

Cartilage Defects & Osteochondritis Dissecans Surgical Repair and Post-Op Instructions

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Osteochondritis Dissecans or OCD is a condition that can cause pain and swelling in a joint. It occurs when fragments of bone below the joint surface lose blood supply and separate from the rest of the bone. The most common site for OCD is the knee and the most common location in the knee is the lateral side of the medial femoral condyle. Although no one knows why a segment of bone should lose its blood supply, most doctors believe that it is due to repetitive trauma with microscopic fractures below the surface of the joint or clogging of the tiny blood vessels inside the bone associated with a number of differing medical conditions. The age of presentation varies. OCD occurs commonly in older children and adolescents who actively participate in sports. The theory is that the repetitive motion of sports, like running, throwing or jumping, causes a small area of the bone to fatigue and then fracture under its surface. The continued microtrauma from the repetitive loading, for example continued running on the already injured knee prevents the defect from healing. If it does not heal, soon the trauma may loosen the bone fragment. The loose fragment then can cause locking, swelling and pain.

Cartilage defects in the bone and loose bodies can also occur in any age group after an acute injury. In those cases, the bone may be fractured and the fracture fails to heal. In time, OCD fragments and traumatic loose bodies in any joint space grow in size. They grow because the joint fluid nourishes the fragment from all sides and before the injury it only was nourished from one side. The fragment enlarges enough to cause recurrent locking and the most common symptoms of a locking loose fragment of cartilage are pain joint and swelling.

OCD, a traumatic bone defect or a loose body can be diagnosed using special X-Ray images. An MRI may better define the lesion and help in surgical planning when the fragment is partially detached.

Not every OCD lesion requires surgery, in a growing child, an early lesion, that is still in its bed and not detached, may heal with crutches, non-weight bearing, and complete rest in a cast or brace. If the defect is displaced or loose and/or an MRI shows fluid under it, surgery is required to put back the piece or graft the defect in the bone. Still, if the symptoms from a cartilage defect are ignored and spontaneous healing doesn't occur, cartilage and its base eventually separate from the bone and a fragment breaks loose into the knee joint. Fragments that cannot be mended are removed. This leaves a defect or a hole that needs repair.

If surgical intervention is necessary and the cartilage fragments have not broken loose, the surgeon may fix them in place using special pins or screws that are sunk into the cartilage. In

general, these dissolving (bioabsorbable) pins do not need to be taken out once the bone heals. If fragments are loose, the surgeon may clean the cavity to reach fresh healthy bone. At the same time the base can be drilled to stimulate growth of a new blood supply to the damaged bone. Damaged fragments that cannot be repaired can be removed to stop the locking and the base can be cleaned and drilled to stimulate new growth of cartilage. This method of repair is often called “micro-fracture.” In the microfracture technique, the surface is drilled or “cracked” with a microscopic drill or awl to help blood and marrow get to the surface. Just like aerating the soil before seeding the lawn, the idea is to promote the formation of new fibro-cartilage. The new cartilage would then cover the surface with fresh tissue. This works nicely for many small defects but not well for larger ones. Occasionally, newer graft materials, or cartilage transplantation can be used to fill larger defects.

Shallow Cartilage Defects without bone loss is different from OCD lesions and can be caused by wear and tear or arthritis. These also can be treated by the micro- fracture technique.



In summary: Small defects can be treated with the micro-fracture technique, but larger ones require grafting. Loose bodies that cannot be replaced need to be removed. The defects need to be cleaned, drilled, repaired or grafted. Grafts can be obtained through autograft (transplanting cartilage from one part of the knee to another), allograft (frozen grafts from a donor), cultured cartilage or sterile preserved cartilage grafts and/or synthetic bone substitute that fills in over time with the patient's own cells.

For all of the repairs, the full healing process takes time. You may be asked to use crutches and a brace to protect the knee from impact load (often the original cause of the problem) which lets the body do the hard work of healing these defects. At first you may be in a knee immobilizer, a straight brace with Velcro straps. This allows you to protect that repair and still place a little weight on the leg for balance while using crutches. After the initial healing phase, 3-4 weeks, a knee hinge brace is often used to continue the protection of the healing cartilage for the first 3-4 months after surgery. A brace would be needed for heavier activities for up to one year after surgery in almost all cases. Sometimes in patients with heavier demands (bowed legs or a large defect), a specially made unloader brace will be used to allow for a return to activity while the graft incorporates and the new cartilage grows.



OCD Recovery Plan and Post-Operative Instructions

Diet: You may resume a regular diet when you return home. Most patients start with tea or broth adding crackers or toast, then a non-spicy sandwich. If your stomach feels acidic, try Tums, Zantac or Pepcid AC to settle it and drink some clear liquids.

Lungs: After surgery, you are encouraged to deep breathe and cough frequently (at least 3-4 times per day.) This will reduce mucous from building up in your lungs and will reduce the risk of developing a post anesthetic pneumonia.

Stop smoking: Smoking slows the healing process by interfering with the making of new DNA. Smoking also increases the risk of infection and pneumonia after surgery by slowing your body's white blood cells.

Pain Control: Take pain medications as prescribed by Dr. Reznik. Please call our office with any questions regarding your medications. Ice as needed (never place ice directly on skin) and elevate leg above heart level using 2-3 pillows. This will also decrease swelling.

Dressing: The dressing is to remain clean and dry. After 48 hours, you may remove all dressings. You may shower today.

Pat the incisions dry, don't rub the scabs off. Cover each incision with a plain Band-Aid. Do not use creams or ointments on the incisions.

Driving: Right knee patients and left knee patients with a standard transmission car cannot drive until off all pain meds and can fully weight bear without pain.

Remember to call the physician if:

*You develop excessive, prolonged nausea or vomiting

*Fever above 101

*You develop any type of rash

*You experience calf pain

Crutches: You must use crutches for at least the first three weeks. After that, you will be fitted with a hinged knee brace in our office. Once in the knee hinged brace or custom unloader brace; you can advance to one crutch as comfort allows. Most patients are off crutches completely and in a protective brace by 6 weeks.

Return to Work: People with light work (desk work with no squatting, lifting or kneeling) can return to work within a week. Patients with active office work or very light labor with variable tasks can sometimes go back to work at two or three weeks, depending on lifting requirements. Heavy work, (lifting or unprotected heights) cannot usually return before 6 weeks. Most will need to be cleared by their physical therapist. The exception is for people who may have long commutes. By staying still for too long after surgery or



with the leg down for long periods, the blood flow slows and that increases your risk of a blood clot (DVT or Deep Vein Thrombosis).

Blood Clots: Those at high risk of blood clots (DVT) include patients who have long car or train commutes, may be overweight (BMI >30)*, have a history of cancer, women on birth control pills or males over the age of 40. These patients should be taking an aspirin per day (unless allergic) for about 6 weeks depending on risk factors. Doing the exercises Dr. Reznik prescribed will also reduce the risk of blood clots.

*BMI or body mass index is a number calculated from a person's weight and height. BMI provides a reliable indicator of body composition. This index is used to screen for weight categories that may lead to health problems.

Airline Flights: Patients may fly 2-3 weeks after surgery on short flights (up to 2 hours) but in general wait 6-8 weeks for longer flights. You should get up and walk frequently to avoid blood clots and take aspirin unless allergic.

Dental Work: If you have any graft or implant in place, you cannot have any dental work (except for an emergency or to clear an infection) for at least three months following surgery. This includes all types of dental cleanings. The dental work can cause bacteria to get into the blood and infect the graft.

Any time that you have dental work, including any dental emergency, you will need an antibiotic for the first full year following your surgery.

Post-Operative Exercises

You will start doing exercises while still in the recovery room.

While resting in bed after surgery, do the following every hour:

Ankle Pumps: Pump your ankle up and down for 1 minute (like pressing on the gas pedal). This will increase circulation and reduce the risk of developing a blood clot. Do this with both legs. These help to decrease swelling and the risk of blood clots. You cannot overdo ankle pumps.

Straight Leg Raise: Tighten your quads (muscle in the front of your thigh) with the knee immobilizer on and raise your leg 8 to 12 inches off the bed. Do three sets of 8-10 reps, alternating sides.

Deep breathing: be sure to regularly take a deep breath and blow it out. This helps to clear the



lungs after an anesthetic.

Stop smoking: smoking slows the healing process by interfering with the making of new DNA. Smoking also increases the risk of infection and pneumonia after surgery by slowing your body's white cells.

If you find yourself in bed or resting frequently, move your arms when in bed. You can use very light weights for upper arm exercises when in bed to keep your muscles ready for the demands of using crutches.

Add other exercises as your therapist prescribes.

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