

Small Joint Arthroscopy in the Foot



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KEYWORDS

- Arthroscopy • Small joint • Foot • First metatarsophalangeal joint
- Lesser metatarsal joints • Calcaneal cuboid joint • Talonavicular joint

KEY POINTS

- Arthroscopy has advanced in the foot and ankle realm, leading to new innovative techniques designed toward treatment of small joint abnormality.
- A range of abnormalities that are currently widespread for arthroscopic treatment in larger joints continues to be translated to congruent modalities in the small joints.
- Small joint arthroscopy offers relief from foot ailments with a noninvasive element afforded by arthroscopy.
- Early studies have found comparable results from arthroscopic soft tissue procedures as well as arthrodesis of the small joints when compared with the standard open approach.

INTRODUCTION

From its initial inception in the 1920s by Takagi¹ to investigate a knee infected with tuberculosis, and later refinement by Watanabe² with the advent of 2.2-mm and 1.7-mm fiber optic hardware, arthroscopy has made significant advancements toward a viable alternative for many open surgical interventions to correct pathologic processes in the body. As discussed by Oloff and colleagues,³ the application of

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arthroscopy in the wrist has been detailed for some time, with a substantial deferment in correlative usage in the foot comparatively. Although used and embraced much later, arthroscopy in the foot and ankle has become a mainstay of treatment for the modern foot and ankle surgeon. Arthroscopy continues to break barriers with pioneers forging ahead, using new technique enhancements that have allowed the practice to progress with a focus on more advanced pathologic evaluation and treatment in the foot, including hallux abducto valgus, hallux limitus and rigidus, synovitis of the metatarsophalangeal joints, and arthritis throughout the Chopart joint. In short, arthroscopy is a minimally invasive alternative to open procedural techniques that can be wielded as a powerful tool. If used properly and safely, this modality can provide excellent outcomes for the patient with faster healing times and decreased risk of complications.

HISTORY

Watanabe² in 1972 first described first metatarsophalangeal joint arthroscopy; since then, other authors have described treatment options that have provided patients with success. In 1996, Oloff and colleagues³ described the results of a case series involving the diagnostic and therapeutic follow-up results of talonavicular and calcaneocuboid arthroscopy with good results. Details of safe access to the talonavicular joint were described by Hammond and colleagues⁴ in 2011. They found that adequate debridement necessary for arthrodesis of this joint was feasible with a 2-portal technique.

INDICATIONS

Patient selection is always an important factor to take into consideration with arthroscopic intervention. Contraindications would include patients with poor arterial blood flow and cases where the procedure would be better performed as an open procedure. Also, there are specific abnormalities that can be addressed with arthroscopy. As arthroscopy of the foot and ankle becomes more commonplace, the type and complexity correctable abnormality by arthroscopy will broaden. Acceptance of arthroscopy in the ankle, subtalar joint, and first metatarsophalangeal joint is commonplace. However, the remaining lesser joints in the foot have scant literature on methodology and recommendations for surgical technique.⁵ It is advised that a surgeon confident in their skills attempt an arthroscopic treatment for these less frequently attempted anatomic joints. A less experienced surgeon would be better suited to proceed with an open procedure, due to more exposure and practice in traditional training programs. In this case, an open procedure would theoretically have more risk of complications, but due to a lack of experience, would be more predictable in long-term results.

Indications for the first metatarsophalangeal joint arthroscopy include but are not limited to hallux rigidus, hallux valgus, arthrodesis, and joint synovectomy. There have been case reports listed for the treatment of arthrofibrosis, osteochondritis dissecans, and gout.⁶⁻⁸ Similar indications are present for the lesser metatarsophalangeal joints and Chopart joint.^{3,4}

PREOPERATIVE PLANNING

In order to optimize the potential outcomes of a procedure, many factors should be considered. An intimate anatomic knowledge of the foot, and particularly that around the joints involved with the arthroscopic portal sites, is of paramount importance. Neurovascular and tendinous tracts should be well understood and marked before any

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