Subtalar Arthroscopy
Indications, Technique and Results

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KEYWORDS

• Hindfoot • Subtalar joint • Sinus tarsi syndrome • Posttraumatic ankle pain
• Subtalar osteochondral lesion • Os trigonum • Subtalar synovitis
• Subtalar arthroscopy

KEY POINTS

- Because of its complex anatomy, subtalar pathologic conditions are a challenge to diagnose and treat.
- Surgical management is considered after an appropriate trial of conservative treatment has failed.
- Subtalar arthroscopy has evolved as an important tool in the study and treatment of numerous subtalar pathologic conditions, particularly sinus tarsi syndrome.
- Although results have been encouraging, further technique and instrument development and long-term studies are needed to improve and validate subtalar arthroscopy.

INTRODUCTION: NATURE OF THE PROBLEM

Traditional open hindfoot surgery can have a relatively high complication rate because of the special soft tissue characteristics that surround the subtalar joint. Currently, small joint arthroscopic procedures including the subtalar joint have evolved and expanded in its indications, thereby reducing complications attributed to open surgical techniques. Improved techniques, increased surgeon experience, and the development of specialized small joint instrumentation have permitted minimally invasive subtalar surgery to address many hindfoot pathologic conditions.

One of the initial challenges with subtalar arthroscopic techniques is the anatomic disposition of the articular facets, especially the posterior joint that runs semi–concave-convex in 2 planes. This joint provides a narrow space in which to work. These issues require a long learning curve for the surgeon to acquire the necessary skills to safely and effectively operate in this zone.

The authors have nothing to disclose.
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Foot Ankle Clin N Am 20 (2015) 93–108
http://dx.doi.org/10.1016/j.fcl.2014.10.010 **foot.theclinics.com**
1083-7515/15/$ – see front matter

Although a relatively small number of reports on subtalar arthroscopy exists in the literature, they have described their arthroscopic findings, confirmed a similar range of pathologic conditions that affect other joints, and developed procedures to address these conditions. They also identified separate clinical identities to treat. For example, sinus tarsi syndrome was considered a vague preoperative diagnosis that corresponded to different entities, for which available imaging tools were not able to delineate its origin.

For other known pathologic conditions, such as subtalar arthrosis, osteochondral lesions, chronic synovitis, chondromalacia, arthrofibrosis, osteophytes, loose bodies, os trigonum syndrome, and others, imaging modalities including MRI, computed tomography (CT), and single-photon emission CT (SPECT-CT) have better accuracy in diagnosis. Anesthetic injections continue to play a predominant role in differentiating pain between the ankle and subtalar joint and surrounding soft tissues.

INDICATIONS/CONTRAINDICATIONS

Subtalar arthroscopy is used as a diagnostic and therapeutic tool for intra- or extra-articular pathologic conditions when they are resistant to conservative treatment. Indications include a persistent subtalar pain, subtalar impingement, chronic synovitis, debridement and treatment of cartilage defects and cystic lesions, removal of osteophytes, release of adhesion in arthrofibrosis, removal of loose bodies, evaluation and reduction of hindfoot fractures, arthroscopic arthrodesis of subtalar joint, and removal of posterior facet talocalcaneal coalition (**Box 1**).[1,2]

With sinus tarsi syndrome, a more accurate diagnosis can be made with this procedure, improving the treatment plan. Ahn and coworkers[3] operated on 31 patients with a preoperative diagnosis of sinus tarsi syndrome that changed at the time of arthroscopy. The postoperative diagnoses included interosseous ligament tears (32%), mild degenerative arthritis (16%), intra-articular loose body (16%), osteochondral fractures (23%), and fibrous coalition (13%). In another study with 33 consecutive cases (mean follow-up, 24 months), arthroscopic findings showed partial tear of the interosseous talocalcaneal ligament in 29 cases, synovitis in 18, partial tear of the cervical ligament in 11, arthrofibrosis in 8, and soft-tissue impingement in 7. The mean visual analog scale score improved from 7.3 points preoperatively to 2.7 points postoperatively, and the mean American Orthopaedic Foot and Ankle Society (AOFAS) Ankle-Hindfoot Score improved from 43.1 points preoperatively to 86.2 points postoperatively, with 87% excellent and good results (**Fig. 1**).[4]

Box 1
Indications and procedures

Indication	Procedure
Persistent subtalar pain	Inspection
Soft tissue subtalar impingement (usually scared ligaments)	Tissue removal
Chronic synovitis	Synovectomy
Osteochondral lesion	Debridement, drilling, and microfractures
Symptomatic subtalar coalition	Coalition removal if possible or arthrodesis
Arthrofibrosis	Arthrofibrolysis
Loose bodies	Bodies removal
Control of articular internal fixation	
Degenerative articular disease	Debridement when useful or athrodesis
Os trigonum syndrome	Excision