

## **Knee osteoarthritis**

### **The knee – the largest joint in the human body**

The knee is represented by the joint region located at the junction between the thigh and the shank. The knee joint joins the inferior part of the femur with the superior part of the tibia and with the patella/knee cap. The ligaments – strong, elastic strips that connect the bones – guarantee the perfect stability and strength of the joint.

The knee is a synovial joint in which bone extremities are covered with a hyaline cartilage that is extremely resistant to wear. This cartilage enables the bone extremities to slide smoothly over each other. The joint is surrounded and lubricated by a fluid capsule that reduces the friction between bones, in the same way that oil favours the good operation of the bike chain.

### **What is knee osteoarthritis ?**

When the knee cartilage is extremely worn out, the patient suffers from knee osteoarthritis (gonarthrosis). Under normal circumstances, this cartilage enables joint surfaces to slide over each other. Wear usually starts on a small portion of the joint and extends progressively, sometimes extremely slow, other times in only a few months. Once the cartilage is gone, the bone areas are in direct contact. Since the bone now has a rigid surface, this will cause friction during knee movement. Sliding the joint elements becomes difficult and in time, the bone is deformed, excrescences appear (osteophytes) and the joint is blocked.

There are multiple causes for arthrosis and they usually are related. Some of these causes are: age, imperfect structure of the joint, obesity, shocks, certain diseases (inflammatory diseases) etc.

Wear appears where the joint is the most strained. Depending on the shape of the leg, one of the knee components supports the body weight more than the others.

In most people, the tibia has a tendency to move towards the inside, thus the legs are more or less arched (bowleg or genu varum) and this is usually why arthrosis commences from inside the knee (internal compartment). It is less frequent for arthrosis to commence from outside the joint (external compartment), since this is characteristic of people whose tibia moves towards the outside (knock-knee or genu valgum).

The third sliding area (exterior compartment) is also worn out, in most of the cases and sometimes, the arthrosis commences in this area (patellofemoral arthrosis).

When all three areas are affected, the entire knee is diseased (global arthrosis or triple compartmental).

### **Symptomatology**

Herein under are the symptoms caused by these changes:

- Joint pain that persists in the front, inside or in the back of the knee, depending on the affected area. The pain amplifies during prolonged orthostatism, when walking and when climbing up and down the stairs and it calms down when resting. In advanced stages the pain persists even when resting.
- Joint tumefaction (swelling of the knee);
- Cracking joints;
- Stiffness of the knee that has evolved gradually (false joint obstruction);
- Joint instability;
- Decrease of muscle tone;

- Progressive difficulties in moving that can lead to a significant discomfort while walking. When walking becomes abnormal, this affects the other joints as well, since they can no longer operate adequately (the other knee, the hip and the spinal cord).

### Medical evaluation

In order to determine the severity of the case we use indicators such as:

- The frequency of pain killer use;
- The distance that the patient can walk without pain;
- Pain during the night;
- The extent to which the patient's day to day life is affected.

The radiographic exam enables the examination of bone areas. The cartilage cannot be seen. The radiological study of the joint aims at reducing and clipping the joint space and reducing subchondral femorotibial osteosclerosis, marginal osteophytes and geodes.

In case other interventions are necessary for evaluating the quality of the cartilage and bone, the specialist will recommend them to you.

### Treatment

Joint pain and inflammation can be fought with medication. Certain chondroprotective medicines can protect the cartilage and can slow down the evolution of arthrosis. Sometimes doing an infiltration might help. The infiltration entails the injecting of a medicated product in the joint in order to suppress the pain inside and around the joint. In order to maintain elasticity and to preserve muscle strength, we consider physical therapy to be very useful. Moreover, combating obesity is also useful, since it increases the mechanical strain. Muscle contraction will be combated with medication and physiotherapeutic procedures.

Medication and recovery can improve the situation for a while, but they cannot stop the evolution of arthrosis, the increasing pain or the stiffness of the knee.

Depending on the importance and on the place the knee cartilage is affected, the orthopaedic consultant can perform various types of surgeries. When some areas of the joint haven't been affected yet, the specialist can opt for a more conservative surgical treatment (osteotomy), which is the better option for young patients. When the joint is too damaged, the specialist has to remove the worn-out area and to replace a part of the joint or the entire joint with an artificial material that has the same shape, i.e. knee arthroplasty ([the implantation of the knee prosthesis](#)).

### When is surgery necessary?

Knee arthrosis is a mechanical problem that medication and recuperation cannot treat. This disease prevents the good operation of the joint, which is absolutely necessary for normal walking. At a certain stage of stiffness and pain, the difficulty in walking is so bad that it might be useful to consider surgery. This stage differs from one case to another because patients are different. It all depends on the stage of the arthrosis, on the patient's age, on their lifestyle and on what they want. In order to make a decision, one should have a long talk with their orthopaedic consultant in order to be informed about all their options.