A patient guide to knee cartilage injuries

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59% Incidence of Cartilage injury found with arthroscopy in 7107 knees

- Articular **Cartilage** Lesions in 993 Consecutive Knee Arthroscopies-66%
- Articular cartilage defects in 1000 knee arthroscopies-61%
- Analysis of articular cartilage lesions in 2931 of 5114 knee arthroscopies – 57.3%

20-30% of these lesions are “repairable”
Cartilage lesions are common and need to be repaired.

20% of 1,507,500 arthroscopies have cartilage lesions.

- Cartilage lesion
- Arthroscopic debridement
Diagnosis
Weight bearing vs. stress views

Normal weight-bearing x-rays show only a slight decrease in joint space.

In a stress x-ray, Dr. Vermillion pushes the leg while the x-ray is taken, to determine whether the joint space decreases, as in this picture, which would indicate cartilage damage.
This is a large cartilage defect in the knee.
MRI can accurately detect knee cartilage damage
Non-operative Treatment

There are a number of treatment options that may be tried before surgery. These include:

• Medical management
• Intra-articular steroid injections
• Hyaluronate injection
• Physical therapy
• Chondroitin/glucosamine
• Bracing/wedges to change leg alignment
Surgical Options

- OATS
- Marrow Stimulating Techniques
- Cartilage replacement
Osteochondral Autograft Transfer System; OATS Procedure

In this method of repair, the damaged bone and cartilage is drilled out. Plugs of bone and cartilage are then taken from another site in the joint and used to fill in the hole. There are both advantages and disadvantages to this technique, which is why Dr. Vermillion often likes to use synthetic bone plugs as filler.

• Pros-
  – Uses your own tissue
  – Simple technique
  – Indicated for lesions less than 1cm

• Cons
  – Donor site morbidity
  – Limited size
  – Difficult to make cartilage surface even
The hole is filled in with donor plugs from the patient, or with synthetic bone plugs. This large lesion has been filled in with multiple plugs in a procedure called a mosaicplasty.

Damaged bone and cartilage are reamed out.

This is an OATS procedure (see previous slide)
Marrow Stimulating Techniques

Abrasion Arthroplasty, Drilling Or Microfracture to stimulate cartilage regrowth

• Pros:
  – One procedure
  – Low morbidity
  – No additional costs

• Cons:
  – Unpredictable Results
  – Small lesions only
  – 8 weeks Non-weightbearing
A cartilage biopsy is taken from the patient and then cultured in a lab for 5 weeks. It is then placed transplanted into the patient’s joint at the site of the cartilage damage during a second surgical procedure.
Cartilage lesion behind the patella.
Cartilage lesion on the back of the patella
A layer of bone periosteum may be harvested for a graft to cover the cartilage repair site and help protect it.
Repair finished and covered with a periosteal flap.
Correcting patella alignment

• Patella maltracking may be causing wear and tear on cartilage.
• Correcting the patellar alignment can save the newly repaired cartilage from future damage.
• The Patellar Tendon fastens at the tibial tubercle (the bump on the front of the knee).
• Moving this bump over, or elevating it to make it higher often helps the patella to track properly.
Tibial tubercle elevation decreases abnormal forces in joint and allows cartilage lesion to heal
Correcting leg alignment

- Sometimes alignment problems are caused by knock-knees or bow-legs.
- An osteotomy procedure may be necessary to straighten the leg.
- The osteotomy either inserts or removes a wedge from the tibia.
Large medial femoral condyle defect with patella and trochlea defects

- Deep lesion in medial femoral condyle
- Needs high tibial osteotomy for deformity
Tibial Osteotomy

Wedge removal

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Tibial osteotomy one week postop

Bone graft

Osteotomy site
Tibial osteotomy 6 weeks postop

Bone graft filled in
Stay Active!