Treating Mr. Herrera's Knee Pain

Mr. Herrera is a 62-year-old patient who has recently been diagnosed with severe osteoarthritis in his right knee. Osteoarthritis occurs when the protective cartilage that cushions the ends of bones gradually wears down over time, causing the bones to rub against each other and leading to pain, swelling, stiffness, and decreased range of motion in the affected joint. It is likely that his condition is partly the result of an old futbol injury he sustained in his mid-twenties when he played semi-professionally as a central midfielder.

Osteoarthritis pain is often accompanied by functional limitations that can significantly impact daily activities. The severity of osteoarthritis is typically classified from Grade I to Grade IV; Grade I represents minimal joint space narrowing with little functional impact, while Grade IV indicates severe joint space narrowing with bone-on-bone contact and substantial disability. Mr. Herrera has been experiencing progressively worsening knee pain over the past two years and has recently undergone comprehensive evaluation including X-rays, MRI, and functional assessment. Testing confirms that he has Grade III osteoarthritis, meaning he has significant joint space narrowing and moderate functional impairment.

This diagnosis concerns Mr. Herrera, who works as a first-grade teacher and enjoys hiking on weekends. His job requires him to frequently bend or kneel down in order to work closely with his students, and he even occasionally sits on the floor with them which has become much more challenging for him. He describes his pain as "constant and throbbing," rating it 7 out of 10 on most days, but because it is early September and the new school year just started, he is also concerned about taking too much time off from work. He is both concerned about disrupting his student's learning schedule with a prolonged absence and cannot afford to take much time off from work as the sole-provider for his family.

While Mr. Herrera experiences significant daily discomfort that limits his mobility, his overall health status classifies him as a good surgical candidate with low-to-moderate perioperative risk. There are three primary treatment approaches for managing severe osteoarthritis: conservative non-surgical management, arthroscopic knee surgery, and total knee replacement surgery.

(See next page for a detailed description of each treatment option)

Total Knee Replacement Surgery:

Total knee replacement is typically recommended for patients with severe osteoarthritis (Grade III-IV) who have failed conservative treatment. This invasive procedure involves removing the damaged cartilage and bone surfaces and replacing them with metal and plastic implants. The surgery can completely eliminate arthritis pain, significantly improve function and quality of life, and has excellent long-term durability with most implants lasting 15-20 years. However, while total knee replacement has been shown to provide superior pain relief and functional improvement compared to other treatments, it carries surgical risks including infection, blood clots, nerve damage, implant loosening, stiffness, and in rare cases, death. The procedure requires 6-12 weeks of recovery, extensive physical therapy, and the recovery is often very painful as the patient is required to break up any scar tissue that forms post-surgery in order to gradually increase joint mobility.

Conservative Management:

This non-surgical approach involves a combination of medications (NSAIDs, acetaminophen, topical analgesics), physical therapy, weight management, activity modification, and supportive devices like knee braces or walking aids. Conservative management would allow Mr. Herrera to continue working without surgical interruption and avoid operative risks. This approach can help reduce pain, maintain current function, and slow disease progression. However, conservative treatment will not reverse the existing cartilage damage or significantly improve his current functional limitations. While it may provide some symptom relief, the underlying arthritis will likely continue to progress over time. Side effects of long-term medication use may include gastrointestinal upset, increased cardiovascular risk, kidney problems, and potential dependency on pain medications.

Arthroscopic Surgery:

This minimally invasive procedure involves inserting a small camera and surgical instruments through tiny incisions to clean out loose cartilage fragments, smooth rough surfaces, and remove inflamed tissue. Arthroscopy can provide moderate pain relief and functional improvement with a shorter recovery period (2-4 weeks) compared to total knee replacement. The procedure has lower surgical risks and allows for quicker return to activities. However, arthroscopic surgery provides only temporary improvement for osteoarthritis and does not address the underlying joint damage. Pain relief typically lasts 6 months to 2 years, and the procedure may need to be repeated. There are still risks of infection, bleeding, nerve damage, and blood clots, though these are less common than with major surgery.