

Pain in the front of the knee, Patello-femoral pain, Anterior knee pain, Chondromalacia patellae

The preparation of this pamphlet has been prompted by the fact that there is much confusion about the diagnosis and treatment of pain in the front of the knee.

The “patello-femoral joint” is a part of the knee joint and is that joint between the patella, or knee cap, and the lower end of the thigh, or femur. Pain coming from this joint is common and is often referred to as “anterior knee pain of adolescence”, “patello-femoral pain”, and “chondromalacia patellae”. Pain coming from this joint is especially common in young females and there are very specific reasons for this.

The commonest type of patello-femoral pain is the end result of disordered “tracking” of the patella as the knee bends and straightens. The back of the knee cap is covered with a surface of shiny white cartilage, much like the end of a chicken bone. There is a corresponding surface on the femur and, in the normal knee, the knee cap glides up and down in a groove on the femur noiselessly and painlessly.

In certain individuals, however, as the knee cap moves up and down with motion of the knee, there is pain and “grating”. This is especially so when the knee is loaded when flexed such as when ascending stairs. The main reason for the disordered tracking of the knee cap is firstly related to muscle imbalance in the thigh with relative weakness of the muscles on the inside of the thigh compared with the muscles on the outside.

Other anatomical features, such as a tendency to knock knee deformity and generalised ligamentous laxity, exacerbate the tendency for the patella to maltrack, as the knee cap goes up and down in the groove then, there is a strong tendency for the knee cap to be pulled in an outward direction by the strong muscles on the outer aspect of the thigh and also by the obtuse angle at the knee. In extreme instances of this, the knee cap may completely leave the groove on the femur and “dislocate”. It may partially leave the groove and “sublux”. This condition needs to be treated a little differently from the run of the mill patello-femoral pain.

The main muscle group that helps to stabilise the knee cap in its groove is called the vastus medialis obliquus muscle or “VMO”. This is on the inside of the lower thigh. Strong activity in this muscle group tends to resist the lateral movement of the knee cap and tends to stabilise the knee cap in the groove, thus preserving the soft white surface of cartilage under the knee cap. When this surface of cartilage becomes “worn” or soft, the classic features of “chondromalacia patellae” are evident.

This description of patello-femoral pain is a little simplistic though serves the purpose. There are other causes also of pain in the front of the knee which sometimes can be detected by x-ray whilst other times an arthroscopic examination of the knee is necessary.

In general terms, the initial treatment of patello-femoral pain is non-operative.

The adolescent female, in particular, is generally advised that the knee discomfort tends to settle as they get a little older and as they reduce their sporting activities. They are normally sent off to the physiotherapist for some instruction in exercises to build up the VMO muscles and many of these patients achieve good relief of symptoms with this relatively simple technique. Some physiotherapists may strap the knee cap into a more medial position and this also helps to relieve the symptoms on occasions. They are normally also given stretching exercises for the hamstrings at the back of the leg and also muscles on the side of the leg.

In general terms, surgery is reserved for the cases where relief of symptoms is not forthcoming with more conservative treatment. If it appears that the structures on the outside of the knee are "tight" and that the knee cap is being held in a lateral position by these, then a "lateral release" may need to be considered. This is generally performed using the arthroscope and is sometimes successful in relieving the pain. In more advanced cases, more complicated surgery is suggested.

It must be remembered that patello-femoral pain is very common and that most people gain relief by their exercise programme. Unfortunately it is also common that patients do not carry on the exercise programme after they have been discharged by the physiotherapist. The end result of this is a recurrence of the symptoms. The exercises must be done religiously and properly. Patello-femoral pain is a very difficult condition to deal with surgically and the results are sometimes unpredictable. For this reason, surgery should be avoided as much as possible.