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Treatment of patients with gross violation of facial expressions for a period of more than 2 years: Reinnervation of the facial nerve

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Introduction: Nowadays choice of surgical technique depends on the duration of the face paralysis. In cases in which longstanding muscle dysfunction more than 2 years the patient is not suitable for muscle reinnervation because of significant muscle degeneration atrophy. Electromyography (EMG), electroneuromyography (SGKN), ultrasonography (USG) is used to assess differences between severe dysfunction and total paralysis. According to the diagnostic tests, muscle tone remains even after more than 2 years of severe dysfunction. However, the impulse strength conducted along the facial nerve is not sufficient for visually muscle contractions. In case of longstanding paresis, late reconstruction can be provided by “end-to-side” facial nerve coaptation with the masseter nerve (V3). This technic achieves excellent results, restoring involuntary, independent, and spontaneous facial expression.

Objective: Development and implementation principles and techniques of facial nerve reconstruction for the patient suffered from severe facial paresis more than 2 years

Materials and methods: For the period from 2016 to September 2021, 11 patients suffered from severe facial paresis more than 2 years were examined and operated at the Federal State Budgetary Institution NMICCO FMBA of Russia (The Department of Maxillofacial and Plastic Surgery).

Results: Preoperative examination such as SGKN, USG are often helpful in differentiating severe facial nerve dysfunction and total paralysis in case of the visual absence of muscle contractions. Restoring movement of facial muscles is achieved providing “end-to-side” facial nerve coaptation with the masseter nerve. Therefore, functional and aesthetic goals is reached, restoring social activity and eliminating loss of vision.

Conclusion: It is necessary to differentiate severe paresis from paralysis of mimic muscles using additional objective tests. Masseter nerve-based facial paresis reconstruction is a

favorable surgical option. As a result, it increases the impulse strength conducted along the facial nerve. Achieving the facial nerve integrity is a basic principle of successful outcomes in facial reanimation surgery. A comprehensive approach and an integrative rehabilitation improve facial function in patients with long-standing paresis.

Recent Publications

1. Finsterer J. Management of peripheral facial nerve palsy. *Eur Arch Otorhinolaryngol.* 2008;265(7):743-752.
2. Morales-Chávez M, Ortiz-Rincones MA, Suárez-Gorriñ F. Surgical techniques for smile restoration in patients with Möbius syndrome. *J Clin Exp Dent.* 2013;5(4):e203-e207.
3. Grossard C, Chaby L, Hun S, Pellerin H. et al, Children Facial Expression Production: Influence of Age, Gender, Emotion Subtype, Elicitation Condition and Culture. *Front. Psychol.* 2018: 9:446

Speaker Biography

Ekaterina Orlova graduated from Moscow State University of Medicine and Dentistry (MSUMD) in 2012. She underwent residency in clinical studies with a specialization in maxillofacial surgery at the department of reconstructive head and neck surgery of the Federal State Budgetary Institution “Central Research Institute of Dental and Maxillofacial Surgery (CRID)” of Ministry of Healthcare of the Russian Federation. After completing her residency, she was invited to attend postgraduate studies under the supervision of Prof. A.I. Nerobeev at the Central Research Institute of Dental and Maxillofacial Surgery. She specializes in facial surgery, including reconstructive and aesthetic surgery. She studied reconstructive and plastic surgery in South Korea, interned at ASAN Hospital in Seoul in 2017. Now she is working as a staff surgeon in the department of maxillofacial and plastic surgery at Federal State Budgetary Institution “The National Medical Research Center for Otorhinolaryngology of the Federal Medico-Biological Agency of Russia” the since 2017. Dr. Orlova has patents and scientific publications, including those in foreign journals. She regularly attends and speaks at scientific conferences on maxillofacial and plastic surgery.

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