A New Look at ACL Injuries

Surgeons treating patients with anterior cruciate ligament (ACL) tears are always advised to look for damage to other knee structures during the arthroscopic exam. Now there is one more thing to look for: ramp lesions.

What's a ramp lesion? It involves the medial meniscus, a C-shaped piece of thick cartilage inside the knee. There are two of these protective liners: medial (side closest to the other knee) and lateral (side away from the other knee).

A ramp lesion occurs when one particular edge of the medial meniscus (near the posterior or back portion of the cartilage) comes loose. The tear is located where the meniscus meets the synovium (lining of the knee joint). It is usually a lengthwise or longitudinal tear.

Normally, the posterior horn of the medial meniscus is a difficult structure to see even with an arthroscope. Tight joints with little laxity keep this portion of the meniscus out of sight. But with ligamentous laxity (such as occurs when the anterior cruciate ligament is torn) makes it possible not only to see this portion of the medial meniscus, but also to check it for tears or ramp lesions.

Tears of the medical meniscus are common with ACL injuries. A ramp lesion is a special type of medial meniscus tear that hasn't been studied as much as other types of meniscal tears.

It occurs most likely as a result of increased torsional (twisting) and shear forces of the tibia (lower leg bone) as it moves against the femur (thigh bone). Anytime the ACL is torn or stretched too much, the tibia can slip and slide more than it should underneath the femur. That's when the back edge of the meniscus is most likely to crack, tear, and/or pull away from the bone.

In this study, 868 patients with ACL injuries were examined arthroscopically for ramp lesions. Sixteen per cent (actually 16.6 per cent) of the patients had a ramp lesion. And from the data collected, it looks like the longer the ACL injury goes untended, the more likely it is that a ramp lesion will develop. At least that was true up to 24 months after the injury. Beyond two years, the number of ramp tears that developed later leveled off.

Two additional risk factors for ramp lesions were identified: age (younger than 30) and sex (male). Three-fourths of the group only had one ramp lesion (no other tears in the meniscus). But the remaining one-fourth had a ramp tear plus one other meniscal tear -- either of the same meniscus or of the lateral meniscus.

The authors describe the three steps they used to inspect the knee for ramp lesions. This was all done with an arthroscope, a special surgical tool used to look inside joints. Needle size, location of the portals (places where the needles are inserted into the joint), and position of the knee to look at the back half of the medical meniscus are described. Photographs taken during arthroscopic examinations of normal knee are presented with photos of ramp lesions for comparison.

In conclusion, ramp lesions affect the knee with a damaged anterior cruciate ligament (ACL) or chronic joint laxity from ACL deficiency. MRIs and routine arthroscopic examinations of the joint don't always show ramp lesions.

Surgeons must be persistent in looking for this particular type of damage to the medial meniscus. Younger,
more active males and patients with chronic (long-term) ACL injuries are at greatest risk for ramp lesions.

Repair of ramp lesions at the time of the ACL reconstruction may be needed but these lesions may heal on their own. Larger tears are more likely to require surgical repair to heal fully. Smaller or nondisplaced (stable) tears can heal without repair. Further studies are needed to confirm these finding before firm recommendations can be made.