

## SURGICAL RESTORATION OF ISOLATED MOVEMENTS OF FACIAL MUSCLES IN PATIENTS WITH FACIAL PARALYSIS

Rashidov Muhsin Narzi o'g'li

Bukhara State Medical Institute

named after Abu Ali Ibn Sino

Tel : +998911329697

MukhsinRashidov@gmail.com

**ABSTRACT** . Due to the growing social significance of correction of pathological lesions of the maxillofacial region, the relevance of searching for highly effective methods and means of their treatment increases [10]. Currently, the number of patients with facial nerve damage is growing, which is due to the increase in the number of cases of traumatic damage to the maxillofacial region, gunshot wounds to the head, an increase in the percentage of oncological diseases of the facial region, pathologies of the parotid salivary gland and complications after plastic surgery and cosmetic manipulations [11, 12, 54, 80, 84]. Facial nerve damage ranks second among diseases of the peripheral nervous system and first in the structure of cranial nerve diseases [27, 90, 101, 108]. Treatment of paresis and paralysis of the facial muscles was one of the most difficult problems of plastic surgery in the middle of the last century. Currently, the restoration of functional, social, cosmetic, psychological and economic aspects of human life remains a priority task [2, 19, 37, 47, 50].

Pathology of the facial nerve is a problem that neurologists, maxillofacial and plastic surgeons most often encounter [1, 63, 127]. The goal of treating a paralyzed face is to restore the motor activity of the facial muscles, eliminate functional discomfort when eating, and restore facial symmetry, both at rest and during active movements. This goal can be achieved using various methods of reinnervation of the

facial muscles using the masticatory, hypoglossal, accessory, mylohyoid nerves, including the cross-plastic method [9, 17, 69, 73, 74, 87].

Restoration of the integrity of the facial nerve becomes impossible when the main trunk is lost - when it is damaged inside the fallopian canal or at the intracranial level [8, 21, 25, 52, 53, 55].

According to literary sources, the criterion for successful treatment is reinnervation performed before the onset of atrophy of the facial muscles [19, 34, 44, 66, 67, 91, 96, 120]. However, a detailed study of the available publications revealed that almost all patients require repeated corrective surgeries or cosmetic procedures. Rehabilitation of patients with this pathology is one of the most difficult problems of maxillofacial reconstructive surgery and neurology. This is primarily due to the structural features and innervation of the facial muscles, their ability to reproduce complex synchronous and isolated movements. None of the existing methods of facial muscle reinnervation make it possible to reproduce isolated movements. Moreover, all movements are performed synchronously, which is due to the structure of the motor nucleus and the number of motor neurons of the donor nerve, which uncontrollably grow into the trunk of the facial nerve (sprouting) during neuroplasty [103, 118, 126]. The appearance of facial muscle movements in patients after neurorrhaphy can be regarded as a satisfactory functional result for the surgeon, but for the patient it will be questionable, since the simultaneous movement of all facial muscles does not give a good functional and aesthetic result and does not improve his psychoemotional state. This is why the problem of social rehabilitation of such patients remains one of the most pressing issues of modern neurosurgery [26, 76, 116, 122].

It should be noted that in order to achieve a good functional and aesthetic result in patients with paralysis of the facial muscles, it is necessary to obtain isolated movements of the facial muscles [32, 43, 51, 116]. Theoretically, it can be assumed that by isolating individual branches of the facial nerve and suturing them with

different branches of the donor nerves, it is possible to achieve individual independent contractions of different groups of facial muscles.

#### The level of development of the research topic

The literature covers numerous methods of reconstructive surgeries aimed at restoring the function of facial muscles using various methods of reinnervation with the use of the masticatory, accessory, hypoglossal nerves and achieving functional effects. However, having analyzed modern publications in both domestic and foreign literature, we can confidently say that today surgical restoration of the integrity of the facial nerve remains an urgent task. Modern medicine has various methods for treating facial nerve injuries: neurorrhaphy, anastomoses of the facial nerve with the masticatory, hypoglossal nerve and other nerves, cross-plasty, muscle transposition, muscle autotransplantation with simultaneous reinnervation, etc. The choice of the optimal method of surgical treatment is due not only to achieving a good functional result, but also to maximum aesthetic rehabilitation of patients, which allows avoiding unnecessary stages of aesthetic surgery, which only mask the defect, but do not solve the problem. It is with these that the constant search and improvement of surgical treatment methods is associated.

The purpose of the study is to increase the effectiveness of treatment of patients with facial muscle paralysis with a denervation period of up to 18 months.

#### Research objectives

1. To analyze the results of surgical treatment of patients with facial muscle paralysis based on archival material of the Federal State Budgetary Institution of Science "Central Research Institute of Cardiovascular and Maxillofacial Surgery" of the Ministry of Health of the Russian Federation for the period from 2010 to 2018.
2. To develop new methods of triple reinnervation of facial muscles using the masticatory and hypoglossal nerves.

3. Based on electromyography and anthropometry data, conduct a comparative analysis of the results of surgical treatment of patients depending on the method of reinnervation based on archival material and our own research.

4. To identify a correlation between new methods of triple reinnervation of facial muscles, the duration of paralysis and the age of patients.

#### Novelty of the study

1. For the first time, an analysis of the results of various neuroplasticity options in patients with facial muscle paralysis was conducted based on archival material, indicating that reinnervation of the facial muscles through the main trunk using one donor nerve leads to such undesirable consequences as synkinesis, which often entails the development of contracture of the facial muscles.

2. For the first time, new methods of surgical treatment of patients with facial muscle paralysis were developed, consisting of selective triple reinnervation of the branches of the facial nerve, which allow separating the movements of the middle and lower zones of the face, which minimizes the risk of synkinesis and helps to achieve the maximum possible symmetry of the face at rest.

3. For the first time, a comparative assessment of synkinesis was applied depending on the source of reinnervation, which was based on the assessment scales of facial asymmetry (House-Brackman, F.N.G.S. 2.0, May&Schaitkin, Shurgaya Ts.M.).

#### Theoretical and practical significance of the work

Data on the degree of facial asymmetry before and after various reinnervation options were systematized, which made it possible to simplify the choice of optimal surgical treatment tactics depending on the degree of asymmetry and the duration of paralysis.



New methods of triple selective reinnervation of the facial muscles using the masticatory and hypoglossal nerves in combination with cross-facial autotransplantation of the sural nerve were developed.

The proposed treatment algorithm allows to improve functional and aesthetic results, accelerate the rehabilitation of patients with paralysis of the facial muscles.

## REFERENCES

1. Стюарт А. Мультифасетед пхармасист интервенцион то импрове антихипертенсиве адхеренсе: а слустер – рандомизед контроллед амонг women with постменопаусал остеопоросис // Суррент Медисал Ресearсх анд Опинионс 2005; 2 (9): 1453 – 1458.
2. Фролов А.А., Кузьмичев К.В., Починка И.Г., Шарабрин Е.Г., Савенков А.Г. Влияние поздней реваскуляризации инфаркт ответственной коронарной артерии на прогноз при инфаркте миокарда с подъемом сегмента СТ // Российский кардиологический журнал. – 2020. - № 8. – С. 55 – 59
3. Сабирзянова А.А., Галявич А.С., Балеева Л.В., Галясва З.М. Прогностическое значение дифференцировки роста – 15 у пациентов с инфарктом миокарда // Российский кардиологический журнал. – 2021. - № 2. – С. 28 – 32.
4. Паршикова Е.Н., Филиппов Е.В. Летальность пациентов с инфарктом миокарда с подъемом сегмента СТ в зависимости от типа реперфузионной терапии // Кардиологический вестник. – 2022. – Специальный выпуск. – С. 66 – 67.
5. Схен Д.Й., Ли С.Й., Хсиех М.Ж. ет ал. Предисторс оф субсегуент мёсардиал инфарстион, строке, анд деатх ин стабле пост – мёсардиал инфарстион пациентс: А натионwide сохорт студи // Еур Хеарт Ж Асute Сардиовасс Саре // 2019;8(7): 634 – 41. doi:10.1177/2048872617730037.
6. Соломбо М., Кирсхбергер И., Аманн У. ет ал. Ассоциатион бетвеен адмиссион анемиа анд лонг – терм морталитй ин пациентс with асute мёсардиал

инфарстион: резултс фром тхе МОНИСА/КОРА мёсардиал инфарстион регистрий. 2018.

7. Де Луса Г., Сассетти И., Марино П. Персутанеоус соронарий интервенцион – релатед тиме делай, пациент с риск профиле, анд сурвивал бенефитс оф примарий ангипластей в с лйтис тхерапий ин СТ – сегмент елеватион мёсардиал инфарстион // Ам Ж Емерг Мед. - 2009; 27: 712 – 17.

8. Хянг Д., Схенд Я, Вонг Йи ет ал. Тхромболисис ин Мёсардиал инфарстион Риск Ссоре фор Сесондарй Превентион оф Ресуррент Сардиовассулар Евентс ин а Реал – Ворид Сохорт оф Пост – Асуте Мёсардиал инфарстион Пациентс // Сирсулатион Жоурнал. - 2019; 83(4): 809 – 15. DOI:10.1253/сирс Ж. сж – 18 – 0308.

9. Ибанез Б., Жамес С., Агевалл С. ет ал. 2017 ЕСС Гуиделинес фор тхе манагемент оф асуте мёсардиал инфарстион ин пациентс пресеутинг витх СТ – сегмент елеватион. Тхе Таск Форсе фор тхе манагемент оф асуте мёсардиал инфарстион ин пациентс пресентинг витх СТ – сегмент елеватион оф тхе Еуропеан Сосиетй оф Сардиолой (ЕСС) // Еур хеарт Ж. - 2018; 39(2):119 – 76. DOI:10.1093/eurheartj/ehx 393.

10. Ворралл – Сартер Л., МсЕведй С., Вилсон А., Рахман М.А., Гендер Дифференсес ин Пресентатион, Соронарий интервенцион анд Оутсомес оф 28.985 Асуте Соронарий Сйndrome Пациентс ин Вистория, Аустралия. Воменьс Хеалтх иссуес. - 2016; 26(1): 14 – 18. DOI:10.1016/ж.вхи.2015.09.002.

11. Тиммис А., Товнсенд Н., Гате С. ет ал. Еуропеан Сосиетй оф Сардиологй. Сардиовассулар Дисеасе Статистисс 2017 // Еур Хеарт Ж. - 2018;39(7): 508 – 75. DOI: 10.1093/eurheartj/ehx628.

12. Сао С.Ф., Ли С.Ф., Схен Х. ет ал. Предисторс анд ин – хоспитал прогностис оф ресуррент асуте мёсардиал инфарстион // Жоурнал оф Гериатрис Сардиологй. - 2016; 13(10): 836 – 7. doi: 10.10909/ж. иссн. 1671 – 5411. 2016.10.008.

13. Акимова Е.В., Гафаров W.W., Трубасхевал И.А. ет ал. Соронарй хеарт дисеасае инсибериа: интерпопулатион дифференс. Сибирский Медисинский Зхурнал. - 2011;26 (3);1: 153 – 5.
14. Чашин М.Г., Горшков А.Ю., Драпкина О.М. Анализ летальных исходов в течение 6 мес после инфаркта миокарда без подъема сегмента СТ у пациентов, перенесших СОВИД – 19 // Профилактическая медицина. – 2022. – Том 25. - № 5. – С. 7
15. Ҳосҳман Ж.С., Ламас Г.А., Буллер С.Е. ет ал. Соронарй интервенцион фор Персистент Осслусион афтер Мёсардиал инфарстион // Н Енгл Ж Мед. - 2006; 355(23): 2395 – 406. DOI:10.1016/ж.аҳж.2007.07.049.