of arthritis, but more serious conditions such as an underlying tumour or infection must be excluded. A history looking for systemic symptoms such as fevers or chills, intravenous drug use, sexual contact, night pain or weight loss must be specifically taken.

A variety of infectious diseases may present as monoarticular arthritis with joint redness, swelling, pain and loss of motion. Infiltrative disorders such as gout and pseudogout often present in a similar fashion and sometimes the only way to differentiate between them is with a joint aspiration. The knee is the most common joint involved in both benign and malignant tumours.

A careful routine clinical examination of the knee is required. (See *MO Sport Report*: 30 Sept 2014, 8 April 2014.)

### **Imaging**

It is essential for the patient to have a plain x-ray. This will often be normal but will provide the diagnosis if it shows arthritis, fractures, dislocations, calcification, Osteochondritis dissecans and some bone tumours. The four basic views are: weight-bearing AP, lateral, notch and skyline patella views. CT scanning is useful only if you suspect a fracture but otherwise MRI scanning is the next imaging modality of choice.

### **Diagnostic Testing**

Aspirating the knee will help relieve the pain of a large, tense effusion but a lot of the fluid will re-accumulate. One of the most sensitive tests for infection is to simply look at the fluid; if you think it looks infected, it probably is. Use proper aseptic technique and a large-bore needle (19 gauge or larger because the fluid can be very viscous). If the effusion is large then expect to remove more than 50ml of fluid from the knee.

Normal joint fluid is reasonably clear and transparent with high viscosity. Infected fluid is often more yellow, turbid, opaque and less viscous and can look like frank pus. Ideally fluid should be sent for cell count, glucose and protein levels, gram stain, bacterial culture and special tests, such as crystals.

The most useful initial screening blood tests when a young patient has a spontaneous effusion with a normal x-ray are: FBC, EUC, LFTs, ESR, CRP, ANA, Rh factor, anti-CCP and HLA B27.

**Infection and crystal arthritis:** Patients may have an elevated peripheral WBC, erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP), and if they are not responding to standard treatment, remember that fungi, tuberculosis and Lyme disease are potential causes of infection.

Crystal-induced arthritis can present in a similar fashion as an infection but the presence of crystals does not rule out infection. Antibiotics should not be used unless infection is proven.

***Practice points***

- Initial management should include general measures to relieve knee pain and swelling. This may require splinting, partial or non-weight bearing, ice packs, and NSAIDs.
- Antibiotics should generally not be started before cultures are obtained, and intra-articular steroids should not be administered unless you are certain there is no infection.
- Arthroscopy is rarely needed in patients presenting with acute swelling of the knee without trauma.