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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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FACTORS ASSOCIATED WITH FUNCTIONAL OUTCOME AND SELECTION OF SURGICAL STRATEGY IN FOOT DROP SYNDROME ASSOCIATED WITH COMMON PERONEAL NEUROPATHY

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Abstract.

Background: Chronic foot drop associated with common peroneal neuropathy may require tendon reconstruction when meaningful motor recovery is no longer expected. Functional reconstruction and stabilizing procedures have different therapeutic goals, while direct comparative clinical data remain limited.

Objective: To evaluate functional outcomes after surgical treatment of foot drop associated with common peroneal neuropathy and to assess factors associated with the 12-month functional result.

Methods: This single-center prospective non-randomized cohort study included 27 consecutive patients with chronic post-traumatic or compressive common peroneal neuropathy: 14 underwent Bridle reconstruction and 13 underwent stabilizing tenodesis. Surgical strategy was selected at a multidisciplinary case conference after standardized clinical and electrophysiological assessment. The primary outcome was the AOFAS Ankle-Hindfoot Scale score at 12 months. Secondary outcomes included pain intensity, orthosis use, postoperative complications, and late functional status. The primary between-group analysis was performed using multivariable linear regression adjusted for baseline AOFAS score and neuropathy duration. A sensitivity analysis additionally included age.

Results: Baseline AOFAS scores were 38.3±5.2 in the Bridle group and 34.9±5.9 in the tenodesis group. At 12 months, the corresponding scores were 85.3±5.9 and 71.5±8.4 points. The mean improvement from baseline was 47.0 and 36.6 points, respectively. After adjustment for baseline AOFAS score and neuropathy duration, Bridle reconstruction remained associated with a higher 12-month AOFAS score compared with tenodesis (B=10.80; 95% CI 4.77–16.83; p=0.001). Higher baseline AOFAS was also associated with a higher 12-month score (B=0.65; 95% CI 0.15–1.16; p=0.014), whereas neuropathy duration was not independently associated with the outcome (B=−0.06; 95% CI −0.34 to 0.22; p=0.657). The association between Bridle reconstruction and the 12-month AOFAS score remained significant after additional adjustment for age. Pain decreased in both groups. Orthosis use did not differ significantly between groups. Postoperative complications occurred in 1 of 14 patients after Bridle reconstruction and in 4 of 13 after tenodesis (RR=0.23; exact 95% CI 0.01–1.52; p=0.165).

Conclusion: Both procedures were followed by functional improvement. In this selected non-randomized cohort, Bridle reconstruction was associated with a higher AOFAS score at 12 months after adjustment for important baseline differences. Differences in pain, orthosis use, and complication frequency were less certain.

Key words. Foot drop, common peroneal neuropathy, Bridle procedure, tendon transfer, tenodesis, AOFAS.

Introduction.

Foot drop syndrome associated with common peroneal nerve neuropathy is characterized by loss of active dorsiflexion of the foot, impaired swing phase, a steppage gait, and limitations in daily activities. For most patients, the primary clinical manifestation is gait impairment, which reduces independence and quality of life [1-3].

Damage to the common peroneal nerve develops after injuries and surgeries to the knee and lower leg, with compression of the nerve at the level of the fibular head, against the background of cicatricial-adhesive changes, and less often - with metabolic and systemic disorders [4-6]. The anatomical vulnerability of the nerve in the fibular canal zone, its superficial location and close connection with bone-fibrous structures explain the high frequency of compression forms. Recent literature has shown that fibular tunnel syndrome remains an underestimated cause of foot motor deficits and is often recognized late [7-9].

Diagnosis should include clinical assessment, electroneuromyography and imaging methods, since verification of the level of damage is important not only for clarifying the diagnosis, but also for determining the timing of surgery and the choice of intervention [3,6,9].

Treatment tactics depend on the duration of neuropathy, the mechanism of injury, the severity of motor impairment, the condition of the ankle joint, and the integrity of the donor muscles. In the early stages of potentially reversible forms, unloading, orthotics, physiotherapy, therapeutic exercises, and dynamic observation are used [2,4,6]. In cases of persistent dorsiflexion deficiency, the absence of signs of reinnervation, and severe gait impairment, the question of surgical restoration of foot function arises. In such situations, the clinician must choose between interventions designed to restore active motor control and surgeries aimed primarily at stabilizing the foot in a functionally advantageous position [9-11].

Among reconstructive surgeries for chronic foot drop, tendon transfers, including the Bridle procedure, as well as various tenodesis and isolated posterior tibial muscle transfers, are widely discussed [12-14]. The Bridle procedure is aimed at restoring active control of foot biomechanics during gait. Stabilizing interventions, in contrast, primarily prevent foot

drop and improve gait safety, but do not always provide a comparable degree of dynamic control [15,16]. Therefore, the choice of surgery should be determined not only by the level of the lesion and the technical feasibility of the intervention, but also by the expected functional outcome in a particular patient.

Despite the large number of publications on peroneal nerve lesions, there are still few direct clinical comparisons of functional reconstruction and stabilization surgeries performed in comparable groups and with uniform follow-up periods [8,9,14,16]. The influence of preoperative factors—duration of neuropathy, age, initial muscle resource, passive correction of the foot, and the patient's rehabilitation capabilities—on the choice of surgery and subsequent outcome has not been sufficiently described [11,13,15]. Therefore, the study of factors of functional outcome in foot drop syndrome associated with common peroneal nerve neuropathy remains scientifically and clinically relevant.

Purpose of the study.

To evaluate the functional outcomes of surgical treatment of foot drop syndrome in common peroneal nerve neuropathy, identify factors of outcome and justify the choice of surgical tactics.

Materials and Methods.

The study was a single-center, prospective, comparative, cohort study with parallel groups. The analysis included 27 consecutive patients with foot drop syndrome due to posttraumatic or compressive neuropathy of the common peroneal nerve. Fourteen underwent Bridle reconstruction and 13 underwent stabilizing tenodesis. The average postoperative follow-up was 2.8 ± 1.0 years (range, 1.2–4.6 years).

Treatment allocation was non-randomized. The choice of surgical procedure was made at a multidisciplinary case conference after standardized preoperative clinical and electrophysiological assessment. The decision took into account the etiology and duration of neuropathy, severity of motor deficit, electroneuromyographic findings, passive ankle mobility, condition of the ankle joint, donor-muscle function, and the patient's ability to participate in postoperative rehabilitation. Surgery was considered after at least 6 months of unsuccessful conservative treatment and in the absence of clinically meaningful reinnervation. Eligibility for tendon reconstruction required persistent dorsiflexion weakness (MRC ≤2), absence of fixed ankle contracture or major osseous deformity, passive dorsiflexion of at least 15°, and preserved posterior tibial muscle strength of at least MRC grade IV. Patients were classified into the Bridle reconstruction or stabilizing tenodesis group according to the procedure actually performed.

Inclusion criteria included clinically and ENMG-confirmed posttraumatic or compression neuropathy of the common peroneal nerve, failure of conservative therapy for at least 6 months, persistent, significant impairment of active dorsiflexion of the foot and toes, absence of fixed ankle contractures, and achievement of at least 15° of passive dorsiflexion. The study excluded patients with systemic neurological diseases and generalized polyneuropathies, severe posttraumatic foot deformities, and severe ankle osteoarthritis. All patients provided informed consent; the study was conducted in accordance with the Declaration of Helsinki.

Although all patients met the general anatomical requirements for tendon reconstruction, these criteria did not automatically determine the choice of the Bridle procedure. Bridle reconstruction was preferred when restoration of active dorsiflexion was considered achievable, based on adequate donor-muscle function, a flexible ankle, suitable local soft-tissue conditions, and the patient's ability to complete postoperative motor re-education. Stabilizing tenodesis was selected when the principal treatment goal was reliable prevention of foot drop rather than restoration of active dorsiflexion, particularly when the expected functional gain from dynamic tendon transfer was considered limited by donor-muscle function, chronicity of the neurological deficit, local tissue conditions, or rehabilitation potential. The final decision was made by multidisciplinary consensus.

The preoperative examination was standardized and included a collection of complaints and anamnesis, a clinical examination with gait assessment, motor and sensory deficits, muscle strength testing, plantography, ankle joint radiography in two projections, electroneuromyography, and a neurologist consultation. Preoperative baseline values for the AOFAS and VAS scales were recorded.

Surgical technique: All surgeries were performed under regional or general anesthesia. The Bridle reconstruction aimed to create a three-tendon complex providing dorsiflexion and stabilization of the foot in the frontal and sagittal planes. Through a medial approach, the posterior tibial tendon was isolated, transected, and passed through the interosseous membrane into the anterior tibia. Then, through a lateral approach, the peroneus longus tendon was mobilized and transferred to the anterior tibia. Finally, the anterior tibial tendon was isolated and sutured to form a single tendon complex. The length of the tendon grafts, the uniformity of tension, and the vector of traction were controlled intraoperatively to avoid hypercorrection or insufficient dorsiflexion of the foot [12, 13, 14].

In the comparison group, isolated stabilizing tenodesis of the anterior tibial tendon was performed. The tendon was fixed at the dorsum of the foot with the ankle maintained in a functionally favorable position of slight dorsiflexion. Tension was adjusted intraoperatively to prevent persistent foot drop while avoiding excessive restriction of plantar flexion. The aim of the procedure was static stabilization of the foot rather than restoration of active dorsiflexion. Postoperatively, the operated limb was immobilized in 10–15° of dorsiflexion for 4–6 weeks. Weight bearing was initially avoided and subsequently increased gradually after removal of immobilization, together with supervised therapeutic exercises and gait training.

The postoperative rehabilitation protocol and scheduled follow-up were identical in both groups.

After surgery, all patients received standard postoperative care. Follow-up visits were performed at 6 weeks, 6 months, and 12 months. The primary outcome was the AOFAS Ankle-Hindfoot Scale score at 12 months after surgery. Secondary outcomes included pain intensity assessed using the VAS, orthosis use, postoperative complications, and AOFAS scores at

the other follow-up visits. Change in AOFAS from baseline to 12 months was additionally calculated as a descriptive measure of functional improvement.

Statistical analysis:

Statistical analyses were performed using Statistica 10.0 (StatSoft Inc., USA) and Python 3.11 with the statsmodels package for the revised multivariable analyses. Continuous variables are presented as mean ± standard deviation (SD), and categorical variables as absolute numbers and percentages. Distributional normality was assessed using the Shapiro–Wilk test. Between-group comparisons of continuous variables were performed using Welch's t-test for approximately normally distributed data and the Mann–Whitney U test when the distributional assumptions were not met.

Categorical variables were compared using Fisher's exact test. For postoperative complications, the risk ratio (RR) with an exact 95% confidence interval (CI) was additionally calculated using inversion of the exact Farrington–Manning score test for two independent binomial proportions. All tests were two-sided, with $p<0.05$ considered statistically significant.

The primary outcome was the AOFAS Ankle-Hindfoot Scale score at 12 months after surgery. Because treatment allocation was non-randomized and the groups differed in baseline characteristics, the primary between-group analysis was performed using multivariable linear regression. The 12-month AOFAS score was entered as the dependent variable; surgical procedure (Bridle vs tenodesis), baseline AOFAS score, and duration of neuropathy before surgery were included as prespecified independent variables. Tenodesis was used as the reference category. Results are reported as unstandardized regression coefficients (B) with standard errors (SE), 95% confidence intervals (CI), and p values. Model fit was described using R^2 and adjusted R^2.

Change in AOFAS from baseline to 12 months (ΔAOFAS = AOFAS at 12 months − baseline AOFAS) was additionally calculated as a descriptive measure of functional improvement but was not used as the primary comparative analysis. Because age differed between the groups at baseline, a sensitivity analysis was performed by additionally including age in the multivariable model.

Model assumptions were assessed by examination of residuals. Residual normality was evaluated using the Shapiro–Wilk test, heteroscedasticity using the Breusch–Pagan test, and multicollinearity using variance inflation factors (VIF). Spearman's rank correlation coefficient was used for exploratory assessment of associations between baseline clinical variables and the 12-month AOFAS score. Secondary comparisons of pain, orthosis use, and other outcomes at individual follow-up points were considered exploratory; no adjustment for multiple testing was applied, and these p values were interpreted accordingly.

No formal a priori sample-size calculation was performed. The sample comprised all consecutive patients who met the eligibility criteria and underwent one of the study procedures during the specified recruitment period.

Patients were consecutively recruited at V.P. Demikhov City Clinical Hospital, Moscow, Russia, from January 1, 2022 to December 31, 2024. The study protocol was approved by the Local Ethics Committee of V.P. Demikhov City Clinical Hospital (Protocol No. 15 dated December 07, 2021). All participants provided written informed consent before inclusion.

Results.

All 27 patients were included in the analysis: 14 underwent Bridle reconstruction and 13 underwent stabilizing tenodesis.

Data are presented as mean ± standard deviation or n (%). Between-group comparisons for quantitative variables were performed using Welch's t-test and for categorical variables using Fisher's exact test. A p value was not calculated for characteristics fixed by the eligibility criteria and therefore identical in both groups. ENMG, electroneuromyography; MRC, Medical Research Council; AOFAS, American Orthopaedic Foot and Ankle Society Ankle-Hindfoot Scale; VAS, visual analogue scale.

Baseline demographic and clinical characteristics are presented in Table 1. The groups had similar sex distribution, baseline AOFAS and VAS scores, dorsiflexor strength, and passive ankle dorsiflexion. However, patients in the tenodesis group were older (46.3 ± 6.6 vs 40.9 ± 6.8 years; p=0.048) and had a longer duration of neuropathy before surgery (33.8 ± 12.6 vs 21.4 ± 6.8 months; p=0.006). These differences were considered potential confounders in the adjusted analysis.

All 27 patients completed the scheduled assessments at 6 weeks, 6 months, and 12 months, and all were available for the late follow-up assessment; therefore, there were no missing outcome data or losses to follow-up. Mean late follow-up duration was 3.1 ± 1.1 years in the Bridle group and 2.4 ± 0.8 years in the tenodesis group (p=0.069).

AOFAS scores increased in both groups during follow-up. In the Bridle group, the mean score increased from 38.3 ± 5.2 at baseline to 58.1 ± 5.2 at 6 weeks, 75.1 ± 6.9 at 6 months, and 85.3 ± 5.9 at 12 months. The corresponding values in the tenodesis group were 34.9 ± 5.9, 50.2 ± 6.6, 63.8 ± 7.1, and 71.5 ± 8.4 points. The mean change from baseline to 12 months was 47.0 ± 5.6 points after Bridle and 36.6 ± 7.1 points after tenodesis. The unadjusted between-group difference in change was 10.4 points (95% CI 5.3–15.5; p<0.001). Because treatment allocation was non-randomized, the primary interpretation was based on the adjusted 12-month analysis described below.

At the late follow-up visit, the mean AOFAS score was 87.9 ± 4.7 points in the Bridle group and 73.6 ± 8.6 points in the tenodesis group (p<0.001). The late assessment was performed at a mean of 2.8 ± 1.0 years after surgery (range, 1.2–4.6 years) and was therefore analysed separately from the standardized 12-month endpoint.

Pain decreased in both groups throughout the observation period. After 6 weeks, the VAS was 4.23 ± 1.45 points after Bridle and 4.97 ± 0.91 points after tenodesis (p = 0.128). All patients in both groups continued to use the orthosis continuously. After 6 months, the VAS decreased to 2.6 ± 1.7 and 3.8 ± 0.9 points, respectively, with the difference between the groups reaching statistical significance (p = 0.035); the orthosis was retained by 57.1% of patients in the Bridle group and 61.5% of patients in the tenodesis group (p = 1.0). After 12 months, the VAS score was 1.7 ± 1.4 and 2.4 ± 1.1 points (p = 0.171), the orthosis was used by 50.0% and 61.5% of patients, respectively (p = 0.704).

Table 1. *Baseline demographic and clinical characteristics of the study groups.*

Characteristic	Bridle (n=14)	Tenodesis (n=13)	p
Male, n (%)	8 (57.1)	7 (53.8)	1.000
Female, n (%)	6 (42.9)	6 (46.2)	
Age, years	40.9 ± 6.8	46.3 ± 6.6	0.048
Post-traumatic or compressive common peroneal neuropathy, n (%)	14 (100)	13 (100)	—
Isolated common peroneal nerve lesion, n (%)	14 (100)	13 (100)	—
Neuropathy duration before surgery, months	21.4 ± 6.8	33.8 ± 12.6	0.006
Neuropathy confirmed by ENMG, n (%)	14 (100)	13 (100)	—
Absence of clinically meaningful reinnervation after conservative treatment, n (%)	14 (100)	13 (100)	—
Dorsiflexor strength, MRC score	0.64 ± 0.63	0.38 ± 0.77	0.352
Passive ankle dorsiflexion, °	17.5 ± 1.8	17.8 ± 2.2	0.665
Posterior tibial muscle strength ≥MRC IV, n (%)	14 (100)	13 (100)	—
Baseline AOFAS score	38.3 ± 5.2	34.9 ± 5.9	0.131
Baseline VAS score	6.74 ± 1.37	6.80 ± 0.77	0.881
Previous conservative treatment ≥6 months, n (%)	14 (100)	13 (100)	—
Fixed ankle contracture, n (%)	0 (0)	0 (0)	—
Major osseous deformity / severe ankle osteoarthritis, n (%)	0 (0)	0 (0)	—
Follow-up duration, years	3.1 ± 1.1	2.4 ± 0.8	0.069

Table 2. *Multivariable linear regression analysis of factors associated with the AOFAS score at 12 months (n=27).*

Variable	B	SE	95% CI	p
Bridle vs tenodesis	10.80	2.92	4.77 to 16.83	0.001
Baseline AOFAS score, per 1 point	0.65	0.24	0.15 to 1.16	0.014
Neuropathy duration, per 1 month	−0.06	0.14	−0.34 to 0.22	0.657

Model R^2=0.640; adjusted R^2=0.593; overall model p<0.001.
Note: B, unstandardized regression coefficient; SE, standard error; CI, confidence interval; AOFAS, American Orthopaedic Foot and Ankle Society Ankle-Hindfoot Scale. Tenodesis was the reference category.

By the final visit, pain severity in both groups remained low - 1.4 ± 1.3 points after Bridle and 2.3 ± 1.1 points after tenodesis (p = 0.074). The need for the orthosis persisted in 50.0% and 69.2% of patients, respectively (p = 0.440). Because these secondary outcomes were compared at multiple time points without multiplicity adjustment, the nominal difference observed at 6 months was considered exploratory.

Postoperative complications occurred in 1 of 14 patients (7.1%) after Bridle reconstruction and in 4 of 13 patients (30.8%) after tenodesis. The risk ratio for postoperative complications after Bridle reconstruction compared with tenodesis was 0.23 (exact 95% CI 0.01–1.52; Fisher's exact p=0.165). Thus, complications were numerically less frequent after Bridle reconstruction, although the between-group difference was not statistically significant. One infectious/inflammatory complication occurred in each group; tendon-suture failure occurred in one patient and limitation of range of motion in two patients after tenodesis.

In exploratory correlation analysis, longer neuropathy duration was associated with a lower 12-month AOFAS score (Spearman ρ=−0.425; p=0.027), whereas a higher baseline AOFAS score was associated with a higher 12-month score (ρ=0.435; p=0.023). Age, baseline dorsiflexor strength, and passive dorsiflexion were not significantly correlated with the 12-month AOFAS score (all p>0.05). These univariable associations were subsequently evaluated in the adjusted analysis.

To account for baseline differences between the treatment groups, a multivariable linear regression analysis was performed with the 12-month AOFAS score as the dependent variable. The prespecified model included surgical procedure, baseline AOFAS score, and duration of neuropathy before surgery. After adjustment, Bridle reconstruction remained associated with a higher 12-month AOFAS score compared with tenodesis (B=10.80; 95% CI 4.77–16.83; p=0.001). Higher baseline AOFAS was also associated with a higher 12-month score (B=0.65 per point; 95% CI 0.15–1.16; p=0.014), whereas neuropathy duration was not independently associated with the outcome after adjustment (B=−0.06 per month; 95% CI −0.34 to 0.22; p=0.657) (Table 2).

The primary model explained 64.0% of the variance in the 12-month AOFAS score (adjusted R^2=0.593). The model assumptions were not materially violated: residuals did not significantly deviate from normality (Shapiro–Wilk p=0.634), no evidence of heteroscedasticity was detected (Breusch–Pagan p=0.648), and variance inflation factors ranged from 1.26 to 1.62, indicating no relevant multicollinearity.

Because patients in the tenodesis group were older at baseline, an additional sensitivity analysis included age as a fourth covariate. The association between Bridle reconstruction and the 12-month AOFAS score remained statistically significant (B=12.58; 95% CI 5.73–19.43; p=0.001), whereas age was not independently associated with the outcome (B=0.22; 95% CI −0.19 to 0.64; p=0.272).

Discussion.

In this prospective cohort, both surgical procedures were associated with functional improvement during the first postoperative year. After adjustment for baseline AOFAS score and neuropathy duration, Bridle reconstruction remained

associated with a higher 12-month AOFAS score than stabilizing tenodesis (B=10.80; 95% CI 4.77–16.83; p=0.001). This association was preserved after additional adjustment for age. Because treatment allocation was non-randomized, the between-group difference should be interpreted as an association rather than as evidence of comparative treatment efficacy.

The progressive improvement observed after Bridle reconstruction is consistent with its functional purpose of restoring active dorsiflexion and balancing the foot during gait. Previous clinical and biomechanical studies have also reported improvement in ankle function and gait after this procedure [12-14]. Direct comparison with published series is limited by differences in patient selection, surgical technique, rehabilitation, and outcome assessment.

The difference between the procedures should also be interpreted in relation to their intended functional goals. Bridle reconstruction is designed to use preserved donor-muscle activity for active control of the foot, whereas stabilizing tenodesis primarily limits plantar flexion and maintains the foot in a more favorable position during gait. Treatment of persistent foot drop therefore depends not only on the presence of dorsiflexion weakness but also on passive ankle mobility, donor-muscle function, the characteristics of the nerve lesion, and the feasibility of postoperative rehabilitation [3,15,16]. In the present study, these factors were considered during multidisciplinary treatment selection. Consequently, the two groups represent patients selected for different surgical strategies rather than groups formed by random allocation. This distinction is important when interpreting between-group differences.

Longer neuropathy duration correlated with a lower 12-month AOFAS score in the univariable analysis, but this association was not retained after adjustment for surgical procedure and baseline AOFAS score (B=−0.06 per month; 95% CI −0.34 to 0.22; p=0.657). Therefore, the present data do not support neuropathy duration as an independent predictor of the 12-month outcome. Nevertheless, duration of neurological deficit remains clinically relevant when assessing chronic common peroneal neuropathy and the potential for reconstructive treatment [2,3,16]. The current sample was insufficient to determine its independent prognostic contribution.

Pain decreased during follow-up in both groups. The between-group difference reached nominal statistical significance only at 6 months, whereas no significant differences were observed at 6 weeks, 12 months, or the late follow-up visit. Because pain was evaluated repeatedly at several time points without adjustment for multiple comparisons, the isolated 6-month finding should be interpreted as exploratory. Orthosis use showed a similar pattern of uncertainty. Although fewer patients in the Bridle group required continuous external support during later follow-up, the binary between-group comparisons were not statistically significant.

Postoperative complications were recorded in 1 of 14 patients after Bridle reconstruction and in 4 of 13 patients after tenodesis. This difference was not statistically significant. Accordingly, the complication data indicate only a numerical difference and cannot establish a lower complication risk for either procedure. The small number of events also results in limited precision of any risk estimate. Larger cohorts would be required for a meaningful comparative assessment of safety.

The late follow-up findings should also be interpreted separately from the prespecified 12-month outcome. AOFAS scores remained higher in the Bridle group at the final assessment, but the timing of this visit varied from 1.2 to 4.6 years. Therefore, these observations support persistence of the recorded functional status within the observed cohort but do not provide a standardized long-term comparative endpoint. The 12-month assessment was consequently used as the primary time point for the adjusted between-group analysis.

This study has several limitations. First, it was a small, single-center, non-randomized cohort study, and residual confounding cannot be excluded despite adjustment for baseline AOFAS score, neuropathy duration, and the additional sensitivity analysis including age. Treatment was selected at a multidisciplinary case conference on clinical grounds, creating the possibility of confounding by indication. Second, the sample size limited the number of covariates that could reasonably be included in the regression model and resulted in limited precision, particularly for complications and other categorical outcomes. Third, the AOFAS Ankle-Hindfoot Scale combines clinician-assessed and patient-reported components and has recognized limitations in its measurement properties, including concerns regarding validity, reliability, and ceiling effects [17]; no additional validated patient-reported outcome measure was collected.

Outcome assessment was performed by a member of the clinical team who was aware of the surgical procedure. Assessor blinding was not used. Finally, late follow-up duration was heterogeneous, and secondary outcomes were assessed at multiple time points without formal adjustment for multiplicity.

Conclusion.

Both Bridle reconstruction and stabilizing tenodesis were followed by functional improvement in patients with chronic foot drop associated with common peroneal neuropathy. In this non-randomized cohort, Bridle reconstruction was associated with a higher AOFAS score at 12 months after adjustment for baseline AOFAS score and neuropathy duration (B=10.80; 95% CI 4.77–16.83; p=0.001). This association remained significant in the sensitivity analysis additionally adjusted for age.

Longer neuropathy duration was associated with a lower 12-month AOFAS score in exploratory univariable analysis but was not independently associated with outcome in the adjusted model. Differences in pain, orthosis use, and complication frequency were less consistent, and the observed numerical difference in complications was not statistically significant.

These findings should be interpreted in the context of the small sample size, non-randomized treatment selection, and baseline differences between the groups. Larger prospective studies with standardized treatment-selection criteria and additional validated functional outcome measures are needed to clarify the comparative effects of these procedures.

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Conflict of interest.

The authors declare no obvious or potential conflicts of interest related to the publication of this article.

Ethical review.

Patients signed voluntary informed consent to participate in the study and agreed to the processing and publication of clinical data. The study was approved by the ethics committee.

REFERENCES

1. Khizhnikova AE, Klochkov AS, Belova NV, et al. Foot drop: causes, clinical and instrumental diagnostics, and biomechanics. Nervous Diseases. 2024;1:22-30.
2. Stewart JD. Foot drop: where, why and what to do? Pract Neurol. 2008;8:158-169.
3. Carolus A.E, Becker M, Cuny J, et al. The interdisciplinary management of foot drop. Dtsch Arztebl Int. 2019;116:347-354.
4. Luneva IE, Grishina DA, Suponeva NA. Peroneal nerve palsy (injury) in fibular tunnel syndrome. Neuromuscular Diseases. 2022;12:29-36.
5. Yarikov AV, Makeeva OA, Baitinger AV, et al. Fibular canal syndrome: modern principles of diagnosis and treatment. Doctor. 2023;34:5-9.
6. Poage C, Roth C, Scott B. Peroneal nerve palsy: evaluation and management. J Am Acad Orthop Surg. 2016;24:1-10.
7. Butrimova SV, Yarikov AV, Ignatyeva OI, et al. Fibular tunnel syndrome: modern principles of diagnosis and treatment. Healthcare of Ugra: Experience and Innovations. 2024;2:39-55.
8. Khalimov AR, Mirzabaev M.Zh, Kurmaev IT, et al. Peroneal nerve lesions in the practice of a neurologist and a neurosurgeon. Neurosurgery and Neurology of Kazakhstan. 2023;1:17-24.
9. Voevodkina A.Yu, Nazarov A.S, Belyakov Yu.V, et al. Aspects of surgical treatment of diseases and injuries of the peroneal nerve. Russian Neurosurgical Journal named after Professor AL Polenov. 2024;16:10-17.
10. Bashlachev MG, Evzikov G.Yu, Parfenov VA. Pain syndrome following compression-induced common peroneal nerve neuropathy. Russian Journal of Pain. 2021;19:26-30.
11. Vigasio A, Marcoccio I, Patelli A, et al. New tendon transfer for correction of drop-foot in common peroneal nerve palsy. Clin Orthop Relat Res. 2008;466:1454-1466.
12. Rodriguez RP. The Bridle procedure in the treatment of paralysis of the foot. Foot Ankle. 1992;13:63-69.
13. Hastings MK, Sinacore DR, Woodburn J, et al. Kinetics and kinematics after the Bridle procedure for the treatment of traumatic foot drop. Clin Biomech (Bristol). 2013;28:555-561.
14. Johnson JE, Paxton ES, Lippe J, et al. Outcomes of the Bridle procedure for the treatment of foot drop. Foot Ankle Int. 2015;36:1287-1296.
15. Park JS, Casale MJ. Posterior tibial tendon transfer for common peroneal nerve injury. Clin Sports Med. 2020;39:819-828.
16. Carlson Strother C, Dittman LE, Spinner RJ, et al. Surgical management of peroneal nerve injuries. Acta Neurochir (Wien). 2023;165:2573-2580.
17. Whittaker G.A, Munteanu S.E, Menz H.B, et al. Measures of foot pain, foot function, and general foot health. Arthritis Care Res (Hoboken). 2020;72:294-320.