CLINICAL SIGNIFICANCE OF THE TUNNELING TECHNIQUE IN THE SURGICAL REMOVAL OF CALCANEAL EXOSTOSES

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Relevance of the topic. Calcaneal exostoses are among the most common orthopedic pathologies in the general population, presenting with pain syndrome and restricted mobility. In recent years, endoscopic osteophytectomy techniques have become widely used in their treatment. However, issues related to the anatomical positioning of ports and the angles of instrument insertion during surgery remain clinically significant.

In this regard, in recent years, the tunneling technique in endoscopic surgery — that is, the introduction of an operative port through a specially directed anatomical pathway — has gained particular importance (Morales et al., 2024; Hsu et al., 2025). This method allows for the creation of a targeted channel to the area of the exostosis without damaging the Achilles tendon, tibial nerve, or plantar fascia.

According to the study by Byun et al. (2023), the tunneling approach improves intraoperative anatomical accuracy, enhances visualization, and reduces soft tissue injury by up to 40%. Milanov et al. (2022) demonstrated that combining this method with radiofrequency ablation increases the efficiency of complete bone fragment removal within a shorter operation time.

Furthermore, the thermal safety and hemostatic parameters of the tunneling procedure have been established. Hsu et al. (2025) reported that when energy transmission is directed through the tunnel pathway, the temperature of the fascia and periosteum decreases by 10–15%, ensuring better tissue protection during surgery.

Clinically, endoscopic osteophytectomy performed via tunneling shortens the operation time, improves visual control, and accelerates pain relief. This method also reduces postoperative rehabilitation duration, minimizes complications (such as hematoma or fascial injury), and contributes to faster functional recovery.

Conclusion. The tunneling technique plays an important clinical role in the endoscopic removal of calcaneal exostoses. It provides an anatomically safe approach, improves intraoperative visualization, and reduces tissue trauma. The tunneling method represents a crucial step toward the development of a safe and standardized algorithm for endoscopic osteophytectomy of the heel region.

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