

ENDOSCOPIC SURGERY FOR THE TREATMENT AND DIAGNOSIS OF HAGLUND'S DEFORMITY AND ACHILLES BURSTITIS

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In presented article the history of terminology, the mechanism of occurrence of impingement syndrome with the appearance of bone exostosis and Achilles bursitis, and the first steps in the diagnosis and treatment of Haglund's deformity and Achilles bursitis are considered. The results of endoscopic treatment of 40 patients with Haglund's deformity and achilobursitis are described. Clinical methods and methods of radiation diagnostics were used to examine patients.

Keywords: Haglund's deformity, achillodentitis, achillobursitis, endoscopy, calcaneus, calcaneal tendon.

Introduction. According to the World Health Organization, heel pain occurs in 42.1% of the population and is an urgent problem in modern traumatology and orthopedics [1]. Various pathological changes in the heel region can be provoked by factors such as mechanical overload, impaired biomechanics of the joints, and occupational features [2].

One of the most common causes of heel pain is Haglund's deformity, an acquired deformity of the heel tubercle, which can lead to the development of inflammatory changes in the soft tissues of the retrocalcaneal region, chronic pain syndrome, and, as a result, ruptures of the Achilles tendon [3]. Haglund's syndrome includes a triad of retrocalcaneal bursitis (inflammation of bursa tendinis calcanei according to Terminologia anatomica), calcaneal deformities, and impingement tenopathy of the Achilles tendon. The disease is more common in women over 40 with bilateral lesions. The underlying cause is idiopathic; however, the condition is influenced by certain contributing factors [4]. C.N. Dijk et al., divide Achillodentia into Achilles tendonitis, acute and chronic paratendopathy, insertion achilles tendonopathy (insertional), posterior calcaneal bursitis, and superficial calcaneal bursitis [5, 6]. The pathogenesis of Haglund's deformity and Achilles bursitis is dominated by the bone component, which is

characterized by mild inflammation of the bursa, the deformity is hard when palpated, and the soft tissue component, the inflammation of the bursa is predominant, while the deformity will be soft to the touch [1, 5]. The main and most reliable method for diagnosing Haglund's deformity today is the standard lateral radiography of the calcaneus. An MRI of the ankle joint is recommended to determine the condition of the posterior bursa lesion. Diagnostic endoscopy makes it possible to visualize both the exostosis of the calcaneal tuber itself and degenerative changes in the posterior Achilles bursa, which can be considered the most effective method for diagnosing and treating Haglund's deformity and Achilles bursitis [5, 9]. During endoscopy, the location, size of the exostosis itself, the degree of change in the posterior Achilles bursa, the state of the Achilles tendon entesis, and the presence of impingement syndrome are checked. In the absence of these changes, endoscopic resection of exostosis of the calcaneal tuberosity and bursectomy of the Achilles tendon is meaningless, since it should be performed only in the case of a true impingement syndrome [2, 6-8].

The aim of this study is to analyze the results of endoscopic treatment of patients with Haglund's deformity and Achilles bursitis.

Material and methods. The present study is based on the experience of treating 40 patients with Haglund's deformity and Achilles bursitis, who were admitted to the Arthroscopy Department of the State Institution of the RSSPMCTandO from February to September 2022. The age of the patients ranged from 30 to 67 years. 28 of them are women, the remaining 12 are men. In 90.3% of cases, bilateral lesions of the feet occurred, pain syndrome was observed on the left in 78.4% of patients. There have been clinical cases with the simultaneous presence of plantar fasciitis. Patients generally associate the appearance of pain with wearing uncomfortable shoes and excessive load. All patients underwent the following research methods: clinical examination, standard lateral radiography and MRI examination of the ankle joint; endoscopic diagnostic method.

We consider the X-ray examination of both feet in two standard projections, anteroposterior and lateral, to be the fundamental method of radiodiagnosis. Radiographs can determine the shape of the calcaneal tuberosity, the presence of primary signs of calcaneal tendon calcification, the presence of Haglund's exostosis, differential diagnosis of os trigonum and other degenerative changes in the ankle and foot joints. In many works, the determination of the osteotomy angle of the osteophyte is confirmed by calculations after radiography. A. Fowler and J.F. Philip, but not always the presence of deformity was combined with the clinic. The Fowler-Phillip angle, which is formed by lines, one of which connects the anterior tuberosity of the heel and the medial edge of the plantar tuberosity of the heel and the second line passes through the calcaneal tuberosity and the place of attachment of the Achilles tendon. It is known that at an angle above 75° there is a clear correlation with a painful heel, and there is also Achilles bursitis and a pronounced calcaneal tuberosity. The heel angle, as well as the Fowler-Phillip angle, are of primary importance in the development of Achilles bursitis, as well as compensatory varus of the hindfoot, compensatory valgus of the forefoot, and rigid first ray in the state of plantar flexion [4, 8, 9].

MRI studies in coronal and sagittal sections determine the shape of the area of attachment of the calcaneal tendon, the measurement of linear dimensions. According to the results of measurements on coronal sections, the area of enthesitis is calculated, the condition of the calcaneal tendon is assessed, including in the area of its attachment, violations of its structure, edema of the surrounding soft tissues, inflammation of the posterior heel bursa, Haglund exostosis were revealed. After a thorough history taking, an objective examination of patients, a study of X-ray data, MRI and the ineffectiveness of conservative therapy, in order to make a final diagnosis and conduct surgical treatment, patients underwent endoscopic resection of the deformity and bursectomy according to the standard technique using Karl Storz equipment using 30° optics and a set of instruments. The choice of anesthesia was made jointly with the anesthesiologists. Surgical interventions were performed under spinal anesthesia.

The patient in the prone position, without a tourniquet, incisions were made 2-3 cm below the attachment of the Achilles tendon along the posterolateral surface of the ankle joint. The posterolateral and posteromedial approaches were used, while the second approach was made with a trocar by stretching the skin, which minimized vascular trauma and improved the endoscopic picture. An endoscope is inserted through the posterior-lateral access, while the posterior-medial access is used to introduce endoscopic instruments (probe, various nippers, endoscopic scissors, shaver, coagulator and other necessary tools) into the joint. In order to determine the localization of exostosis of the calcaneal tuber, an injection needle was used, and the condition of the retrocalcaneal bursa and Achilles tendon was assessed under endoscopic control. With the help of a shaver, the hyperplastic shell of the bag is removed, the inflamed exudate is evacuated with the help of suction, and the excised area is ablated with a coagulator. Excision of degenerative elements of the bag must be performed completely to healthy tissue, with the goal of preventing pain and recurrence. Next, the boundaries of exostosis are distinguished, the size and shape of the deformity are determined, and the presence of impingement syndrome is assessed due to flexion-extension movements. In the equinus position of the foot, the deformity is resected using a drill-shaver, and all bone chips are removed, followed by hemostasis of the site of the removed exostosis, which prevents complications in the early postoperative period. Intraoperatively, under the control of an image intensifier tube, the absence or presence of residual deformity is assessed, with the latter, a drill-shaver is additionally performed. In order to smooth the removed area, a rasp is used. The criterion for the sufficiency of the resection volume was the absence of impact between the calcaneal tendon and the calcaneal tuberosity.

In the postoperative period, the patient is put on an elastic bandage on the ankle joint in the equinus position. Local application of cooling agents. Verticalization of the patient is allowed the next day, anti-edematous, antibacterial and anti-inflammatory therapy is recommended.

Results and its discussion. In the postoperative period, all patients noted a decrease and disappearance of pain and an improvement in the function of the ankle joint.

The assessment of joint function was determined by the AOFAS midfoot system, so an excellent result (81.8%) included patients who had no pain syndrome, no need for supportive devices and special requirements for shoes and surfaces, with a maximum walking distance and without gait disturbance. A good result was (18.2%). Many authors note the high efficiency of endoscopic resection with the complete elimination of the impingement syndrome, but cosmetically, the deformity does not disappear immediately, due to the presence of effusion with the predominance of the soft tissue component before surgery.

None of the patients had degenerative changes or ruptures of the Achilles tendon, highlighting the need for pre-operative MRI examination and exercise testing. It is very important to note that there was no iatrogenic disruption of the Achilles tendon. To date, in such cases, the SpeedBridge technique is used, which consists in transplanting the Achilles tendon. All patients had hyperplasia and hypertrophy of the posterior bursa, as a result of the impingement syndrome and a persistent inflammatory process. One patient underwent an open marginal resection, due to the high BMI, intraoperatively lying on the stomach increased blood pressure. Purulent-inflammatory complication was also observed in this patient. The pain syndrome disappeared after 2 months, which means that the open correction shows good results, but there is a risk of an inflammatory process, due to the location and size of the postoperative wound.

Clinical example 1. Patient P., born in 1979. Diagnosis: Haglund's deformity of both heel bones, Achilles bursitis on the left. He complained of aching pain behind the calcaneus, increased pain when bending the ankle joint, the presence of a bump. When examining a bump on the posterior surface of the ankle joint, palpation is painful, there is hypotonicity of the muscles of the lower leg, signs of damage to the calcaneal tendon were not detected. From the anamnesis, complaints have been disturbing for about 6 months, associated with

wearing shoes with a hard tongue. On the lateral radiographs, there is a bone outgrowth in the area of the calcaneal tuberosity; on the MRI picture, the presence of inflammatory exudate, Achilles bursitis, and rupture of the Achilles tendon is not noted.

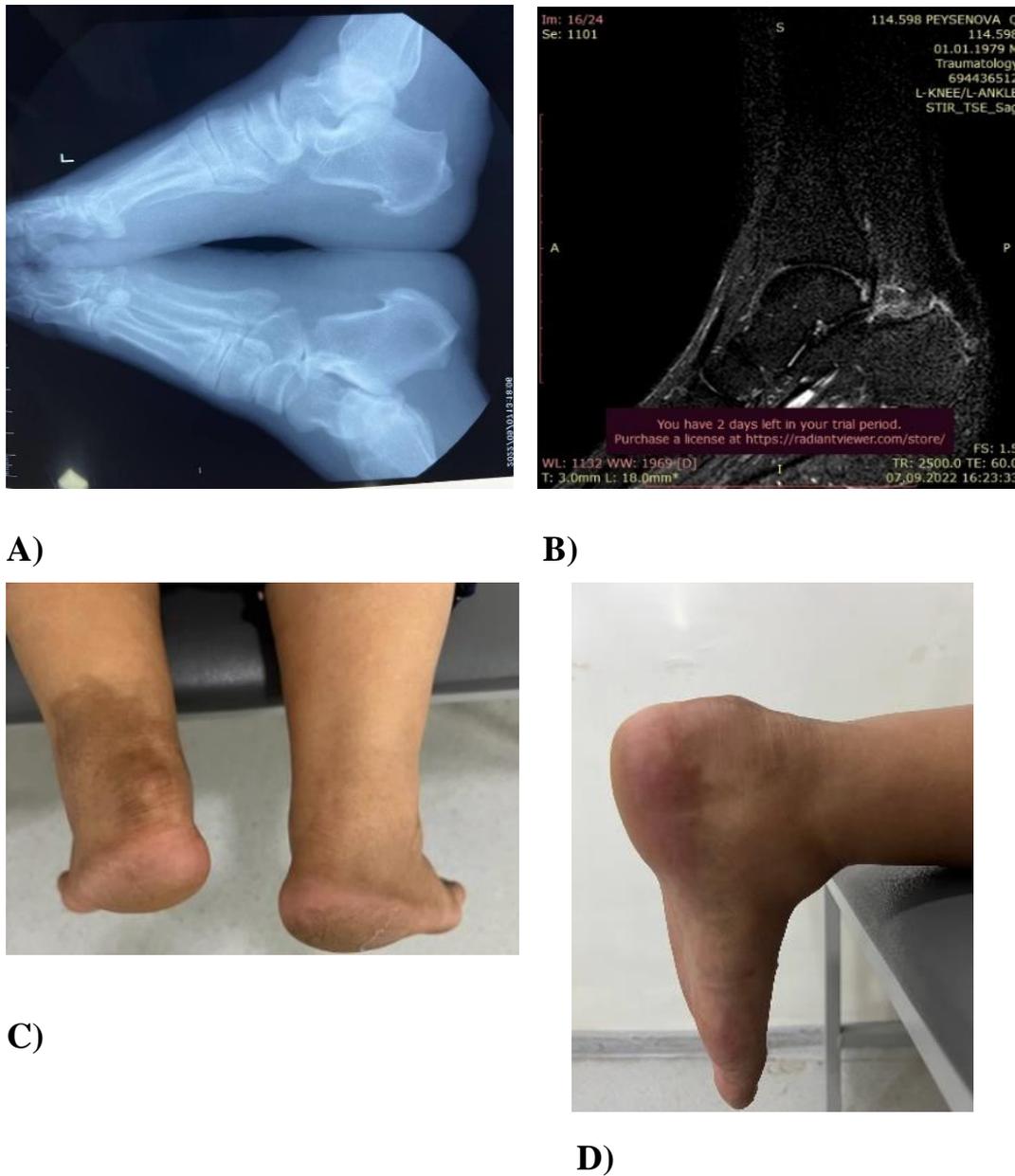


Fig. 1. Haglund's deformity and Achilles bursitis. A) X-ray and B) MRI picture. C and D) Clinical view.

Based on the anamnesis, complaints, clinical data of radiography and MRI, the patient underwent endoscopic resection of the deformity and bursectomy of the Achilles tendon. Under spinal anesthesia produced postero-lateral and

postero-medial access. With the help of a needle-tap, the localization of exostosis is determined. Shaving of the inflamed posterior bursa, bursectomy and ablation with a coagulator. Then endoscopic resection of the deformity with a drill-shaver. (Fig. 2).



A)



B)



C)



D)

Fig. 2. Steps of surgical procedure. A) access, B) needle tap, C) ablation, D) shaving.

On the first day after the operation, there is no pain syndrome, edema due to filling the space behind the heel with saline. (Fig. 3).

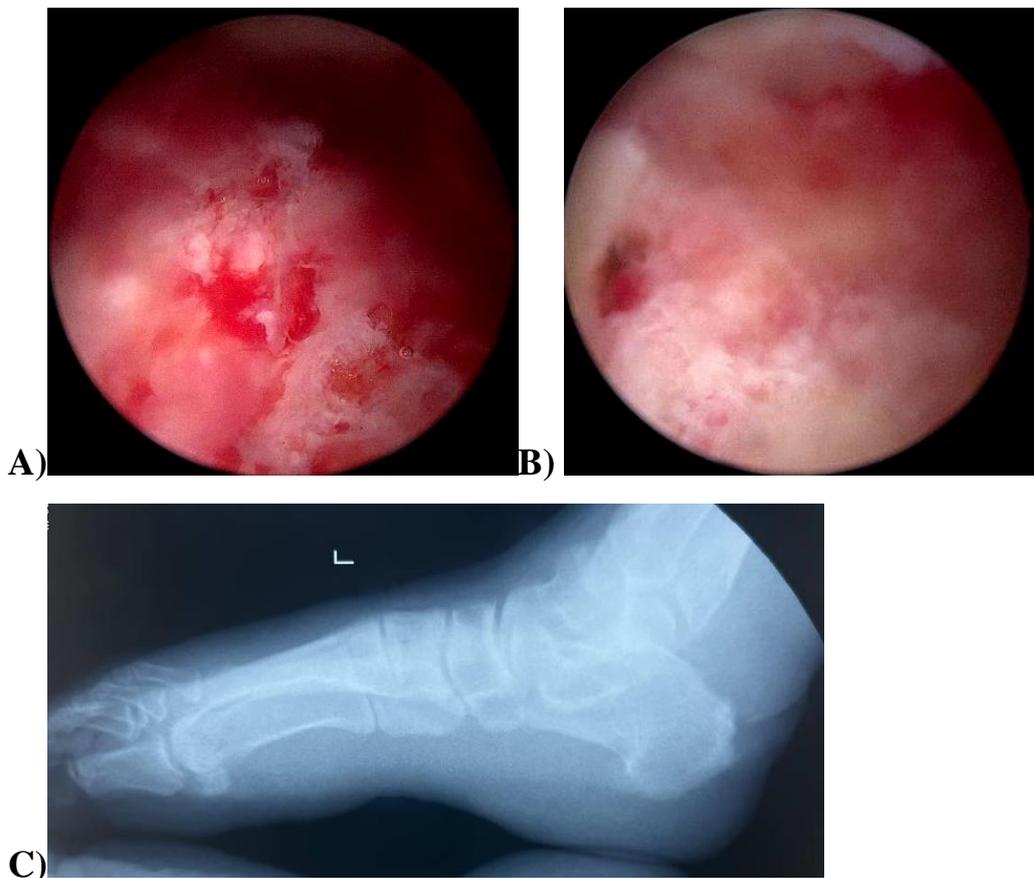


Fig. 3. Haglund's deformity after resection. A) Endoscopic view of deformity, B) Endoscopic view after resection, C) X-ray image after resection.

The patient was discharged 3 days after surgery in a satisfactory condition. With repeated treatment of the patient, an improvement in the quality of life was noted. The average time for patients to return to their previous level of activity after surgery averaged 2 months (from 4 to 11 weeks), taking into account the period of rehabilitation after surgery and the therapy, which included physiotherapy exercises and anti-inflammatory drugs. The effectiveness of endoscopic treatment was evaluated clinically for a period of 8 weeks to 3 months after surgery (immediate result). Patients who had no complaints, had negative symptoms, and were able to return to daily life were classified as positive clinical outcomes.

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РЕЗЮМЕ

ПРИМЕНЕНИЕ ЭНДОСКОПИЧЕСКОЙ ХИРУРГИИ ПРИ ЛЕЧЕНИИ И ДИАГНОСТИКИ ДЕФОРМАЦИИ ХАГЛУНДА И АХИЛЛОБУРСИТА

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В представленной статье рассматривается история терминологии, механизм возникновения импинджмент синдрома с появлением костного экзостоза и ахиллобурсита и первые шаги в диагностике и лечении деформации Хаглунда и ахиллобурсита. Описываются результаты эндоскопического лечения 40 пациентов с деформацией Хаглунда и ахиллобурситом. Для обследования пациентов применены клинические методы исследования и методы лучевой диагностики.

Ключевые слова: деформация Хаглунда, ахиллоденит, ахиллобурсит, эндоскопия, пяточная кость, пяточное сухожилие.

XÜLASƏ

HAQLUND DEFORMASIYASI VƏ AXILLOBURSITİN DİAQNOSTİKASI VƏ MÜALİCƏSİNDƏ ENDOSKOPIK CƏRRAHIYYƏNİN TƏTBİQİ

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Təqdim edilmiş məqalədə terminologiyanın tarixi, sümük ekzostoza və axillobursitin yaranması ilə impinment sindromun inkişaf mexanizmi, Haqlund deformasiyası və axillobursitin diaqnostika və müalicəsində ilkin addımlar nəzərdən keçirilir. Haqlund deformasiyası və axillobursit ilə 40 pasiyentin endoskopik müalicəsinin nəticələri təsvir edilir. Pasiyentlərin müayinəsi üçün klinik metodlar və şüa diaqnostikası metodları tətbiq edilmişdir. **Açar sözlər:** Haqlund deformasiyası, axillodenit, axillobursit, endoskopiya, daban sümüyü, daban vətəri.

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