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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.

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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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Содержание:

ARTHROPLASTY IN DYSPLSATIC COXARTHROSIS

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Abstract.

Objective To justify the use of hip endoprosthesis techniques in dysplastic coxarthrosis depending on the type of dysplasia according to Crowe JF.

Materials and methods. The study is based on the analysis of hip replacement in 390 patients with dysplastic coxarthrosis, who underwent 436 endoprosthetics. There were 192 patients with type 1 dysplasia according to Crowe, type II – 142, type III – 38 and type IV – 18 patients. The age of patients ranged from 15 to 61 years and averaged 43 years. Pathology was prevalent in women, which accounted for 90 %. Preference was given to prostheses with a cementless type of fixation, which accounted for 89 %.

Results and discussion. An important task of the surgeon during hip replacement in patients with dysplastic coxarthrosis is to install the acetabulum component of the prosthesis in an anatomical position in compliance with the recommendations of spatial location, especially in types III and IV of dysplasia.

Endoprosthetics in types 1 and II of hip dysplasia did not present any difficulties. The amount of bone tissue of the acetabulum of the pelvis is sufficient for the use of cups with primary press-fit fixation. Usually, acetabular components of small size were used.

In type III dysplasia, there was a significant deficit of bone tissue of the anterior, posterior columns and acetabular roof. In such cases, bone grafting is used. Shortening of the limb in type III dysplasia, as a rule, does not exceed 4 cm, so the surgery may be performed in one stage and without a shortening osteotomy.

In type IV dysplasia with shortening of the lower limb to 4 cm, a single stage endoprosthetics is performed it is possible to perform a shortening osteotomy of the proximal femur. In patients with a unilateral process and shortening of the limb more than 4 centimeters, we used the two-stage surgery method. At the first stage, we applied a rod device for external fixation with the introduction of rods into the pelvis and hip, then gradually performed hip traction in order to lower the femoral head to the level of the acetabulum, after which the device was dismantled and at the second stage hip replacement was performed.

Conclusions. 1.The acetabular component in hip replacement in Crowe type III or IV dysplasia should be placed in the anatomical position of the acetabulum. If the cranial displacement of the femoral head is less than 4 cm, hip replacement should be performed in one stage. In a unilateral cranial displacement of the femoral head of more than 4 cm, in order to avoid neurovascular bundle traction damage and facilitate the reduction of the prosthesis, preparation should be performed with the reduction of the femoral head to the level of the anatomical acetabulum using an external fixation rod device. It is possible to use a shortening osteotomy of the proximal femur, but then the length of the limb is not restored.

Key words. Dysplasia, hip arthroplasty, coxarthrosis.

ЭНДОПРОТЕЗИРОВАНИЕ ПРИ ДИСПЛАСТИЧЕСКОМ КОКСАРТРОЗЕ

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Ключевые слова: дисплазия, ендопротезирование тазобедренного сустава, коксартроз.

Цель исследования. Обосновать применение методик ендопротезирования тазобедренного сустава при диспластическом коксартрозе в зависимости от типа дисплазии по Crowe J F.

Материалы и методы. Работа основана на анализе эндопротезирования тазобедренного сустава у 390 пациентов с диспластическим коксартрозом, которым выполнено 436 эндопротезирований. С дисплазией 1 типа по Crowe было 192 пациентов, II типа - 142, III типа - 38 и IV типа - 18 пациентов. Возраст больных колебался от 15 до 61 года и составлял в среднем 43 года. Патология превалировала у женщин, что составило 90 %. Предпочтение отдавалось протезам с бесцементным типом фиксации, что составило 89 %.

Результаты и их обсуждение. Важной задачей хирурга при эндопротезировании тазобедренного сустава у больных с диспластическим коксартрозом является установить вертлужный компонент протеза в анатомическое положение с соблюдением рекомендаций пространственного расположения, особенно это касается III и IV типов дисплазии.

Эндопротезирование при 1 и II типах дисплазии тазобедренного сустава не представляло каких-либо трудностей. Запас костной ткани вертлужной области таза достаточный для применения чашек с первичной press-fit фиксацией. Как правило, применялись ацетабуллярные компоненты небольших размеров.

При III типе дисплазии отмечался значительный дефицит костной ткани передней, задней стенок и крыши вертлужной впадины. В таких случаях применяем костную пластику. Укорочение конечности при III типе дисплазии, как правило, не превышает 4 см, поэтому операцию можно выполнять в один этап и без укорачивающей остеотомии. При IV типе дисплазии с укорочением нижней конечности до 4-х см выполняется одноэтапное эндопротезирование, при необходимости с укорачивающей остеотомией. У пациентов с односторонним процессом и укорочением конечности более 4-х сантиметров применяли методику двухэтапного оперативного вмешательства. На первом этапе накладывали стержневой аппарат внешней фиксации

с введением стержней в таз и проксимальный отдел бедра после чего постепенно проводили тракцию бедра с целью низведения головки бедренной кости до уровня вертлужной впадины, после чего аппарат демонтировали и вторым этапом выполняли эндопротезирование тазобедренного сустава.

Выводы. Ацетабуллярный компонент при эндопротезировании тазобедренного суставаа при дисплазии Crowe III, IV типа необходимо устанавливать в анатомическое положение вертлужной впадины. При краниальном смещении головки бедренной кости меньше 4 см показано эндопротезирование тазобедренного сустава в один этап. При одностороннем краниальном смещении головки бедренной кости более 4 см, с целью избежания тракционного повреждения сосудисто-нервного пучка и облегчения вправления протеза, показана подготовка с низведением головки бедренной кости до уровня анатомической вертлужной впадины с помощью стержневого аппарата внешней фиксации. Возможно применение укорачивающей остеотомии проксимального отдела бедренной кости, но тогда не восстанавливается длина конечности.

Introduction.

Dysplastic coxarthrosis is the most severe pathology of the hip joint and accounts for 21 to 80 % of all joint diseases [1-4]. At the present stage of development of traumatology and orthopedics, hip replacement is one of the most effective methods of medical rehabilitation in adult patients with dysplastic caxarthrosis and belongs to the category of complex surgical interventions [5-7]. The complexity of surgery is conditioned by the anatomical features of the hip joint in dysplasia. In dysplastic coxarthrosis, there is an underdevelopment of the hip socket, a change in its shape and depth, and an underdevelopment of the proximal femur [8-11]. The deficit of bone tissue of the coxal cavity, pronounced discongruence of the articular surfaces in this pathology significantly complicates the possibility of fixation of the acetabular component in the correct position, which ultimately affects the stability and longevity of the endoprosthesis. The results of hip arthroplasty in dysplastic coxarthrosis are inferior to primary prosthetics and are accompanied by a high percentage of unsatisfactory results [12-14].

In the modern literature, the most commonly used classifications of hip dysplasia in adults is Crowe J. F. et al. [15].

Study objective.

To justify the use of hip endoprosthesis techniques in dysplastic coxarthrosis depending on the type of dysplasia according to Crowe.

Materials and methods.

The study is based on the analysis of hip replacement in 390 patients with dysplastic coxarthrosis, who underwent 436 endoprosthetics. There were 192 patients with type 1 dysplasia according to Crowe, type II – 142, type III – 38 and type IV – 18 patients. The age of patients ranged from 15 to 61 years and averaged 43 years. Pathology was prevalent in women, which accounted for 90 %. Preference was given to prostheses with a cementless type of fixation, which accounted for 89 %.

In our study, we used the Crowe J. F. classification, which is based on the assessment of the level of cranial displacement of the femoral head and includes 4 types. In the first type, the proximal displacement of the head is up to 50 % of the head height or 10 % of the pelvis height, in the second type – 50-75 % of the head height or 10-15 % of the pelvis height; in the third type – 75-100 % or 15-20 %, respectively, and in the fourth type, the proximal displacement is more than 100 % of the head height or 20 % of the pelvis height.

Results and discussion.

An important task of the surgeon during hip replacement in patients with dysplastic coxarthrosis is to install the acetabulum component of the prosthesis in an anatomical position in compliance with the recommendations of spatial location, especially in types III and IV of dysplasia.

Endoprosthetics in types 1 and II of hip dysplasia did not present any difficulties. The amount of bone tissue of the acetabulum of the pelvis is sufficient for the use of cups with primary press-fit fixation. Usually, acetabular components of small size were used.

In type III dysplasia, there was a significant deficit of bone tissue of the anterior, posterior columns and acetabular roof. In such cases, bone grafting is used. The material for bone tissue is the removed head of the femur. An important condition for obtaining graft fusion is careful fitting of the bed with the graft and its stable fixation with screws. Shortening of the limb in type III dysplasia, as a rule, does not exceed 4 cm, so the surgery may be performed in one stage and without a shortening osteotomy.

In type IV dysplasia with shortening of the lower limb to 4 cm, a single stage endoprosthetics is performed. In cases where surgical interventions have already been performed in the area of the operating field and soft tissue elasticity is lost due to scarring, it is possible to perform a shortening osteotomy of the proximal femur.

In hip dysplasia with a unilateral process and shortening of the limb more than 4 centimeters, endoprosthetics performed with the elimination of shortening of the limb, may result in neurovascular bundle traction complications, there may appear difficulties with the reduction of the prosthesis. Therefore, in patients with a unilateral process and shortening of the limb more than 4 cm, we used the two-stage surgery method. The essence of this technique is that at the first stage, we applied a rod device for external fixation with the introduction of rods into the pelvis and hip, then gradually performed hip traction in order to lower the femoral head to the level of the acetabulum, after which the device was dismantled and at the second stage hip replacement was performed.

This technique allows to align the length of the limbs, simplifies the reduction of the prosthesis during surgery and prevents the development of vascular nerve bundle traction complications.

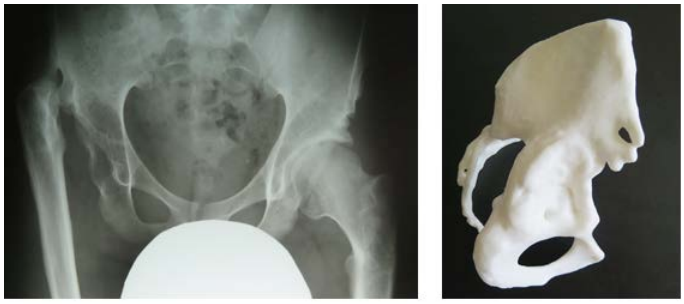
Clinical case.

Male patient I., 17 years old, came to the clinic with a diagnosis of congenital dislocation of the right hip, Crowe type IV, left-sided dysplastic coxarthrosis 2 St., relative shortening of the right lower limb 9.5 cm. It is known from the history that at the age of 6 years, the patient underwent open reduction of

the femoral heads with a corrective osteotomy of the proximal femur.

A radiograph of the hip joints of patient I. is shown in Fig. 1.

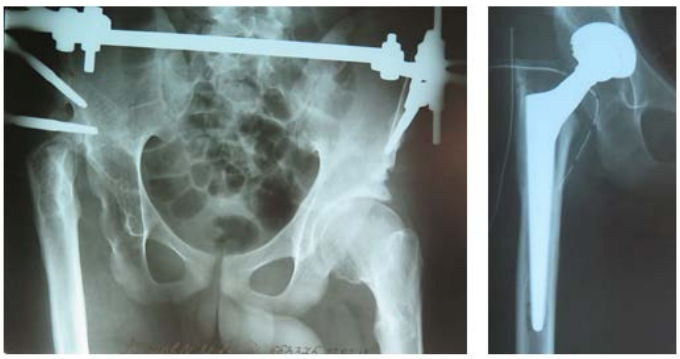
The patient was thoroughly examined, radiography and CT of the hip joints were performed, and a 3D model of the hip joints was created (Fig.1B). The examination showed underdevelopment of the right half of the pelvic bones, with a deficit of bone tissue of the acetabulum, the absence of the femoral head, and a relative shortening of the right lower limb by 9.5 cm.



A B

Figure.1. A – radiograph of the hip joints of the patient I., when hospitalized in the clinic; B – 3D model of the hip joint.

The patient set a task for doctors to restore the length of the limb during the hip replacement surgery. Taking into account the large shortening of the limb, it was decided to lower the femoral head to the level of the anatomical position of the acetabulum using an external fixation device before performing hip replacement, and then perform hip replacement. (Fig. 2)



A B

Figure. 2. A – radiograph of the patient I. at the stage of reduction of the proximal part of the right hip to the anatomical level of the acetabulum; B – radiograph of the right hip joint after prosthetics.

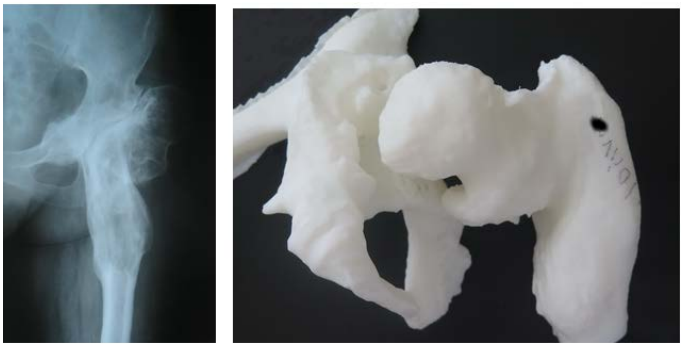
Preoperative preparation allowed to install the acetabular component of the prosthesis in the anatomical position of the acetabulum, to eliminate the shortening of the limb by 8 cm without neurovascular bundle complications. The patient was discharged in a satisfactory condition for outpatient treatment, and the result was assessed as good.

The installation of the femoral component also has its own peculiarities in patients with dysplastic coxarthrosis, this is due to the underdevelopment of the proximal femur. Therefore, it is necessary to select the prosthesis stems of small sizes and pay special attention to the shape of the bone marrow canal. In two cases, we had to refuse the patients in surgical intervention, because we could not find the right size of the prosthetic stem.

Certain difficulties arise during endoprosthetics after corrective surgery on the proximal femur that the patient has previously undergone. In each case, the approach was individual. In cases where the angle of curvature is distally at a significant distance from the small trochanter, we perform a corrective osteotomy of the femur at the top of the curvature and perform endoprosthetics using the prosthesis stem as an intramedullary rod. In cases where the curvature is located within the large and small trochanter, we perform its resection with stitching the muscles to the remaining part of the large trochanter.

Clinical case.

Female patient L., 42 years old, came to the clinic with a diagnosis of congenital dislocation of the left hip, neoarthrosis, a condition after corrective osteotomy of the proximal femur. It is known from the anamnesis that 27 years ago the patient underwent a corrective osteotomy of the proximal femur with fixation in the Ilizarov apparatus with an elongation of the hip at the osteotomy level. Upon examination, on the outer surface of the hip joint there are multiple soft tissue scars from surgeries, movements in the hip joint are rocking, shortening of the limb by 4 cm. A radiograph and a 3D model of the hip joint are shown in Fig. 3.



A B

Figure. 3. A – radiograph and B – 3D model of the left hip joint of patient L., before the operation.

The patient underwent endoprosthetics of the left hip joint using a prosthesis with a cementless type of fixation (Fig. 4).

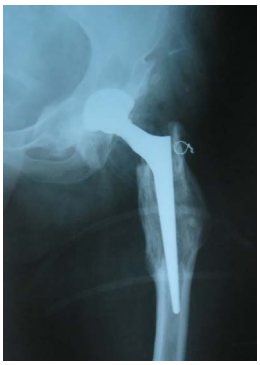


Figure. 4. Radiograph of the hip joint of the patient L., after hip replacement.

During surgery, the shortening of the lower limb was eliminated. There were no complications in the postoperative period. The result is regarded as good.

Treatment result.

The results of treatment were tracked for a period from 3 months to 10 years. Functional results were evaluated based on the Harris scale. The average score based on Harris scale increased from (41.31 ± 2.75) to (85.31 ± 1.40). In all cases of hip replacement, the acetabular component was fixed in the anatomical position of the acetabulum. The autografts were rebuilt and served as the acetabular roof. When performing the plastic surgery of the acetabular roof, the load limit on the operated limb was increased to 4-6 months. All patients had their limb length restored. In Crowe type III dysplasia, the cranial displacement of the femoral head was compensated on average by (2.72 ± 0.13) cm, in Crowe type IV dysplasia by (4.40 ± 0.34) cm. Whereas in Crowe IV congenital hip dislocation compensation of cranial displacement of the femoral head was (5.32 ± 0.35) cm.

In all cases of total hip replacement with Crowe type III or IV dysplasia (n 28), autografts were reconstructed in 96.7% of cases.

There were no neurovascular bundle traction complications.

Conclusions.

1.Hip replacement in dysplastic coxarthrosis belongs to complex prosthetics.

2.The acetabular component in hip replacement in Crowe type III or IV dysplasia should be placed in the anatomical position of the acetabulum. If the cranial displacement of the femoral head is less than 4 cm, hip replacement should be performed in one stage. In a unilateral cranial displacement of the femoral head of more than 4 cm, in order to avoid neurovascular bundle traction damage and facilitate the reduction of the prosthesis, preparation should be performed with the reduction of the femoral head to the level of the anatomical acetabulum using an external fixation rod device. It is possible to use a shortening osteotomy of the proximal femur, but then the length of the limb is not restored.

3.In the presence of a defect in the acetabulum bone tissue, plastic surgery should be performed using bone tissue extracted from the femoral head, which is rebuilt and performs the function of the acetabular roof.

Prospects for further research.

Arthroplasty of the hip joint for severe dysplasia refers to complex prosthetics. For the statistical processing of such studies the accumulation of clinical observations is necessary.

Conflicts of interest. Authors have no conflict of interest to declare.

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