Clinical Pearls for Managing Atraumatic Knee Pain

BY HEIDI SPLETE
Senior Writer

WASHINGTON — Atraumatic knee pain, especially on the outside of the knee, is a common complaint in primary care offices, and although its mechanisms are poorly understood, the pain is real, even in those lacking clinical symptoms such as redness or swelling.

Often, atraumatic knee pain is related to the cartilage behind the kneecap, Dr. Scott Flinn said at the annual meeting of the American Academy of Family Physicians.

"The retropatellar cartilage behind the knee is the thickest in the body—5 mm—and when the patella is extended, the cartilage causes pressure across the knee," said Dr. Flinn, a family physician, Specialty Leader for Sports Medicine to the Surgeon General, and Force Surgeon for Commander Naval Surface Forces in San Diego, Calif.

Dr. Flinn presented diagnostic pearls, treatment strategies, and rehabilitation tips for getting patients with the following common causes of anterior atraumatic knee pain back to strength without surgery:

Patellofemoral Pain Syndrome

Patellofemoral pain syndrome (PFPS) is also known as runner's knee, chondromalacia patella, and patellofemoral arthralgia. Evidence suggests that there is a 20% prevalence of PFPS among individuals aged 12-20 years, and that this type of knee pain accounts for up to 30% of visits in some sports injury clinics.

With any type of atraumatic knee pain, Dr. Flinn said to be sure to ask patients about a history of trauma; feelings that the knee is catching, popping, locking, or giving way; and a history of swelling in or around the knee joint.

Other symptoms include patient reports of anterior knee pain while sitting for a long time (known as the "theater sign"); pain when walking down stairs, which is more common than pain walking up stairs; and pain when squatting, running, or jumping.

On physical examination, check for the quadriceps angle, or Q-angle, which is the angle created between a line drawn from the center of the anterior superior iliac spine on the pelvis to the center of the patella and a second line from the center of the patella to the middle of the tibial tubercle.

The greater the Q-angle the more likely a patient is to have PFPS, according to some studies. Patients who overpronate are more likely to have PFPS than are those whose stride is even. On palpation, clinicians may feel a tight lateral retinaculum. There may be a trace effusion, and patients with PFPS do not usually complain of instability or joint tenderness.

Rehab for PFPS includes improving flexibility in the hamstrings, iliotibial band, and lateral retinaculum. In particular, tightness in the lateral retinaculum (one of the fibrous bands that hold the patella in alignment) could contribute to the pain by causing the patella to ride laterally, which may contribute to the retropatellar pain of PFPS.

Many atraumatic injuries of the knee are caused by incorrect training or poor biomechanics, or a combination of the two. Consequently, the best treatment for PFPS includes physical therapy, with a focus on strengthening exercises for the outside of the quadriceps muscle (with an attempted focus on the vastus medialis oblique). Also, consider foot orthotics for patients who need to correct excessive pronation and imbalance.

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Dr. Flinn, performing a Q-angle test, noted that the greater the angle, the more likely a patient is to have patellofemoral pain.

Patellar Tendinitis

Patellar tendinitis is a misnomer because the condition is actually more of a tendinosis than tendinitis, Dr. Flinn said. Despite an initial inflammation, histology tends to show few inflammatory cells. Patients with "jumper's knee" usually hurt themselves by overusing the knee in an activity such as basketball or volleyball.

Patients present with almost no swelling, but they report anterior knee pain that worsens with activities such as running, jumping, using stairs, and squatting. Patellar tendinitis can occur in conjunction with PFPS, but the patient with patellar tendinitis alone usually does not experience the fullness in the knee that can accompany PFPS, nor do these patients tend to report feelings of locking, catching, or giving way in the knee. Foot orthotics or new shoes may correct overpronation.

Some patients with jumper's knee will find pain relief by using a patellar tendon strap, such as the Chopat strap—a rubber strap designed to change the forces across the patellar tendon and relieve the pain—which is available from most sporting goods stores, catalogs, and Web sites. "The patellar tendon strap tricks the body into thinking that forces are distributed differently around the knee," Dr. Flinn explained.

Treatment and rehab strategies include anti-inflammatories; stretches for the quadriceps, hamstrings, and calf muscles (gastrocnemius and soleus); and exercises for the adductor muscles of the hip. Patients can usually ride a bike to help maintain fitness during recovery.

Prepatellar Bursitis

Also known as housemaid's knee, prepatellar bursitis is usually caused by repeated microtrauma associated with kneeling, but it can in rare circumstances be caused by an infection. Ask patients who present with atraumatic anterior knee pain accompanied by swelling and redness whether they spend much time scrubbing floors, gardening, laying carpet, or performing other activities that involve excessive kneeling or wearing hard knee pads.

A patient with an infected prepatellar bursa may present with fever, chills, and sweatiness. On physical exam, the area will be warm and tender to the touch, but that isn't enough to confirm or rule out sepsis. Get a cell count and gram stain to rule out infection. White blood cell counts are usually greater than 10,000 cells/mcL in septic patients but less than 1,000 cells/mcL in nonseptic patients.

As for treatment, Dr. Flinn recommends treating for gram-positive *Staphylococcus aureus,* which is the cause of 80% of these infections. Methicillin-resistant *S. aureus* (MRSA), *Mycobacterium tuberculosis*, and *M. marinum* are rare causes. Treatment should be based on cultures, whenever possible.

Prescribe ice packs and NSAIDs for nonseptic patients, and recommend a knee pad for protection in nonacute cases. Rehab for nonseptic patients is similar to strategies for other atraumatic anterior knee injuries and is based on the PRICEMM principles (see box). Focus on stretching and strengthening the quadriceps, hamstrings, and iliotibial band, and recommend the use of a cushioned knee pad, perhaps with a hard exterior shell, when the patient resumes activity. ■

A Twist on RICE For Management

In all cases of atraumatic knee pain, remember the principles of PRICEMM (an extension of the old standby RICE):

- ► Protect the injury from additional harm (with bracing, for example)
- ► Relative rest (maintain cardiovascular and strength training activities in other ways)
- ► Ice
- ► Compression
- ► Elevation
- ► Medications (NSAIDs for pain)
- ► Modalities for rehab (stretching, physical therapy)

Surgery Relieves Pain From Degenerative Lumbar Scoliosis

BY BRUCE K. DIXON
Chicago Bureau

SEATTLE — A majority of adults with degenerative lumbar scoliosis experienced pain relief after undergoing posterior decompression and fusion, according to a 42-patient study presented at the annual meeting of the North American Spine Society.

At an average follow-up of just over 4 years, 95% of patients reported excellent or good relief of leg pain, and nearly 90% had the same response when asked about back pain. In addition, 86% felt there was improvement in their lifestyle postoperatively, said Dr. Christopher Furey.

"Pain, function, image, and quality of life were all significantly improved, and 80% of patients felt their preoperative expectations had been met or exceeded," said Dr. Furey, of the department of orthopedic surgery at Case Western Reserve University in Cleveland.

This type of repair is a major undertaking, he said. "Adults with degenerative lumbar scoliosis frequently have significant medical issues—including osteopenia and osteoporosis—that make them more of a challenge. These are lengthy surgeries with the potential for significant blood loss and long hospital stay, and complications are common," Dr. Furey explained.

All patients in this retrospective analysis were first treated conservatively, and only those who were ready to proceed with elective surgery underwent decompression and fusion with pedicle screw instrumentation and iliac crest graft.

All levels with spinal stenosis were decompressed, including bilateral foraminotomies. All levels decompressed were fused, as were any levels with lateral listhesis greater than 6 mm. The proximal extent of the fusion was at the lowest neutral vertebra in the upper lumbar or lower thoracic spine. Fusion was extended to the sacrum only if an L5-S1 spondylolisthesis was present, but otherwise was stopped at L5, Dr. Furey said.

Two patients developed deep infections that required surgical debridement, and misplaced pedicle screws in two others had to be adjusted, he said. "Excluding those who had immediate postoperative treatment for infections, there was a 21% reoperation rate, which is high."

Dr. Furey and his coauthor, Dr. Sanford Emery of West Virginia University, Charleston, said that because the procedure potentially can cause significant complications in older patients, it should be reserved for those who have failed conservative management and who are suitable medical candidates. "These patients deserve respect, and optimizing medical issues—including good intraoperative anesthesia support and postoperative observation—is critical," Dr. Furey said. ■