

THE COMPARATIVE ANALYSIS OF THE SURGICAL TREATMENT RESULTS OF OLD SOFT TISSUE INJURIES OF THE FRONT SURFACE OF THE LOWER THIRD OF FOREARM

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✓ Resume

Fractures of the forearm in childhood and adolescence are a fairly common type of injury to the upper limb. This pathology is always accompanied by damage to soft tissue formations including the interosseous membrane, muscles and adjacent interosseous vessels, which aggravates the severity of the injury and largely determines the outcome of treatment. Based on the foregoing, the surgical method of treating chronic injuries of soft tissues of the anterior surface of the lower third of the forearm is one of the urgent problems that has not yet been resolved and requires further discussion. Neurolysis, tenolysis, myolysis, capsulotomy, muscle-tendon transposition, arthrodesis, with this pathology are poorly studied, in addition, the so-called long-term combined damage like soft tissues + tendons + ligaments + nerve + vascular damage requiring a differentiated approach, still little studied in the literature. This study analyses the results of the treatment of chronic soft tissue lesions of the anterior surface of the lower third of the forearm by applying individual surgical tactics.

Keywords: *Obsolete, soft tissue, forearm, neurolysis, injury*

СРАВНИТЕЛЬНЫЙ АНАЛИЗ РЕЗУЛЬТАТОВ ХИРУРГИЧЕСКОГО ЛЕЧЕНИЯ СТАРЫХ ПОВРЕЖДЕНИЙ МЯГКИХ ТКАНЕЙ ПЕРЕДНЕЙ ПОВЕРХНОСТИ НИЖНЕЙ ТРЕТЬИ ПЕРЕДНИЕ

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✓ Резюме

Переломы предплечья в детском и подростковом возрасте - довольно частый вид травм верхней конечности. Данная патология всегда сопровождается повреждением образований мягких тканей, в том числе межкостной перепонки, мышц и прилегающих межкостных сосудов, что усугубляет тяжесть травмы и во многом определяет исход лечения. Исходя из вышеизложенного, хирургический способ лечения хронических повреждений мягких тканей передней поверхности нижней трети предплечья является одной из актуальных проблем, которая до сих пор не решена и требует дальнейшего обсуждения. Невролиз, тенолиз, миолиз, капсулотомия, мышечно-сухожильная транспозиция, артродез при данной патологии мало изучены, кроме того, так называемое длительное комбинированное повреждение типа мягких тканей + сухожилий + связок + нерв + сосудистое повреждение, требующее дифференцированного подхода, еще мало изучен в литературе. В данном исследовании анализируются результаты лечения хронических поражений мягких тканей передней поверхности нижней трети предплечья с применением индивидуальной хирургической тактики.

Ключевые слова: *устаревшее, мягкие ткани, предплечье, невролиз, травма.*

**BLAK SOHASINING PASTKI QISMI ESKI ;AROHTLARINING JARROHLIK
DAVOSINING QIYOSIY TAHLILI**

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✓ **Rezyume**

Bolalik va o'spirinlik davridagi bilakning sinishi yuqori oyoq-qo'lning juda keng tarqalgan jarohati hisoblanadi. Ushbu patologiya har doim yumshoq to'qimalarning shakllanishiga, shu jumladan suyaklararo membrana, mushaklar va qo'shni suyaklararo tomirlarga shikast etkazish bilan birga keladi, bu shikastlanishning og'irligini kuchaytiradi va asosan davolanish natijasini belgilaydi. Yuqorida aytib o'tilganlarga asoslanib, bilakning pastki uchdan bir qismining oldingi yuzasi yumshoq to'qimalarining surunkali shikastlanishlarini davolashning jarrohlik usuli hali hal qilinmagan dolzarb muammolardan biridir va qo'shimcha muhokama qilishni talab qiladi. Ushbu patologiya bilan neyroliz, tenoliz, mioliz, kapsulomiya, mushak-tendon transpozitsiyasi, artrodez yomon o'rganilgan, qo'shimcha ravishda differentsial yondashuvni talab qiladigan yumshoq to'qimalar + tendonlar + ligamentlar + asab + qon tomirlari kabi uzoq muddatli qo'shma zararlanishlar deb ataladi. , hali adabiyotda ozgina o'rganilgan. Ushbu ishda individual jarrohlik taktikasini qo'llash orqali bilakning pastki uchdan bir qismining oldingi yuzasining surunkali yumshoq to'qimalarining shikastlanishlarini davolash natijalari tahlil qilinadi.

Kalit so'zlar: Eskirgan, yumshoq to'qima, bilak, neyroliz, shikastlanish

Introduction

Damage to the soft tissues of the front surface of the forearm is one of the most common household injuries, reaching 23.7% -27.1% of all types of injuries [1,3,7,16,17, 21]. Complications arising in this case, observed in 53.4% -61.9%, are a direct result of mistakes made during emergency care [2, 9, 10, 14, 15, 18]. Along with the modern development of medicine, the treatment of soft tissue wounds of the anterior upper limb is one of the unexplored problems of traumatology and orthopedics. In particular, neuro-tenoraphy, neurolysis, tenolysis, myolysis, capsulotomy, muscle-tendon transposition, arthrodesis, with this pathology are poorly studied, in addition, the so-called long-term combined damage like soft tissues + tendons + ligaments + nerve + vascular damage requiring a differentiated approach, still little studied in the literature. Inadequate surgical procedures lead to an increase in disability and account for 86.3% of 83.7% [4, 5, 19, 20, 22, 23]. Based on the foregoing, the surgical method of treating chronic injuries of soft tissues of the anterior surface of the lower third of the forearm

is one of the urgent problems that has not yet been resolved and requires further discussion.

This study will analyses the results of the treatment of chronic soft tissue lesions of the anterior surface of the lower third of the forearm by applying individual surgical tactics.

Materials and methods

Our study involved 46 patients with chronic soft tissue injuries of the anterior surface of the lower third of the forearm that were treated in the Department of Traumatology, Clinical Hospital № 1, Tashkent between 2012 and 2014. Patients were divided into 2 groups: 25 patients made up the control group who were applied traditional tactics and 21 patients of the main group who used personalized advanced surgical tactics. Of the 21 patients in the main group, 16 patients were men, 5 were women; of these, 8 were 18–25 years old, 2 patients were 26–35 years old, 11 patients were 36–45 years old. In the control group, 22 patients were men, 3 patients were women, 10 patients aged 18–25 years, 12 patients aged 26–35 years, and 3 patients aged 36–45 years (Table 1). All

patients underwent clinical, laboratory, x-ray, (magnetic resonance imaging) scans. ENMG (electroneuromiography) and MRI

Table 1: Distribution of patients by sex and age in the control and main groups (n = 46)

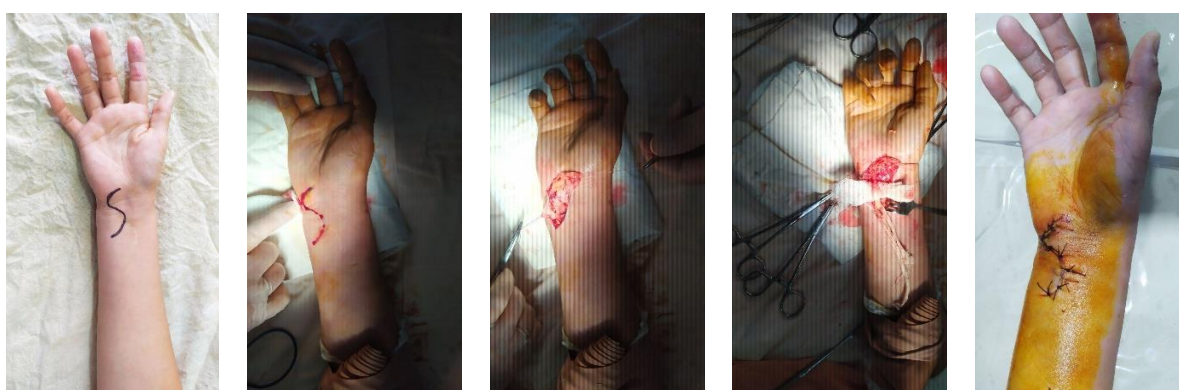
Group	Age	Gender		Total %
		Men %	Women %	
Main	18-25	7 (33,3%)	1 (4,8%)	38,1%
	26-35	8 (38,1%)	3 (14,3%)	52,4%
	36-45	1 (4,8%)	1 (4,8%)	9,5%
Control	18-25	9 (36%)	1 (4%)	40%
	26-35	11 (44%)	1 (4%)	48%
	36-45	2 (8%)	1 (4%)	12%
Total		38 (82,6%)	8 (17,4%)	100%

The treatment results were evaluated on the Disabilities of the Arm, Shoulder and Hand (DASH) scale, which have 30 criteria up to 5 points.

Applied method of technique

The technique is carried out as follows: The patient, after processing the surgical section of the skin with an "S"-shaped cut along the anterior surface of the lower third of the forearm, separates the skin from healthy tissues, and then cuts through the skin to form a new bone structure that is more like a bone structure than a normal bone. Two oncoming fascial-fatty flaps are then formed from local tissues, which are sutured and removed in different directions, and

then removed from the surrounding tissues. This is done to provide the full volume of appropriate surgical treatment available to the patient and to the patient as a whole. The advantage of this method is that, with these incisions between the skin and subcutaneous tissue, the initial skin incision is smaller and the type of damage is clearly and completely determined. Another advantage of the "S"-shaped incision is that, when combined with older injuries, that is, simultaneously with damage to tendons, muscles, blood vessels and nerves of various degrees, access allows you to perform all the planned manipulations without any additional expansion of the wound.



Old damage to the soft tissues of the anterior surface of the lower third of the forearm. "S" - shaped cut.

Execution of the "S" -shaped incision along the anterior surface of the lower third of the forearm reduces the skin incision, the type of damage is clearly defined and in full, in addition, the advantage of the "S" -shaped incision is that,

with chronic combined injuries of tendons, muscles, blood vessels and nerves of various degrees, all planned surgical procedures are performed without additional expansion of the wound.

The formation of two opposite fascial-fatty flaps from local tissues, which are sutured

and retracted in different directions, allows you to determine the type and extent of damage.

Thus, the use of the proposed method in trauma practice in the treatment of chronic combined injuries of the soft tissues of the anterior surface of the lower third of the forearm allows the most complete and less traumatic restoration of the functionality of the damaged structures.

At the end of the operation, the wounds are sutured in layers, pre-washed with aseptic solution and then placed into the patient's own tissue. The wound is then removed and treated with a liquid solution. The wound is then removed and treated with a liquid solution.

Results

The treatment results for all patients were analyzed based on the three most commonly used

criteria, namely, good, satisfactory and unsatisfactory, and based on clinical, instrumental and functional criteria. Nine (36.0%) patients in the control group had a combined fracture or damage to the ligament on the front surface of the forearm, of which 6 (66.7%) had good results and 2 (22.2%) were satisfactory. In both patients, clinical signs showed moderate tissue hypotrophy, while 1 (11.1%) patient received an unsatisfactory result, which was not successful. Mixed obsolete trauma (without damage to the nerve vessel) of skin lesion + skin defect in 7 (28.0%) patients. Five (71.4%) of these patients received good results after percutaneous resection, without satisfactory results, and 2 (28.6%) patients had unsatisfactory results due to pus (*Table 2*).

Table 2: Results of treatment in patients of the main and control groups

Assessment Criteria	Main group			Control group		
	With unmixed old damage %	With mixed nerve damage %		With unmixed old damage %	With mixed nerve damage %	
		No damage to nerve tissue	With damage to nerve tissue		No nerve damage	With nerve damage
Good	3 (14,3%)	5 (23,8%)	9 (42,9%)	6 (24%)	5 (20%)	5 (20%)
Satisfactory		2 (9,5%)	1 (4,8%)	2 (8%)		1 (4%)
Unsatisfactory			1 (4,8%)	1 (4%)	2 (8%)	3 (12%)
Total	3 (14,3%)	7 (33,3%)	11 (52,4%)	9 (36%)	7 (28%)	9 (36%)
	21			25		

In the remaining 9 (36.0%) patients, mixed (with damage to the nerve vessel), 5 (55.6%) patients had good results in 1 (11.1%) with lung tissue malnutrition, the forearm - contractions were observed in the palms and fingers, in 3 (33.3%) patients had unsatisfactory results, 3 patients had nerve paresis, soft tissue atrophy and joint contractions.

All patients treated in the main group were evaluated according to three criteria based on clinical, instrumental control and functional criteria. The new method developed by the author not only allows the identification and elimination of pathological processes in the tissues, but also improves the results after treatment. Here are

some of the patients who were treated by this method: all patients of the experimental group had combined obsolete injuries in 3 (14.3%) of 21 patients who were treated by the authors' method, and all clinical, instrumental and functional symptoms were normalized and evaluated positively. Seven (33.3%) patients had nontraumatic damage to the nervous vascular system, five of 7 patients (71.4%) had three criteria, three were rated good, and 2 (28.6%) had a quality score and evaluation criteria were satisfactory, and unsatisfactory results were not identified. In 11 (52.4%) patients, the compound was treated with obsolete mixed nerve injuries, and the results after treatment were as follows: in

9 (81.8%) patients, clinical signs were completely restored, instrumental changes were normalized, and functional symptoms, namely

movements of the wrist and thumb were fully restored. Postoperative results improved and patients recovered completely.



ENMG examination of the patient

In 1 patient, the sensitivity and motor function of the nervous system were partially restored, that is, ENMG was below normal; in another patient, due to a violation of the orthopedic regimen, atrophy of soft tissues, paresis of the carpal nerve and palm of the wrist, as well as contraction of the fingers, were observed. As the analysis showed in the control group, 11 (44%) patients received good results, 8 (32%) satisfactory and 6 (24%) patients received unsatisfactory treatment results. In the main group, 17 (81%) patients had a good result, 3 (14.3%) were satisfactory, and 1 (4.7%) patient was unsatisfactory. The study of DASH indicators at the control examination was conducted in 21 patients. The distribution of indicators in the 1st and 2nd subgroups of patients showed that the best subjective assessment of hand function in the study sample was presented in the 1st subgroup with isolated injuries of nerves or tendons. A higher DASH score was observed in patients with mixed chronic injuries (nerves vessels, tendons). Thus, the use of the proposed method in surgical practice for chronic combined soft tissue injuries of the anterior surface of the lower third of the forearm allows the functionalization of damaged tissues to be fully and less traumatic.

Discussion

Chronic damage to the soft tissues of the anterior surface of the lower third of the forearm is not only a localized violation of the palms of the wrists, but also a clinical manifestation of post-traumatic disease. The location of the pathological process in the neurotrophic nature is objective, its identification allows us to predict and prevent the development of the disease. Evaluation of clinical, medical history, laboratory

and electrophysiological indications of patients with mixed soft tissue injuries on the front surface of the forearm shows that timely detection of neurotrophic complications in patients at risk and assessment of injury results and prediction of results [1, 3, 6, 7]. The lower forearm is an indication for surgical treatment for incomprehensible complex injuries of the anterior surface of soft tissues, compression ischemic neuropathy and scars, anatomical damage to nerves and tendons [6, 8, 11, 18]. After severe injuries in the front surface of the lower third of the forearm, patients have a limited choice of profession and increased disability. The level of disability after injury in this area is in first place among musculoskeletal injuries and is 13-30% [2, 7, 12, 13]. Dynamic studies, good results at different stages of treatment, the gradual conduct of primary reconstructive surgical interventions lead to a quick and complete restoration of the neuromuscular apparatus with damaged joints of obsolete nerves and tendons. Thus, the aforementioned method will help to fully diagnose wounds on the anterior surface of the lower forearm, to identify the underlying wound and eliminate areas of the pathological source, thereby improving the outcome of treatment and reducing the number of complications and disorders.

Conclusion

The proposed method will improve the effectiveness of the results of treatment of chronic soft tissue injuries of the anterior surface of the lower third of the forearm to 83.8%, helps to restore the anatomical structures of soft tissues and the ability to work of patients with a decrease in unsatisfactory results by 24.7%.

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