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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 ВИНТИ 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 ВИНТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებში.

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. Корректур авторам не высылаются, 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 computer-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 საყურადღებო!

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, შემავჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრაფიის ფოტოსურათები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შედეგების 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 ფხიხლებში 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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PERONEUS LONGUS (PL) AUTOGRAFT IN ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION AS ALTERNATIVE GRAFT OPTION

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Abstract.

Background: The type of the graft in anterior cruciate ligament reconstruction is still argument which one is the best regarding hamstring or bone tendon bone graft. peroneus longus tendon is emerging good alternative choice in such type of surgery.

Methods: Study done on 30 patients with anterior cruciate ligament reconstruction (ACLR) using PL graft and evaluated after 2 years with lysholm knee score and American orthopedic foot and ankle disability index.

Results: Two year of surgery, the result 86-95% (good to excellent) in 22 cases (73.3%), 6 (20%) patients with 80-85% (fair to good), and 2 (6.6%) cases with 70% (poor) score without any new insult on the knee. American foot and ankle score was 100 in all 28 patients (93.3) and 96 only in 2 cases (6.6%).

Conclusion: Good size of the graft and low donor site morbidity as well as good functional outcome may make the PL graft is a favorable graft choice in ACLR.

Key words. Peroneus longus, autograft, anterior cruciate ligament.

Introduction.

Anterior cruciate ligament reconstruction is a common operation [1]. As in the last years the incidence of anterior cruciate ligament (ACL) tear is increasing due to sport or other injuries [2]. The key goal of the ACL reconstruction to return knee function as well as protect other important structure in the knee like meniscus and articular cartilage [3]. Its effective and safe procedure and the patient return to sport about (75-97%), according to Norwegian Knee Ligament Registry [4]. The challenge is the graft choice as it important to success the surgery in both biological and mechanical aspect [5]. The types of graft are either auto graft or allograft. regarding the autograph, we can use hamstring graft, bone tendon bone or peroneus longus tendon [6]. The graft option is limited in our practice to hamstring because lower complication rate and good outcome as well as our training [7]. The main issue regarding this type of ligament. The aim of the graft diameter should be more than or equal to 8mm. in Iraqi patient this diameter is difficult to achieve with hamstring graft [8]. The key factor in the success of ACL reconstruction surgery is graft width [9]. In Iraqi patient the quadruple graft diameter is less than 8 mm in most of the cases, therefore, we must look for alternative graft or used five band hamstring graft. Regarding other type of graft like bone tendon bone graft had a lot of complication and allograft is not available in our country .so we are looking for peroneus longus tendon auto graft as good potential source of graft especially in patient with ACL tear .as there are a lot of study tell us about the tensile strength and tissue ingrowth and regeneration. This study purposes to see the donor site morbidity as well as clinical outcome in patient with ACL reconstruction using peroneus longus auto graft.

Materials and Methods.

The study was done in aldiwanya teaching hospital, from October 2020 to October 2022 retrospective study including 30 case of ACL reconstructive surgery with peroneus longus graft. 18 cases were left and 12 cases right knee.

All cases were assessed regarding clinical examination for ACL instability and associated pathology like meniscus, chondral, posterior cruciate and collateral ligaments injuries as well as bony alignment in both sagittal and coronal by CT scan and MRI as well as clinical examination.

Only the patient involve in the study were no any bony abnormality or associated lesion like meniscus, chondral or other ligaments injuries, all these case were excluded.

The age of the patients was between 20 -30 years old and all of them were male. The interval between the injury and the surgery less than three months.

All the patient was treated with same surgical team in the same hospital and the same method of graft harvesting and surgical steps of anterior cruciate ligament reconstruction (ACLR).

Surgical procedure.

Graft taking method: The surgery done under general anesthesia, diagnostic arthroscopy was done in each case to confirm diagnosis and to exclude other pathology like meniscus or chondral lesions after the clinical examination under anesthesia (Lachman and pivot shift test).

The skin incision is 2-2.5 cm long are done about 3cm above the lateral malleolus. Anatomical dissection was done to identify the peroneus longus and peroneus brevis tendon. then we did the eversion of the foot to get more length of tendon. we cut the tendon after stich it the did liberation of the tendon from surrounding fascia then used the tendon stripper of appropriate size to harvest the graft.

After that the wound closed and the taken graft was preparing in usual way in back table by the assistant to get appropriate length and diameter which usually above 8 mm in diameter and more than 9 cm length. Usually, we achieve that by doing triple band graft (Figure 1).

ACL reconstruction surgical technique: The standard anterolateral portal was used as well as tow medial portal done to do transportal ACL reconstruction. Identify the anatomical footprint of both femoral and tibial site. the femoral tunnel was done first then the tibial tunnel followed by passing the ACL graft. the fixation method was adjustable endobutton in femoral side and PEEK screw in the tibial side.

Post-operative rehabilitation: The rehabilitation of all patients in the same center and similar protocol for at least 9 months. The follow up visit was every week in the first month then twice a month in the next two months after that the visit once in a month for 9 months. After that every 3 months one visit for 2 years from the surgery.

Table 1. Results of lysholm score, 24 months after ACLR.

Lysholm Score	No. of patients (%)
Good-excellent	22 (73.34)
Fair-good	6 (20)
Fair-Poor	2 (6.66)



Figure 1. Surgical technique for PLT graft harvesting.

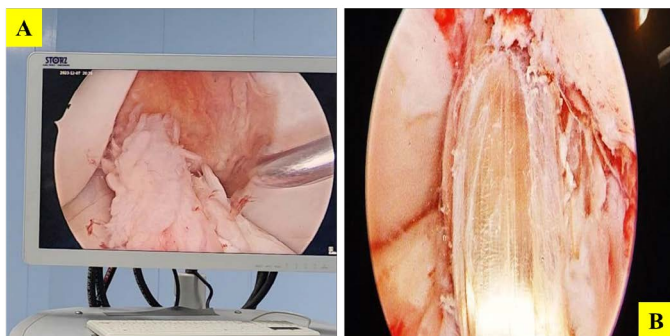


Figure 2. Arthroscopic view of (A) knee joint with ACL tear (B) Peroneus longus (PL) graft after ACL reconstruction.

At the completion of second year, functional result of the knee evaluation was done by means of lysholm knee score [10], foot and ankle function assessment were done depend on American orthopedic foot-and ankle disability index (AOFAS) [11].

The Lysholm Knee Scoring Scale is used to evaluate patients with various knee conditions, including ligament injuries, meniscus tears, patellar instability, and osteoarthritis [10]. It is often used as part of a comprehensive assessment that includes a physical examination and other imaging studies. higher Lysholm score indicates better knee function: ≥ 95 Excellent knee function, 84-94 good, 65-83 fair, and < 65 poor knee function. The AOFAS is covering all 4 regions of the foot (ankle-hindfoot, midfoot, metatarsophalangeal-interphalangeal for the hallux, and metatarsophalangeal, interphalangeal for the lesser toes) [11].

Results.

We did assessment of both knee and ankle joints for donor sit morbidity and functional outcome by using lysholm knee score and American ankle and foot score, this evaluation done after 2 years of surgery (Figure 2).

Lysholm knee score was between 60-75% (poor to fair) in all cases before the operation. And after 2 years of surgery, the result 86-95% (good to excellent) in 22 cases (73.3%), 6 (20%) patients with 80-85% (fair to good), and 2 (6.6%) cases with 70% (poor) score without any new insult on the knee. American foot and ankle score was 100 in all 28 patients (93.3) and 96 only in 2 cases (6.6%).

Discussion.

ACL reconstruction surgery result improved dramatically in the last decade. this improved due to improvement in the understanding the anatomy and biomechanics of the ACL [12]. other important factor is the development in the fixation methods. All these factors decrease the failure rate to less than 10% [13,14].

In our country the luck of allograft made the main source of the graft is autograft and mostly the hamstring graft. we use this graft for many years due to surgical training on this type of graft as well as the complication of other type of graft like bone tendon bone graft from patellar tendon like anterior knee pain as in our community the kneeling is very common habit. in addition to stiffness and weakness. for these reasons most patient refuse this type of graft [15-17].

On the other side the hamstring graft is very good one with all its advantages. But the diameter of the graft in our patient usually less than 8 mm for 4 band (semitendous and gracilis) to overcome these draw back either we make it 5 band which become short or search for other acceptable source of graft [18-20]. The peroinus longus graft is anew good promising graft used in other arear of the world mainly india in primary ACL reconstruction as well as revision cases [21].

The diameter of the graft of PL is more in comparison with hamstring graft with mean in difference of 0.6mm which is highly significant according to nicolaas et al. Other study shows that the quadruple hamstring graft in 85% of the patient is less than 8 mm which is less favorable as graft source due to low strength [22]. The complication of peroneus longus include hypoesthesia across the adjacent edge of the foot, temporal peroneal nerve damage, reflex sympathetic dystrophy, wound infection, and local pain [23].

Concerning the effect of the graft on the function of the foot is negligible in comparison with other side in spite of low reduction in foot eversion and flexion. There is no patient complain of difficulty in performing sport or pain as well as no difference in range of motion [22].

The clinical result was excellent in most of our patient and in other studies like 80% of the patients with excellent results according Lysholm scoring system [24]. In our study found that clinical results were promising to make the PL graft as promising graft of choice for ACL reconstruction and could be applicable for injuries and diseases [25,26].

Conclusion.

PL graft is great option for ACL reconstruction, in spite of small patient sample and short duration of follow-up, due to its easy way of harvesting, low complication rate, good diameter and excellent clinical result.

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