Recurrence pendunculated osteochondroma of the tibia

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Osteochondromas have been widely reported in the literature. Surgical management can be a successful primary treatment option, but tumors can occur again in the presence of open epiphyseal growth plates. This case reports a recurrent pedunculated osteochondroma in a 15-year-old female.

Case report

A 15-year-old female presented with a chief complaint of left anteromedial knee pain and a previous history of surgical excision of a pendunculated osteochondroma (five years prior). She reported resolution of symptoms for three years until initiation of a more rigorous training program to prepare for high school soccer participation. Her reported soreness continued to increase throughout the school sports season. She tried to self-manage symptoms with cryotherapy application and over-the-counter nonsteroidal anti-inflammatory medications (Ibuprofen). She sought medical treatment after developing soreness with activities of daily living (ADL) such as standing and walking.

Clinical workup included physical examination and digital radiographs. She presented with normal gait pattern, localized swelling over the proximal anteromedial tibia, full knee range of motion (ROM), and poor quadriceps neuromuscular control. There was moderate tenderness to palpation present over the anteromedial tibia approximately one centimeter distal to the joint line. She had a negative physical examination for structural knee laxity. Digital radiographs demonstrated a small pendunculated osteochondroma present at the anteromedial tibia (Fig. 1) near the attachment site of the pes anserine musculature.

Excision of the bony tumor occurred approximately one week after the initial examination, with pathology confirming the osteochondroma. She was prescribed three days of bed rest following the outpatient surgical procedure. The patient was referred to physical therapy for postoperative rehabilitation. She was allowed to progress to full weight bearing five days following surgery, and progressive strengthening exercises were initiated. Three weeks following surgery, the patient completed her physical therapy rehabilitation. At that time, she demonstrated full, symmet-
ric knee ROM and a limb symmetry index (LSI) score (1) of 108% with closed-kinetic-chain strength testing on a leg-press machine. Radiographs taken three weeks postoperatively revealed the absence of the pendunculated osteochondroma, and satisfactory healing of the tibia (Fig. 2). The patient was able to gradually return to all sports activities and has remained symptom free three years following surgery.

Fig. 2. Postoperative Rosenberg radiograph showing removal of the pendunculated osteochondroma from the left knee.

Discussion

Osteochondromas, the most common benign bone tumor, tend to develop in long bones, with locations such as the proximal and distal femur, proximal humerus, proximal tibia, pelvis, and scapula as the most common development sites (2, 3). These tumors typically develop in adolescence and become dormant with skeletal maturity (4). In the case presented here, the patient noted initial occurrence of symptoms at age 11. The initial surgical excision appeared to resolve symptoms; however, a recurrence of the osteochondroma led to the present case. Recurrence is not uncommon in individuals with open epiphyseal growth plates, and a rate of up to 30% has been previously reported (5).

The patient in this case complained of several symptoms leading up to her surgical consultation. Her primary symptom was generalized soreness with all activities, and point tenderness over the anteromedial tibia. However, she also experienced pain with knee flexion and extension open-chain exercises, and all weight-bearing, closed-chain rehabilitation exercises before her surgery. The pre-operative radiograph demonstrating the osteochondroma shows its location near the pes anserine muscle attachment site. This caused substantial problems with all rehabilitation and athletic activities. The presence of these symptoms, along with closed epiphyseal growth plates, led to the family decision to undergo the second surgical removal.

Following surgical excision, the patient was able to perform all activities in a painfree manner. The rehabilitation program progressed from ROM, balance, and neuromuscular control exercises to closed-chain and open-chain exercises within a period of ten days. The patient regained full mobility in her lower extremity easily and was also able to regain symmetric strength (involved leg/noninvolved leg x100%) (1) in her affected leg as compared to the noninvolved leg. In fact, the isometric closed-kinetic-chain strength assessment used rated her leg strength at 108% as compared to her opposite leg—meaning that she had greater strength in her affected than her nonaffected leg. She was discharged from formal physical therapy after week three and was able to return to full sports participation by week five.

As with all surgical procedures, the potential risks and benefits should be weighed. The patient in this case presentation underwent surgical removal of a pedunculated osteochondroma while her epiphyseal growth plates were open. While the surgery was a success, a recurrence of the osteochondroma led to the second surgical procedure. The patient and family were hesitant to undergo a second surgical treatment, but with the patient experiencing consistent pain during activities, and radiographic evidence of growth plate closure, they elected to do so. The patient progressed through recovery quickly and achieved an excellent short- and long-term outcome.

References

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