In Which Position Do We Perform Arthroscopy of the Hindfoot—Supine or Prone?

Commentary on an article by Florian Nickisch, MD, et al.: “Postoperative Complications of Posterior Ankle and Hindfoot Arthroscopy”

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Over the last twenty-five years, hindfoot arthroscopy has evolved from a diagnostic tool to a therapeutic modality used to treat many intra-articular disorders. This procedure has always been performed with the patient in the supine position, utilizing the anteromedial, anterolateral, and posterolateral portals. The posteromedial portal was avoided because of difficult access and concerns about injury to the neurovascular structures.

In the mid-1990s, van Dijk, Amendola, and others introduced the concept of posterior hindfoot arthroscopy (PHA) performed with the patient in the prone position. This was stimulated by renewed interest in arthroscopically treating posterior ankle impingement, including removal of the os trigonum or Stieda process and other pathology. Since that time, there have been a number of reports on PHA, including its safety, indications, and results. As expertise with this procedure has improved, the indications for PHA have increased and include debridement and microfracture of osteochondral lesions of the talus, excision of the os trigonum, release of the flexor hallucis longus tendon, subtalar arthrodesis, and treatment of posttraumatic arthrofibrosis, calcaneal fractures, and Achilles tendon disorders.

However, two questions arise: How safe is the procedure, especially compared with arthroscopy with the patient in the supine position, and does PHA allow procedures to be performed that are not possible in the supine position? My colleagues and I published the largest analysis of complications of ankle arthroscopy to date, with an overall complication rate of 9%. Forty-nine percent of the complications were neurological in nature, but the technique included invasive distraction. Over the last ten to fifteen years, noninvasive distraction has replaced invasive techniques. Recently, Young et al. looked at complications of ankle arthroscopy utilizing noninvasive distraction in the supine position and found a complication rate of 6.8%, with 80% of these being neurological injuries. In the present paper on PHA, Nickisch et al. describe a complication rate of 8.5%, with 44% of these being neurological injuries. The PHA procedure appears to be relatively safe, with a low complication rate that is similar to those of previous arthroscopic procedures performed with the patient in the supine position. As they point out, the study does have limitations resulting from the heterogeneous patient population and the involvement of multiple surgeons at two different medical centers, as well as limitations involving the regression analysis. Ideally, the study should have been performed prospectively at a single center by a single surgeon. However, the complication rate did not vary between the inexperienced and experienced surgeons.

The role of PHA still needs to be clarified further. Should it be performed on every patient, or only on those who have documented posterior hindfoot and ankle pathology? How does the surgeon treat both anterior and posterior hindfoot pathology at the same setting—should the patient be turned and then prepared and draped again, or should the hindfoot arthroscopy be performed in the “upside down” position, as advocated by van Dijk? Clearly, the latter position should be reserved for the expert arthroscopist. In my own experience of over 2500 hindfoot arthroscopies, PHA is necessary in a small percentage of cases, suggesting that it is still a procedure that is not commonly performed and that needs to be studied further.

The disadvantages of PHA include the special equipment and techniques needed with prone positioning of the patient, a relatively steep learning curve, and difficulty performing simultaneous anterior ankle arthroscopy. Supine positioning during arthroscopy allows better access to both the anterior and posterior portions of the ankle, is easier to set up, and provides greater flexibility if conversion to an open procedure proves necessary. In addition, PHA usually requires removal of some normal soft tissue and ligaments that can be preserved during arthroscopy in the supine position. More recently, Amendola et al. have reintroduced the concept of invasive distraction into PHA; this would increase the potential for complications, as seen in our group’s original study of complications during ankle arthroscopy utilizing invasive distraction. When should invasive distraction be used, and what are the best techniques for arthroscopy in the prone position? In the future, these questions and others need to be answered to determine the ultimate role of PHA in the armamentarium of the orthopaedic surgeon.

Although techniques for foot and ankle arthroscopy have improved, the relatively high percentage of complications in all three previously cited series that were neurological emphasizes the great care that must be taken in performing these procedures.
with the patient either supine or prone. In addition, it highlights the importance of studying the anatomy and practicing these techniques in approved courses or laboratory settings before embarking on the techniques in the operating room. All surgeons should perfect their skills during arthroscopy with the patient in the supine position and then proceed to learn the prone position for hindfoot arthroscopy.

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