

OSTEOCHONDRITIS DISSECANS

Osteochondritis dissecans (OCD) is a joint problem. It occurs when an area of bone under a piece of cartilage in the joint dies. This happens because of loss of blood supply to the area. It can cause a thin layer of bone and the cartilage to break loose. The loose piece may stay in place or fall into the joint space. This makes the joint unstable. It causes pain and feelings that the joint “sticks” or is “giving way.”

Osteochondritis dissecans most often occurs in the knees. It also may occur in other joints, including elbows, ankles, shoulders, and hips. It is most common in children and adolescents.

EPIDEMIOLOGY:

The exact prevalence is unknown but there may be between 15 and 29 cases in every 100,000 people. It is more common in males, especially those between the ages of 10 and 20 years who are physically active. It usually affects teens and young adults but it can occur in younger children who are active in sports.

CAUSES: The exact cause is unknown but they may include:

Ischemia: A restriction of blood supply starves the bone of essential nutrients. The restricted blood supply is usually caused by some problem with blood vessels or vascular problems. The bone undergoes avascular necrosis, a deterioration caused by lack of blood supply. Ischemia usually occurs in conjunction with a history of trauma.

Genetic factors: OCD sometimes affects more than one family member. This may indicate an inherited genetic susceptibility.

Repeated stress to the bone or joint: This can significantly increase the risk of developing OCD. Individuals who play competitive sports are more likely to regularly stress their joints. Other factors may be weak ligaments or meniscal lesions in the knee.

SYMPTOMS: Signs and symptoms of OCD include:

- Pain, inflammation and swelling in the joint
- Catching and locking in the joint during movement
- Reduced range of movement in the joint
- Crepitus, a grating, cracking, or popping sound when moving the joint
- Weakness in the joint
- Limping
- Effusion, or abnormal collection of fluid in the joint area, leading to swelling
- Pain, especially after physical activity
- Stiffness after a period of inactivity

STAGES OF OCD: There are four distinct stages of OCD:

Stage one: Ischemic osteonecrosis begin to arise in a part of the subchondral bone, because the tissue is not well vascularized.

Stage two: A subchondral osteonecrosis.

Stage three: Partially detached lesions, a dissecans in situ.

Stage four: ‘Dissecans’ this is the loosening of the affected bone fragment and the corresponding cartilage of the articular surface. This fragment falls between the moving parts of the knee joint and blocks it. A ‘joint mouse’ is the bone fragment that roams in the joint, because it moves and it is white.

DIAGNOSIS:

- **Plain X-rays** of the knee (AP, lateral and tunnel view) helps to detect the loose bodies of the knee joint.
- **CT scan:** CT scans allow the doctor to see bone in high detail, which can help pinpoint the location of loose fragments within the joint.
- **MRI:** An MRI can provide detailed images of both hard and soft tissues, including the bone and cartilage.
- **Arthroscopy**

TREATMENT:

Conservative treatment:

- It includes changes of activity or rest. This can give the bone time to heal and to prevent future fracture and chondral (cartilage) collapse.
- If the patient has been involved in sports they may need to stop for a while.
- Immobilize the joint with a medical device such as a splint or a brace. Crutches may be necessary.
- A non-steroidal anti-inflammatory medication (NSAID) can be taken to reduce pain.
- Children can normally return to sports after 2 to 4 months. In young children OCD normally heals with rest as the bones are still growing. In older children and adults the effects can be more severe.

Surgical treatment: If the symptoms don’t improve after four to six months, surgery is indicated. Surgery is also recommended if loose bone or cartilage fragments in the joints are present. There are three main approaches of surgery for OCD:

Drilling: Here surgeon uses a drill to make a small hole in the affected area. This encourages new blood vessels to form increasing blood flow to the area and helps in healing.

Pinning: This involves inserting pins and screws to hold the lesion of a joint in place.

Grafting: Your doctor takes bone or cartilage from other areas of your body and places it in the damaged area, grafting new bone or cartilage onto the damaged area.

After surgery patient is advised to use crutches for about six weeks. It will take about five months to return to usual activities.

PHYSIOTHERAPY: It includes;

- Stretching to improve range of motion
- Strengthening exercises for the muscles
- Low impact activities like cycle and swimming..
- Straight leg raises and ankle band exercises for strength.
- Isometric quadriceps and hamstring can be performed while in an immobilizer or cast.
- Electrical stimulation to the quadriceps and hamstrings can further augment the strength maintenance program.
- Weight-bearing session should be given according to the patient tolerance.
- In facilitating the return to full-weight-bearing status aquatic therapy is very beneficial.
- To correct any gait deviations that developed during the immobilization gait training should be given in parallel bars.
- Additional exercises to restore ankle joint and normal knee proprioception such as biomechanical ankle platform systems (BAPS board) exercises or unilateral stance are also beneficial to the athlete planning to return to competition. After this period the sport activities can be partly restarted.

References:

[https://www.physio-pedia.com/Osteochondritis Dissecans](https://www.physio-pedia.com/Osteochondritis_Dissecans)

<https://www.medicalnewstoday.com/article>

<https://familydoctor.org/condition/osteochondritis-dissecans>