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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

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გამოიცემა თბილისის სახელმწიფო სამედიცინო უნივერსიტეტთან
თანამშრომლობითა და მისი პატრონაჟით

ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

ТБИЛИСИ - НЬЮ-ЙОРК

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GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией и Международной академией наук, образования, искусств и естествознания (IASEIA) США 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.

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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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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).

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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.

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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).

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ავტორთა საყურადღებოდ!

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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.

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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.

Содержание:

НАУКА

SUBJECTIVE AND CLINICAL OUTCOMES OF SURGERY FOR CORRECTION OF RHEUMATOID FOREFOOT DEFORMITIES

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Painful forefoot deformities are prevalent in chronic rheumatoid arthritis patients (RA). Approximately 20% of all procedures for rheumatoid arthritis are performed on the foot [1]. Reconstruction of rheumatoid forefoot deformities has been developed over the past six decades. The severity of deformities and failure of drug therapy makes it challenging in its treatment. RA causes the destruction of the ligaments, capsules and other periarticular structures leading to metatarsophalangeal instability, destruction of collateral integrity, pannus, destruction of the articular surface and finally dislocation of the lesser metatarsophalangeal joints (MTPJ). Patient suffers deformity in the forefoot such as severe hallux valgus (HV) deformity (above 30 degree), claw/hammer toe deformity, crossover toes, lateral wind-swept toes deformity**,** metatarsalgia due to plantar declination of the lesser metatarsal (MT) heads with painful plantar callosities. The plantar fat pad is drawn distally with the proximal phalangeal subluxation. Weight bearing and walking aggravates the deformity. Insoles and customized shoes become unavoidable to overcome painful plantar keratoses and deformities**.** To correct the deformity and reduce pain, several surgical techniques have been used over the last decades, including arthrodesis [1-6]. One method commonly used is the Hoffmann-Clayton technique on the lesser toes, which is often concurrently used with a fusion of the first metatarsophalangeal (MTP) joint and is the standard procedure at the authors' institution for such severe forefoot disorders [7]. Another method is a complete forefoot correction according to Tillmann, which is a well-described procedure by Karl Tillmann [8-11]. The operation includes a Hueter-Mayo procedure with a dorsomedial approach for the hallux valgus (HV) and a plantar approach to the lesser toes for resection of the metatarsal heads with some particular modifications [9]. This surgical treatment helps to reduce forefoot pain, increase the ability to wear conventional shoes, and maintain forefoot function [9,12].

The purpose of our study is to assess the subjective and clinical outcomes of the lesser metatarsal head resections in rheumatoid arthritis patients via Clayton's dorsal and Hoffmann's plantar approaches at a minimum follow-up of 3 years.

Material and methods. In 2017, City Hospital No. 31, Moscow, 30 patients (56 feet) including 7 men and 23 women aged around 52 years (range 32 to 75 years) with severe forefoot deformities due to chronic rheumatoid arthritis underwent arthrodesis of 1st MTP joint and lesser metatarsal head resections. Bilateral procedures were performed in 26 patients. They were divided into 2 groups based on surgical approach of lesser MT head resections. First group had 25 feet with Clayton's dorsal approach & 2nd group – Hoffmann's plantar approach in 31 feet.

Surgical manipulations were carried out in all patients based on indications such as severe forefoot pain secondary to painful callosities under the MT heads, symptomatic HV, arthritis, and claw-toe deformity of the lesser toes, and destruction, dislocation, or subluxation of the MTP joints. Patients who had subtotal procedures, amputations of any toes, and patients whose index procedure was a revision surgery were excluded from the study**.** Weightbearing dorsiplantar and medial-oblique radiographs of the foot were performed preoperatively on all patients and assessed the degree of deformities. Clinical and radiographic views were helpful in preoperative decision making. However, only the intraoperative check was accurate, by performing the simple load stimulation test (LST) before screwing which is a very useful test. Post-operative follow-up of 3 years have been recorded. Statistical analysis of our data was carried out by means of software "Excel Windows Office XP" and "Statistics 6.0" (Stat soft, USA) with the calculation of arithmetic mean and its standard error (M±m).

Table 1. Patient response to questionnaire (total 56 feet)

Category	Subcategory	Clayton group (25)	Hoffmann group (31)	Total
Pain	No	9	17	26
	Mild	7	7	14
	Moderate	5	4	9
	Severe	4	3	7
Callosities	Yes	10	7	17
	No	15	24	39
Big toe influencing shoe selection	Yes	14	12	26
	No	11	19	30
Satisfied with the lesser toes position	Yes	14	23	37
	No	11	8	19
Reoperation	Yes	6	5	11
	No	19	26	45

Fig. 1. Clinical picture of patient A before surgery

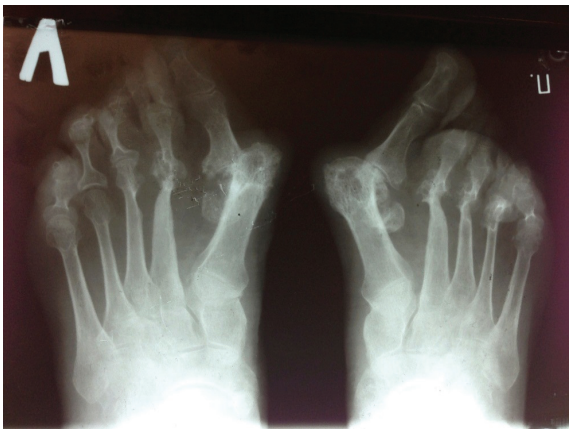

Fig. 2. Anterior-posterior radiological picture of patient A

All patients were given informed consent before participating and returned for subjective, clinical and radiological review. Subjective outcome was evaluated by subjective questionnaire (Fig. 1). AOFAS and FFI scores were recorded.

Subjective questionnaire was carried out by asking about forefoot pain, callosities under forefoot or at the site of operation, shape and position of big toe (influencing shoe selection), position of other toes and any further surgeries on the forefoot.

Operative technique. *Hoffmann method:* This method was carried out in 31 feet. Two-curved incisions were made on the plantar aspect of the forefoot, just proximal to the metatarsal sulcus. The plantar callosities and the subcutaneous bursae were excised. The capsules of the lesser MTP joints were split longitudinally, followed by excision of the MT (II to V) heads and fixed with Kirschner wire. The resections were made serially, maintaining the transverse arch of the distal metatarsals. Synovectomy of the lesser metatarsal joints were also performed. The incision was closed after making sure that the skin edges were bleeding and of normal appearance. The closure has also facilitated in pulling the lesser toe plantarwards to correct the claw deformity. If clawing deformity of the lesser toes persisted, extensor tenotomy with or without arthroclasis of the interphalangeal joints were performed. In 13 feet lengthening of extensor tendons were performed.

Clayton (dorsal approach): In 25 feet, the 2nd & 3rd MTP joints were approached through a longitudinal dorsal incision in the second web space, while the 4th & 5th MTP joints were approached through a similar incision in the fourth web space. A smooth parabola was created by resecting the first and second metatarsals at equal length and then gently tapering the cuts more proximally in a smooth arc to the fifth metatarsal. Kirschner wire fixation and plaster immobilization were used in all patients. The parabola - 2nd to 3rd (4mm), 3rd to 4th (6mm) and 4th to 5th (12 mm) were maintained.

In both cases, the 1st MTPJ was fused using a separate dorso-medial incision. Fixation of the 1st MTPJ arthrodesis was achieved using one compression (3.0 mm) screw. Intraoperatively, the metatarsal lengths were assessed after the fusion by Simple Load Stimulation test and any discrepancies were addressed with adjustments of the lesser metatarsal lengths. All spikes and plantar condylar prominences were carefully excised.

In our practice, based on indications arthrodesis of 1st MTPJ with single screw and lesser MT head resections are performed. If the 1st MTPJ is unaffected or asymptomatic, then it is preserved. In some young adults with mild rheumatoid deformity and absence of avascular necrosis in radiographs, excision arthroplasty of the lesser MT heads is confined until 4th MT head and 5th MT head is preserved by performing Wilson osteotomy with 1 screw fixation.

Wounds were then closed using monofilament non-absorbable sutures. Post operatively, wool and crepe dressings were used. For the first forty-eight hours all patients had foot elevation and ice pack application to reduce post-operative oedema. They were mobilized on 2nd day subsequently using heel weightbearing (Barouk) shoes for eight weeks to protect the 1st MTP joint arthrodesis. Postoperative radiographs were taken on the second postoperative day. They were discharged from the hospital once swelling subsided, good results in dressing were noticed and good local and body temperature were evaluated. All the recommendations to be followed carefully were explained and given in written form to respective patients. Sutures were removed after 3 weeks. Kirschner wires were removed after 6-8 weeks. Full weightbearing was encouraged eight weeks after surgery. Patients were evaluated regularly in the outpatient clinic at 6 weeks, 3 months, 1 year and 3 years postoperatively. And a control postoperative radiographs after 3 months were performed and evaluated.

Results and discussion. Based on our study, at a mean follow up of 3 years 39 feet (73.3%) had no pain or only mild pain. Six (11%) patients responded as having moderate pain, and 9 (15.5%) patients had severe pain. Two patients had a wound breakdown, which healed with local wound care in 4 weeks. Callosities were present in 12 patients (41.3%) in the Clayton group and in 6 patients (37.5%) in the Hoffmann group. The position of the hallux influenced shoe selection in 14 patients (55.7%) in the Clayton group and 7 patients (50%) in the Hoffmann group. Nineteen (65.5%) patients in the Hoffmann group were satisfied with the position of the lesser toes compared with 9 patients (56.2%) in the Clayton group (Table 2).

Clinical assessment. Subjective relevant outcome measure (SROM) improved significantly at the latest follow-up. Out of the 30 patients, excellent results were documented in 7, good in 16, fair in 3 and poor in 4. Poor outcomes were mainly due to non-reposition of the fat pad underneath the excised metatarsal ends. The average post-operative AOFAS score was 67.82 (range: 32 to 82), and the mean post-operative Foot Function Index (FFI) was 0.51 (range: 0.23 to 0.62) in both groups (Table 3).

Table 2. Follow-up AOFAS scores of 43 patients

AOFAS score (pain)		AOFAS score (Function)		AOFAS score (Alignement)	
Max. 40 points	**Score**	**Max. 35 points**	**Score**	**Max. 15 points**	**Score**
No of feet		No of feet		No of feet	
40	40	32	27	43	15
8	30	12	22	19	8
4	20	6	19	4	0
4	0	6	14	–	–
Total = 56	Mean = 33	Total = 56	Mean = 19.9	Total = 56	Mean = 12.1

Table 3. Subjective relevant outcome measure (SROM)

SROM	Pre-operative Mean score (1 to 10) (Clayton group)	Post-operative Mean score (1 to 10) (Clayton group	Pre-operative Mean score (1 to 10) (Hoffmann group)	Post-operative Mean score (1 to 10) (Hoffmann group)
Pain (VAS score)	8.7 (6 to 9)	2.6 (1 to 3)	8.8 (6 to 9)	2.4 (1 to 3)
Mobility	3.4 (3 to 5)	5.6 (5 to 7)	3.4 (3 to 5)	5.8 (5 to 7)
Footwear tolerance	3.4 (2 to 5)	7.2 (6 to 8)	3.4 (2 to 5)	7.4 (6 to 8)
Cosmetic appearance	1.8 (1 to 2)	8.4 (7 to 9)	1.8 (1 to 2)	8.7 (7 to 9)

Table 4. Radiographic assessment of the feet

Radiographic measurements (mean angles, in degrees)	Pre-operative (Clayton group)	Post-operative (Clayton group)	Pre-operative (Hoffmann group)	Post-operative (Hoffmann group)
Hallux Valgus angle	39° (15°- 67°)	15° (9° - 20°)	39° (15°- 67°)	13° (9° - 20°)
Intermetatarsal angle	16° (10° -25°)	8° (5° - 12°)	16° (10° -25°)	7° (5° - 12°)
Dorsiflexion angle of fusion	———————	23° (15° - 30°)	———————	24° (15° - 30°)

Radiological assessment. Ninety percent of feet (50/56) had radiological evidence of fusion at the 1st MTP joint and good outcome of lesser metatarsals. Two feet had a painless non-union. At the time of most recent follow-up the hallux valgus angle was corrected from a mean of 39° (pre-operative) to 15° (post-operative) and 1st inter-metatarsal angle was corrected from a mean of 15° (pre-operative) to 8° (post-operative). The dorsiflexion angle of the hallux with reference to the metatarsal averaged 24° (Table 4).

Complications. Seven patients had superficial wound discharge that resolved completely by the time sutures were removed, after antibiotic treatment and regular wound care. Two patients developed ulcerations over the plantar wound, which eventually healed with conservative treatment at four and six weeks respectively. There were no deep-seated or late infections. There were no systemic complications.

Assessment of the sagittal alignment on the most recent AP radiograph demonstrated that the five re-fusions had longer lesser metatarsals compared to the first (Fig. 3). Painful plantar callosities recurred in seven feet. Two feet had painless callosity recurrence.

Re-operation was performed in three patients with non-union of the 1st MTP joint arthrodesis. Successful radiological fusion was achieved in them.

Hoffmann in 1912 first reported the resection of MT heads and necks to correct the toes and high arch. He excised the MT heads through a plantar transverse incision just proximal to the web spaces. He encouraged a generous resection of the MT necks. Clayton introduced the concept of forefoot resection arthroplasty in rheumatoid arthritis in 1963. He used the dorsal incision to remove the MT heads and the bases of the proximal phalanx. The rationale was to decrease high foot pressures and thereby to relieve pain. At final follow-up, subjective outcomes were similar in both groups (Hoffmann and Clayton groups), except for a high rate of early recovery, functional stability, cosmetic results in Hoffmann group (Table 1). Seven (43.75%) of the 16 patients treated in the Clayton group required additional wound care, had comparatively painful recovery at an average follow-up of 4.3 months. The result of surgery is good but the psychological and cosmetic results were better in the Hoffmann group.

In this study, we routinely resected all the lesser metatarsal heads and done arthrodesis of 1st MTP. Excision of individual symptomatic heads leads to transfer metatarsalgia and thus to worse results than excision of all four and to more operations. Instead of resecting the metatarsal heads, the Stainsby operation resects the base of the proximal phalanges and repositions the dislocated plantar plate beneath the metatarsal heads [13,14]. Mann and Schakel found no difference in outcome comparing, retrospectively, a small series of patients in whom resection of the MT heads was combined with removal of the base of the proximal phalanges with a later group in whom only the MT head was resected. However, the cosmetic appearance was more pleasing in the latter group. Complete resection of the proximal phalanges is reported to result in a high rate of recurrent deformity, weakened strength in the push-off phase of walking, less satisfaction and less relief of pain. Several incisional approaches have been used, including a transverse or elliptical incision and a dorsal transverse incision. A plantar approach allows the removal of plantar calluses and bursae and offers easy access to the MT heads. Closing the skin after elliptical excision relocates adequate skin and the plantar fat pad beneath the MT shafts.

Fig. 3. Assessment of the sagittal alignment on the most recent AP radiograph

The goal is to realign the lesser MTP joints, most importantly in the sagittal plane to relocate the plantar plate and the plantar fat pad beneath the MT shafts. Ensuring that the toes are not pulled back into a claw toe position through lengthening, transfer or severing of the tendons and the use of K-wire fixation post-operatively contributes to maintain this repositioning. The optimal amount of bone that should be resected remains debatable but depends on the magnitude of overlap of the proximal phalanx on the MT head and whether the extensor tendons are severed. Conservative resection, being the minimal amount of bone needed to decompress the joint, and threaded K-wires are associated with improved contact area, increased weight distribution through the lesser toes and improved clinical rating score. The MT bone should be cut in such a fashion that the plantar aspect of the distal stump is oriented parallel to the weight-bearing surface of the foot, to minimize the risk of a prominent surface. The length of the lesser MTs is related to the length of the second MT and the fourth and the fifth MTs being progressively shorter in order to leave a smooth arc of resection.

The surgical plantar approach was well tolerated, even 20 or more years after the operation (based on published reports) [9]. The plantar approach allowed us to reposition the fat pad underneath the excised metatarsal ends. We observed that the plantar approach for excision of the metatarsal heads allows dermodesis thereby bringing the toes down to the ground for more even distribution of weight transfer when walking. As a result, the first MT may have reduced concentration of load.

However, management of the first MTP joint is controversial. Resection, arthrodesis, or silastic arthroplasty are the commonly used methods. Others, such as Bass et al and Kadambande et al, advocate strongly for a primary arthrodesis of the MTP I joint due to increased stability of the MTP I joint and weightbearing possibility plus increased protection of the lesser toes after reconstructive surgery [13,15]. These authors noticed no deterioration of results with time and no recurrence of deformities in lesser toes. In contrast, others support a combined osteotomy and soft tissue reconstruction and have had good results with that [13,15,16]. In the authors' experience, a mere osteotomy and soft tissue reconstruction should be limited to mild HV angles of less than 40 degrees with good redressing intraoperatively. However, in cases of severe joint deviations of 40 degrees or more of the HV angle, the authors suggest, with regard to the current results, primary arthrodesis of the MTP I joint in order to avoid deformity relapse [17-21]. This opinion aligns with Bass et al and Whitt et al, who used a primary fusion technique for all HV in forefoot deformity surgery [22-26].

We owe the good outcome to the metatarsal length harmonization, stabilization of the 1st MTP joint with successful reloading of the first ray, maintaining the normal cascade of the transverse metatarsal arch, shaping the resected MT necks with no remnant bony spike, adequate closure of the plantar or dorsal skin incisions and delayed post-operative weight bearing [27-32].

Conclusion. The operation combining fusion of the first MTP joint with lesser metatarsal head excision results in excellent pain relief, improved cosmesis, and more comfort with footwear at an average follow up of 3 years. Fusion of the first MTPJ prevents further deformities of the toes by acting as a strut and loading in the correct axis. A plantar approach allows to perform the excision arthroplasty and dermodesis of plantar fascia, thereby improving function of the toes and even distribution of weight. Hoffman and Clayton procedures are optimal methods over others. However, Hoffman (plantar approach) serves to be more convenient resulting in early recovery, adequate functional stability, rehabilitation and better cosmetic results.

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SUMMARY

SUBJECTIVE AND CLINICAL OUTCOMES OF SURGERY FOR CORRECTION OF RHEUMATOID FOREFOOT DEFORMITIES

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Hoffmann-Clayton procedures appears to be promising surgical treatment in severe rheumatoid forefoot deformities. It has been reported that 80% to 90% of foot deformities in adults are due to rheumatoid arthritis. Despite of various surgical approaches, early functional and cosmetic results have been the greatest concern among patients. Thus, optimal surgical approach in correction of severe rheumatoid forefoot deformities is of vital importance for better subjective and clinical results.

Clinical study was conducted on 56 painful chronic rheumatoid foot who were treated by arthrodesis of 1st metatarsophalangeal (MTP) and lesser metatarsal head resections. They were divided into 2 groups based on surgical approach in lesser metatarsal head resections. 1st group had 25 feet with dorsal approach (Clayton) and 2nd group – 31 feet with plantar approach (Hoffmann).

Subjective and clinical outcomes were evaluated in both groups. The mean post-operative AOFAS scores were 67.82 (range: 32 – 82) and mean post-operative Foot Function Index (FFI) was 0.51 (range: 0.23 to 0.63) in both groups. Eighty seven percent (48/56 feet) reported early pain relief, improved cosmetic appearance, and improved footwear comfort in Hoffmann group. The mean hallux valgus angles improved from 37 to 15 degrees and the 1st intermetatarsal angle from 17 to 8 degrees in both groups. Four feet had non-union of the 1st MTP joint arthrodesis and three among them were re-operated.

Hoffmann and Clayton procedures are optimal methods for excision arthroplasty of lesser metatarsal heads. However, Hoffmann (plantar approach) serves to be more convenient resulting in early recovery, adequate functional stability, rehabilitation and better cosmetic results.

Keywords: Hoffmann-clayton, rheumatoid foot, hallux valgus, metatarsalgia, excision arthroplasty, arthrodesis.

РЕЗЮМЕ

СУБЪЕКТИВНЫЕ И КЛИНИЧЕСКИЕ ИСХОДЫ ХИРУРГИЧЕСКИХ ДОСТУПОВ ПРИ КОРРЕКЦИИ РЕВМАТОИДНЫХ ДЕФОРМАЦИЙ ПЕРЕДНЕГО ОТДЕЛА СТОПЫ

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Клиническое исследованы 56 пациентов с хроническим ревматоидным артродезом стопы, которым выполняли артродез 1-й плюснефаланговой (МТР) и резекцию головки малой плюсневой кости. Пациенты были разделены на 2 группы в зависимости от хирургического доступа при резекции головки малой плюсневой кости. В I группе было 25 стоп с дорсальным доступом (Clayton), а во II группе - 31 стопа с подошвенным доступом (Hoffmann).

Субъективные и клинические исходы оценивались в обеих группах. Средний послеоперационный балл по шкале AOFAS составил 67,82 (диапазон: 32–82), средний послеоперационный индекс функции стопы (FFI) - 0,51 (диапазон: 0,23–0,63) в обеих группах. 48 (87%) больных (48/56 стоп) II группы сообщили о раннем облегчении боли, улучшении внешнего вида и комфорта обуви. Средние углы вальгусной деформации большого пальца стопы улучшились с 37^0 до 15^0, а угол I межплюсневого сустава с 17^0 до 8^0 в обеих группах. Четыре стопы имели несращение артродеза I сустава МТР и три из них были прооперированы повторно.

Процедуры Hoffmann-Clayton - оптимальные методы эксцизионного эндопротезирования головок малых плюсневых костей. Тем не менее, метод Hoffmann (подошвенный доступ) более удобен, что приводит к раннему выздоровлению, адекватной функциональной стабильности, реабилитации и лучшим косметическим результатам.

რეზიუმე

ქირურგიული მიდგომების სუბიექტური და კლინიკური გამოსავლები ტერფის წინა ნაწილის რევმატოიდული დეფორმაციების კორექციის დროს

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ჩატარებულია ტერფის ქრონიკული რევმატოიდული ართროდეზის მქონე 56 პაციენტის კლინიკური კვლევა. პაციენტები დაიყო ორ ჯგუფად, ქირურგიული მიდგომის გათვალისწინებით მცირე წინა ტერფის ძვლის თავის რეზექციის დროს. I ჯგუფში გაერთიანდა 25 ტერფი დორსალური მიდგომით (Clayton), II ჯგუფში - 31 ტერფი ტერფის ძირისმხრივი მიდგომით (Hoffmann).

ორივე ჯგუფში შეფასებული იყო სუბიექტური და კლინიკური გამოსავალი. საშუალო ოპერაციის შემდგომმა ქულამ AOFAS სკალის მიხედვით შეადგინა 67,82 (დიაპაზონი: 32-82), ტერფის ფუნქციის საშუალო ოპერაციის შემდგომი ინდექსი - 0,51 (დიაპაზონი: 0,23–0,63) ორივე ჯგუფში. II ჯგუფის 48 (87%) პაციენტმა (48/56 ტერფი) აღნიშნა ტკივილის ადრეული შემსუბუქების, გარეგნული შესახედაობის გაუმჯობესების და ფეხსაცმლის კომფორტულობის შესახებ. ტერფის ცერა თითის ვალგუსური დეფორმაციების საშუალო კუთხე გაუმჯობესდა 37^0-დან 15^0-მდე, ხოლო წინა ტერფის I სახსრის კუთხე - 17^0-დან 8^0-მდე ორივე ჯგუფში. ოთხ ტერფში აღინიშნა სახსრის ართროდეზის შეუხორცებლობა; მათგან სამზე ოპერაცია ჩატარდა განმეორებით.

პროცედურები Hoffmann-Clayton წინა ტერფის მცირე ძვლების თავების ექსციზიური ენდოპროთეზირების ოპტიმალური მეთოდებია. ამასთან, Hoffmann-ის მეთოდი უფრო მოხერხებულია, რაც განაპირობებს ადრეულ გამოჯანმრთელებას, ადეკვატურ ფუნქციურ სტაბილურობას, რეაბილიტაციას და უკეთეს კოსმეტიკურ შედეგებს.