

Interfascicular nerve splitting technique in latissimus dorsi muscle transfer for facial palsy to minimize donor site morbidity

Preliminary results

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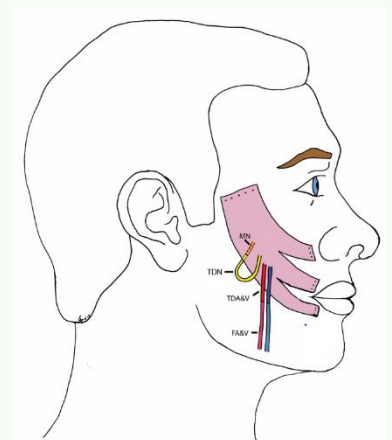
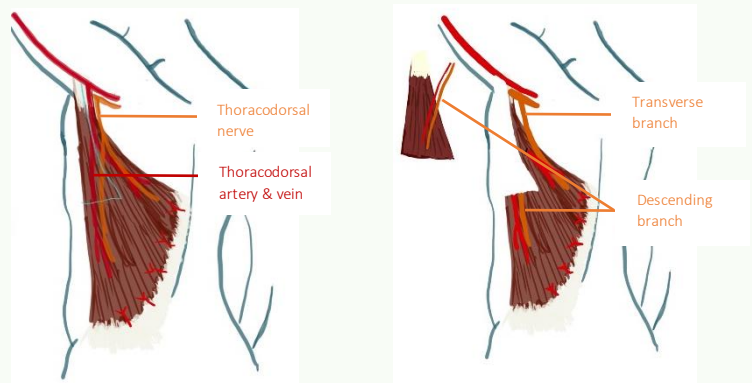
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Background. The latissimus dorsi muscle is one of the most commonly used free tissue transfers for dynamic facial reanimation. While only a segment of the muscle is used for facial reanimation, the entire muscle is usually sacrificed through the harvest of the thoracodorsal nerve. There are only a few studies in the literature looking at donor site morbidity, even though patients can suffer from considerable disability (weakness, decreased range of motion or interference in daily life and sport activities). The aim of this study was to reduce donor site morbidity in patients undergoing dynamic facial reanimation with free functional latissimus dorsi transfer utilizing an interfascicular nerve splitting technique.

Methods. Five patients with unilateral and bilateral facial palsy undergoing dynamic smile reanimation with latissimus dorsi muscle were included in this prospective study starting in 2021. The descending branch of the thoracodorsal nerve was dissected during surgery until a sufficient length was reached. The activity of the transverse and descending parts of the muscle were analyzed using intraoperative EMG, assessing both the functionality of the remaining muscle through the transverse branch of the thoracodorsal nerve and the muscle segment to be transferred for facial reanimation. DASH scores were calculated pre- and postoperative at 6 months and 12 months.

Results. DASH scores assessing donor site morbidity have been determined in the first five patients, showing no statistical difference between pre- and postoperative scores. Moreover, all patients started showing movement of the transferred latissimus dorsi muscle.

Conclusion. Interfascicular nerve splitting in latissimus dorsi muscle transfer is an elegant technique to reduce donor site morbidity, while still being able to obtain good functional results in dynamic facial reanimation.



Patient 5
43 yo patient with congenital right facial palsy

Preop

5 months postop



Nerve/measurement locations	Muscle	Temp. °C	Latency ms	Amplitude mV	Surface mVms	Time ms
Thoracodorsal nerve – lateral muscle	Lat. dorsi	24	3.2	8.7	20.2	6.5
Descending nerve branch – lateral muscle	Lat. dorsi	24	2.9	8.6	17.1	4.5
Transverse nerve branch- lateral muscle	Lat. dorsi	24	-	-	-	-
Thoracodorsal nerve – medial muscle	Lat. dorsi	24	2.9	7.2	15.2	6
Descending nerve branch – medial muscle	Lat. dorsi	24	2.5	6	15.2	6.6
Transverse nerve branch – medial muscle	Lat. dorsi	24	2.4	6.9	14.3	7.9

DASH Score	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
Preop	0	0	0	0	0
Postop	0.8	0	0	0.8	0