

Early neurotization of the zygomatic muscles in the Möebius syndrome using sural nerve grafts and end-to-side neurorrhaphies.

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All the treatments currently described for Möebius syndrome treatment includes temporal muscle flap or free muscles flaps.

The Möebius Syndrome is characterized by the absence of almost all of the facial nerve branches but with the facial muscles preserved at birth. As time passes, the muscles becomes hypotrophied or atrophied due to denervation.

Thinking about preserving the main smile muscle, the zygomatic major, we introduced the early neurotization of these muscles, using nerve grafts and end-to-side- coaptations.

Materials & Methods

Between April of 2014 and May of 2017, eight patients with Möebius syndrome were operated. The age of four patients was two and four patients three years old at the surgery, four boys and four girls. The facial palsy was bilateral in six and unilateral in two cases.

All patients were submitted to neurotization of the major zygomatic muscle by introducing two sural nerve grafts into each muscle. The nerve graft extremity was submitted to some small cuts with microsissors in his lateral aspects in the portion that was introduced inside the muscles to increase the number of axons sproutings.

The donor nerve was the masseter in all cases except one that was the marginal mandibular branch.

The union of the nerve grafts to the donor nerves was with end-to-side coaptation. No removal of the epineurium and perineurium was done.

No sutures were used in the donor nerves to prevent any harming from the needle due the small diameter of them. The extremity of the nerve graft was fixed to the donor using the embracing sutures in two cases. In the other six cases was used two simple stiches taking the epineurium and perineurium of the nerve grafts to the underlying tissue, in both sides of the donor nerve. Both kinds of sutures determine pressure of the nerve graft against the donor nerve.

Results

Two patients after three years presented no result.

One unilateral patient after one year presented full result (Figs. 1 and 2).

One bilateral patient after two years presented good result.

The other four patients were operated less than 18 months and are still in observation.

Conclusions

The new procedure of early zygomatic muscle neurotization should be considered to Moebius and congenital facial palsy.



Fig 1. K.M, a 3 years old girl diagnosed with bilateral MBS with left side smile commitment. She underwent to zygomatic muscle neurotization with ipsilateral masseteric nerve donor. Two nerve sural nerve grafts were sutured at the lateral aspect of masseteric nerve and the other extremities were buried in the left zygomatic muscles.



Fig 2. 18 months Pos-op.