

# Foot and Ankle Surgery

## Common Problems and Solutions



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### KEYWORDS

- Arthroscopy • Complications • Sports • Ankle joint • Achilles tendon • Instability
- Infection

### KEY POINTS

- Complication rates in foot and ankle arthroscopy are slightly higher compared with other joint arthroscopies. The anatomy of the foot and ankle is surrounded by subcutaneous structures that are at risk, and a narrow joint space contributes to the risk of complications. Most of them are minor and neurologic.
- Ankle sprains contribute to chronic lateral ankle instability. After surgical treatment, recurrent instability is the main concern and has been reported in acute and delayed repairs. To prevent recurrence, associated disorders must be assessed and treated within the same procedure if required.
- Wound complications after Achilles tendon repair can be significant generating negative long-term consequences. There are patient and procedure-related risk factors. Optimal conditions in terms of patient health and soft tissue status need to be considered to assure decreased rate of wound-related complications.

### INTRODUCTION

Daily participation in sports and exercise in adults within the American population has increased significantly during the last decade. In competitive sport participation, injuries to the foot and ankle are the most common cause of time lost from sports.<sup>1</sup> Many of these injuries require surgical management but also, because of the spectrum of severity, understanding the pathophysiology and individualizing treatment are paramount.

Common foot and ankle injuries requiring surgical treatment include ankle instability (ankle sprains), tendon ruptures (most commonly Achilles), syndesmotric injuries, Lisfranc injuries, and high-risk stress fractures. In many of these injuries, arthroscopic techniques are used. Although the rate of complications among this type of operative

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procedure is very low, foot and ankle and sports medicine surgeons should be acutely aware of their prevention, presentation, and effective management.

This article addresses these most frequent complications, in conjunction with the most commonly performed procedures in foot and ankle–related sport injuries.

## FOOT AND ANKLE ARTHROSCOPY

Ankle arthroscopy was published as a surgical method by Takagi in 1939,<sup>2</sup> but it was not until the 1970s when arthroscopy became an important diagnostic and treatment tool for orthopedic surgeons.<sup>3</sup> Complication rates in foot and ankle arthroscopy vary from 6.8% to 9.8%.<sup>4,5</sup> Most of them are minor or neurologic and are caused by the procedure. The most common complications in foot and ankle arthroscopy are described in **Box 1**.

### *Neurologic Injuries*

Neurovascular structures can be injured during the procedure because of improper portal placement, prolonged or inappropriate distraction, and extensive tourniquet use. The most common injured nerves are the superficial peroneal nerve because of its varied anatomic anterolateral ankle joint location, and the sural nerve because of its posterolateral location (**Figs. 1** and **2**). These injuries are usually associated with portal placement and at times with inappropriate or prolonged distraction.<sup>6,7</sup> Most of the nerve injuries are temporary paresthesias that resolve over time, but permanent paresis or paresthesias have been reported in a small number of patients.<sup>4</sup>

In order to minimize the risk of injury, surgeons should use vertical skin incisions for portals at the ankle because all structures longitudinally cross the ankle joint. Using a hemostat to spread the subcutaneous tissue avoids injury even if adjacent to a tendon or neurovascular structure. A protective interchangeable cannula helps to decrease the risk of repetitive soft tissue injury, including to neurovascular structures.

### *Tendon and Ligament Injuries*

The numerous tendons and ligaments crossing the ankle and foot can easily be injured during portal and pin distraction placement (see **Fig. 1**). The use of a trans-Achilles portal during posterior arthroscopy is abandoned because it is

#### **Box 1**

#### **Complications of ankle arthroscopy**

- Tourniquet complications
- Neurovascular injury
- Articular cartilage damage
- Wound complications
- Compartment syndrome
- Hemarthrosis
- Synovial fistula
- Tendon and ligament injury
- Stress fracture
- Deep vein thrombosis
- Complex regional pain syndrome
- Instrument breakage

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