Avoiding commonly missed orthopaedic problems

Musculoskeletal injuries may result in chronic and disabling conditions if not diagnosed early and managed appropriately. Armed with an accurate history and a detailed examination, the family clinician can avoid the commonly missed diagnoses.

KIM SLATER
MB BS, FRACS

GEORGE N. ZOYS
MD

Dr Slater is a Consultant Orthopaedic Surgeon and Dr Zoys is a Visiting American Orthopaedic Surgeon at North Sydney Orthopaedic & Sports Medicine Centre, Crows Nest, NSW.

Achilles tendon rupture

A ruptured Achilles tendon is typically seen in men aged in their forties. They often describe a 'snap' or 'calf strain' while playing a ball sport, and may be walking with only a slight limp on presentation.

The diagnosis is a clinical one, and easily made using Thompson's test (Figure 1). The patient is examined prone, with both knees flexed to 90°. The musculotendinous portion of each calf is squeezed; if there is failure of the toes and foot to plantarflex, a rupture of the Achilles tendon is diagnosed. Often a palpable defect is present in the tendon, 4 to 6 cm from its insertion.

Figure 1. Thompson's test. Failure of the foot to plantarflex confirms complete rupture of the Achilles tendon.

The preferred treatment is surgical repair, unless firm contraindications are present (such as severe cardiac disease or diabetic peripheral neuropathy). The rate of re-rupture following nonoperative treatment is significantly higher, and weakness is a common problem. If the diagnosis is missed, the patient complains mostly of weakness and limping, and will require advanced surgical reconstructive procedures – recovery is then delayed and less satisfactory.

Talar dome lesions

Talar dome lesions represent chip fractures of cartilage or bone from the articular surface of the ankle bone (talus). Since CT scanning and MRI have become widely used, these lesions have appeared to be more common than previously recognised, occurring in 2 to 6% of ankle sprains.

The key to suspecting a talar dome lesion is the patient's description of an inability to bear weight after an ankle sprain, with severe pain lasting from

IN SUMMARY

- **Suspect a talar dome lesion in a sprain that fails to improve as expected.**
- **Hand and wrist injuries are commonly overlooked because they are not totally disabling. The scaphoid is the most frequently fractured carpal bone.**
- **A delay in diagnosis of an ulnar collateral ligament injury leads to less satisfactory results than early surgical repair. Persistent painful thumb instability can result and compromise grip.**
- **Think of the hip in an adolescent presenting with knee pain. A missed slipped upper femoral epiphysis can have potentially disastrous consequences.**

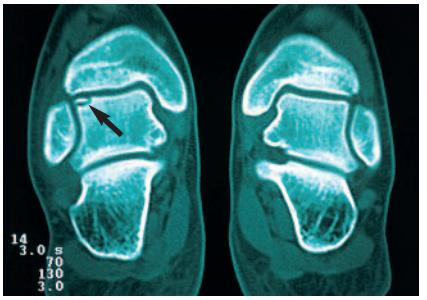
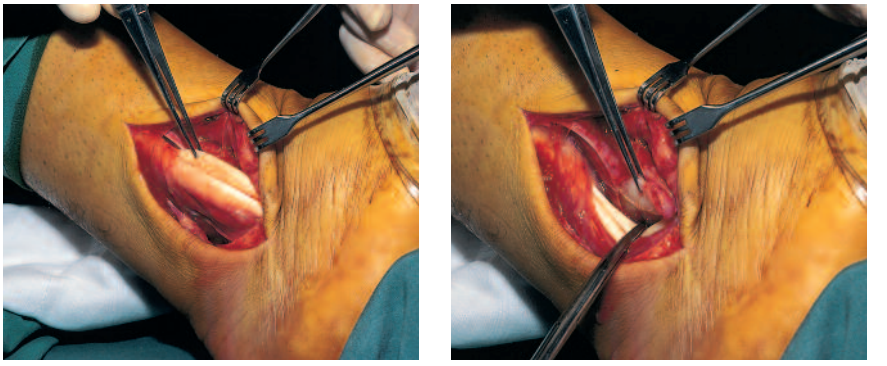


Figure 2. This patient has a lateral talar dome lesion that is clearly seen on a CT scan (arrow) but was not visible on initial radiography. Suspect this injury in a sprain that fails to improve as expected.



Figures 3a and b. Dislocation of both peroneal tendons around the fibula seen at surgery. This patient was a skier who complained of painful flicking on the outer aspect of his ankle. a (left). Dislocated peroneal tendons. b (right). The normal position of the tendons.

minutes to days. If radiographs are normal but clinical suspicion is strong (for example, if an ankle sprain is not recovering as expected), nuclear imaging and CT scanning or MRI will confirm or exclude the diagnosis (Figure 2).

Treatment depends on the stage of the lesion. Symptomatic lesions are generally best treated with arthroscopic surgery, and studies have shown that the earlier the diagnosis and treatment, the better the result of surgery.

Dislocating peroneal tendons

Dislocating peroneal tendons disrupt the strong retinaculum that holds them firmly behind the fibula, and the patient generally describes a painful 'flicking' or 'clicking' on the lateral aspect of the ankle. The most common cause is skiing.

Resisted eversion may reproduce the subluxation or dislocation on examination. Rarely, radiographs reveal a bony flake avulsion fracture from the tip of the fibula. Surgery is the recommended treatment (Figures 3a and b).

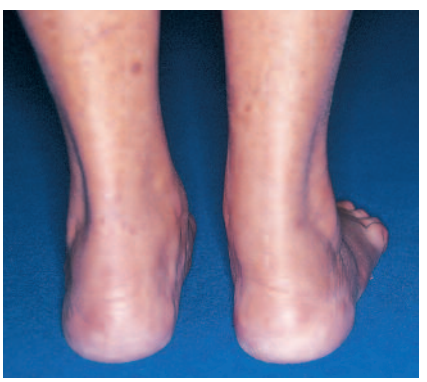
Tibialis posterior tendon dysfunction

Dysfunction of the tibialis posterior tendon is a common condition that is usually seen in women aged in their fifties or sixties. It has a poor prognosis if left untreated.

Patients complain initially of medial ankle pain, swelling or soreness, and weakness. Often the 'too many toes' sign is seen – that is, more of the lesser toes being visible on the affected side when the standing patient is viewed from behind (see Figure 4a). The effect is increased forefoot abduction and hindfoot eversion resulting from dysfunction of the tibialis posterior tendon; however, many other conditions can account for the sign, and its presence is therefore not a reliable marker for this condition.

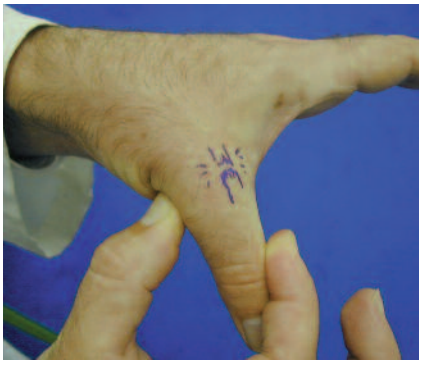
The most reliable clinical test for dysfunction of the tibialis posterior tendon is an attempted single heel raise. When the patient is viewed from behind, the affected heel fails to invert normally as the patient attempts to stand on tip toes. Often the pain is so severe that the patient is unable to heel raise at all. Clinical suspicion can be confirmed by ultrasound or MRI.

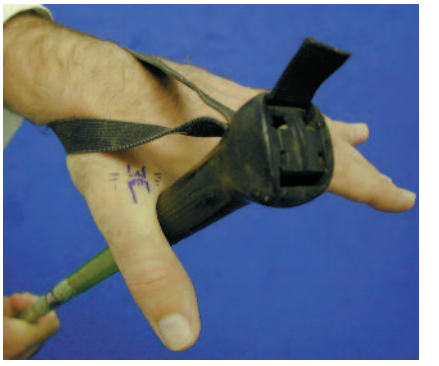
All stages of tibialis posterior tendon dysfunction can be treated initially with nonoperative treatments, such as rest, orthotic devices (see Figure 4b), braces or anti-inflammatory agents, but various surgical options are available if these fail (depending on the stage of involvement). Results of nonoperative treatment are less encouraging if deformity has occurred or subfibular impingement pain has begun, and the surgeon may need to resort to bony procedures rather than soft tissue reconstruction.



Figures 4a and b. a (left). A painful flat foot deformity in middle age caused by tibialis posterior tendon dysfunction. b (right). Orthoses may give relief, but ongoing problems frequently require surgery.

Figure 5. Clinical suspicion leads to the diagnosis of a scaphoid fracture, with firm pressure in the anatomical snuff box eliciting pain.





Figures 6a and b. Ulnar collateral ligament injury, which is known as skier's thumb. a (centre). Forced abduction of the thumb may result in rupture of the ulnar collateral ligament. b (right). The strap of a ski pole abducting the base of the thumb.

Scaphoid fractures of the wrist

Injuries to the scaphoid bone are usually caused by a fall onto an outstretched hand causing distal radial-sided wrist pain. Firm pressure in the anatomical snuff box can reproduce the pain (Figure 5). Prompt diagnosis and treatment reduce the time to recovery and risk of nonunion that leads to early arthritis of the wrist. Note that fractures in the middle or proximal one-thirds of the scaphoid have an increased risk of nonunion because the blood supply is poorer in these parts of the bone.

When the diagnosis is suspected, radiology will be required and specific scaphoid views should be requested (special views in ulnar deviation). However, even if the radiographs are reported to be normal, a fracture may still exist – if suspicion remains the patient should be managed in a thumb spica splint or a temporary scaphoid cast prior to repeat radiography in approximately 10 days. If pain persists but x-rays are still normal, a nuclear bone scan should be considered – if the scan is positive for a scaphoid fracture, immobilisation in a scaphoid cast for up to six weeks is the preferred treatment.

Some of these injuries are sinister, and will only later develop problems, such as painful disability and arthritis. Therefore, all scaphoid fractures should be reviewed with x-rays at six and 12 months after injury to rule out delayed complications leading to arthritis.

Ulnar collateral ligament injury

This injury is relatively common in skiers and frequently overlooked. Typically, a sudden abduction force transmitted by a planted ski pole forces the ulnar collateral ligament of the metacarpophalangeal joint to rupture or its bony attachment to be avulsed (Figures 6a and b). Comparison with the contralateral side will lead to the diagnosis if 20 to 30% more laxity in the injured thumb is evident.

Radiography should be performed if the diagnosis is suspected because management of a bony avulsion is more likely to require surgical stabilisation. Partial disruptions do well with splinting; however, complete ruptures require surgery for optimal results. Referral to a hand surgeon is advisable if an ulnar collateral ligament injury is confirmed.

Anterior cruciate ligament injury

Any twisting or pivoting knee injury that results in pain and swelling should be considered an anterior cruciate ligament disruption until proven otherwise. Often the patient is involved in a ball sport, and describes a loud 'pop' or 'crack' at the time of the injury.

Examination in the hours and days after injury shows moderate to severe swelling, and an assessment of stability can be difficult because of hamstring spasm. Repeat examination after a week may reveal a positive Lachmann test (Figure 7). Firm anterior pressure is applied on the posterior aspect of the upper tibia with the knee in 15 to 20º of flexion. In a normal knee, this pressure results in a firm endpoint as the anterior cruciate ligament is tightened. If disruption has occurred, the endpoint is not felt, and excess tibiofemoral translation is present.

Figure 7. The Lachmann test for anterior cruciate ligament injury.

The resumption of ball sports in an anterior cruciate deficient-knee frequently results in recurrent episodes of knee instability. Most patients prefer surgical reconstruction to the use of a brace to control instability. More than 50% of patients with an anterior cruciate ligament disruption also have sustained meniscal damage. There is a significantly greater

continued

Figure 8a (left). This young man presented with left knee pain, and has the usual body shape of a young male with a slipped upper femoral epiphysis. Excessive external rotation can be seen on the left side.
Figure 8b (above). The slip can be seen in the left hip, which has been pinned *in situ*. Prophylactic pinning of the right hip has also been performed.

incidence of post-traumatic arthritis in the knee following meniscectomy; the rationale for reconstruction is based on this fact and the need to control instability, which limits the patient's ability to participate in ball sports and to negotiate daily activities without instability.

Slipped upper femoral epiphysis

In adolescents with knee pain, think of the hip. A patient with a slipped upper femoral epiphysis commonly presents with a history of knee pain, although the hip itself may be symptom-free. For this reason the diagnosis is often delayed, with potentially disastrous consequences. Severe slips may result in a restricted range of motion, avascular necrosis of the femoral head and eventual arthritis in adulthood, so early diagnosis is essential.

Adolescent males are affected more commonly than females; often, patients are obese and complain of hip or knee pain and limping. Examination generally reveals limited internal rotation of the hip, especially with hip flexion (Figure 8a); quality radiographs will usually confirm the diagnosis. Both hips should be examined carefully because the incidence of bilateral involvement is 25%.

Surgical pinning (screwing) is the preferred treatment (Figure 8b). If significant displacement has already occurred, osteotomy may be required later.

Final comments

The management of commonly seen orthopaedic conditions is based on sound principles. By committing the simple lessons described in this article to memory, the family doctor can avoid the pitfalls associated with these commonly missed orthopaedic problems. MT

Further reading

1. Baxter DE. The foot and ankle in sport. St Louis: Mosby, 1995.
2. Mack GR, Bosse MJ, Gelberman RH, Yu E. The natural history of scaphoid non-union. J Bone Joint Surg Am 1984; 66(4): 504-509.
3. Musnarafich RS, Bassin YR, Atiyeh BS. Ulnar collateral ligament rupture of the first metacarpophalangeal joint: a frequently missed injury in the emergency department. J Emerg Med 1997; 15(2): 193-196.
4. Gersoff WK, Clancy WG Jr. Diagnosis of acute and chronic anterior cruciate ligament tears. Clin Sports Med 1988; 7(4): 727-738.
5. Causey AL, Smith ER, Donaldson JJ, Kendig RJ, Fisher LC 3rd. Missed slipped capital femoral epiphysis: illustrative cases and a review. J Emerg Med 1995; 13(2): 175-189.