Technical Note

New Posteromedial Portal for Ankle Arthroscopy

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Abstract: We describe a new posteromedial portal through the bed of the posterior tibial tendon. It can be made easily with a 0.5-inch posteromedial skin incision along the course of the posterior tibial tendon just behind the posterior colliculus of the medial malleolus. After the flexor retinaculum is incised and the posterior tibial tendon is retracted anteriorly, a small bulging area of capsule can be seen as a result of saline inflation. The new posteromedial portal can then be made easily through this inflated capsule. This portal allows good access to the posterior joint surface and has a minimal risk of injury to the medial neurovascular bundle. Key Words: Ankle arthroscopy—Posteromedial portal.

The clinical use of ankle arthroscopy for diagnosis and treatment of foot and ankle disorders has increased over the last few decades. Although as many as 14 ankle arthroscopy portals have been described, the anteromedial, anterolateral, and occasionally, the posterolateral portals are the most commonly used. However, the posteromedial portal has generally not been recommended by many authors because there is significant risk of injury to the medial neurovascular structures during instrument penetration. We report a new portal, the new posteromedial portal, through the bed of the posterior tibial tendon at the medial ankle joint line.

SURGICAL TECHNIQUE

Place the patient in the prone position under anesthesia, inflate the tourniquet, and outline the bony landmarks: medial and lateral malleolar tips and the joint line. Make a 0.5-inch posteromedial skin incision for the new posteromedial portal through the bed of the posterior tibial tendon, just posterior to the posterior colliculus of the medial malleolus. After the flexor retinaculum is incised vertically and the posterior tibial tendon is retracted anteriorly, inflate the joint space with 20 mL of normal saline solution. A small bulging area of capsule can then be identified as a result of saline inflation, and the posteromedial cannula can be inserted through the inflated capsule (Fig 1).

After the new posteromedial portal is established, make the posterolateral portal at the level or slightly above the tip of the lateral malleolus, just lateral to the Achilles tendon. The arthroscopic procedure is performed by means of the new posteromedial and the posterolateral portals. The tendon sheath is repaired and the skin is closed after the procedure.

Case Report

A 29-year-old man developed posterior ankle pain of his right ankle over a period of 1 year. On physical examination, there was pain on palpation of the posterolateral aspect of the ankle joint. Plantar flexion was associated with marked pain in the posterior aspect of the ankle joint. He had normal range of motion. A radiograph revealed osteophytes of the posterior distal lip of the tibia, a loose body in the posterolateral joint space, and impingement during...
plantar flexion. Magnetic resonance imaging showed prominent osteophytes of the posterior tibial plafond with a loose body in the posterolateral surface of the joint capsule.

Arthroscopy was performed using the new posterior-medial portal through the bed of the posterior tibial tendon and it revealed a loose body, hypertrophic fibrotic tissue, and osteophytes of the distal lip of tibia. We resected the osteophytes and removed the loose body with the instrument in the posterolateral portal. Three months after arthroscopic surgery, the patient’s chronic ankle pain was resolved and there was no impingement.

**DISCUSSION**

The overall complication rate of ankle arthroscopy ranges from 7% to 17%; Ferkel et al.\(^4\) reported a 9% complication rate in 612 ankle arthroscopies. The most common cause is neurologic.\(^4\) The posteromedial portal is seldom used because of potential risk to the medial neurovascular bundle. However, if there are disorders of the posterior compartment of the ankle joint, it is sometimes difficult to reach the posterior compartment from the conventional anterior portals, even with the posterolateral portal. Therefore, we have felt keenly the need for a safer posteromedial portal. Some anatomic studies have been carried out to find new portals that are relatively safe from neurovascular injury.\(^5,7\) A modified posteromedial portal\(^6\) and coaxial portal\(^7\) have been introduced from cadaveric studies. However, the former is not completely free from potential neurovascular injury, and the latter has the possibility of posterior tibial tendon injury during instrument passage.

We have found that our new posteromedial portal is almost completely free from the potential risk of injury to the medial neurovascular bundle and offers easy access, as well as a better view inside the posterior compartment of the ankle. We recognize the limitations of our new portal, which may have the possibility of posterior tibial tendon problems, but we did not find this to be a problem. Clinically, our new portal is safe, accessible, effective, and offers an excellent view of the posterior joint space.

**REFERENCES**