Prospective Sensory Outcomes for Targeted Nipple Areola Complex Reinnervation (TNR) in Gender-Affirming Double Incision Mastectomy with Free Nipple Grafting

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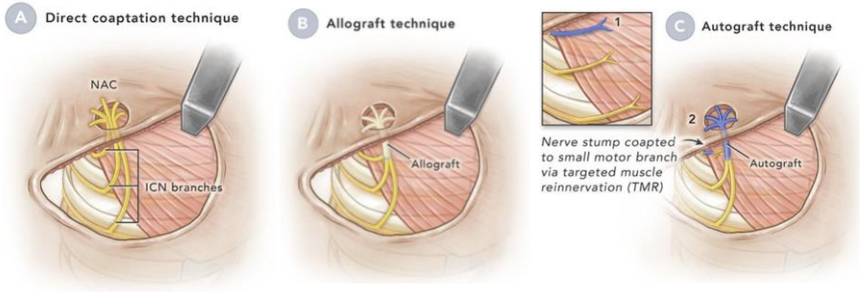
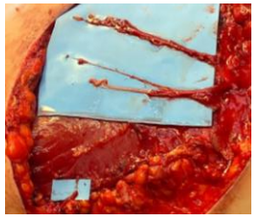
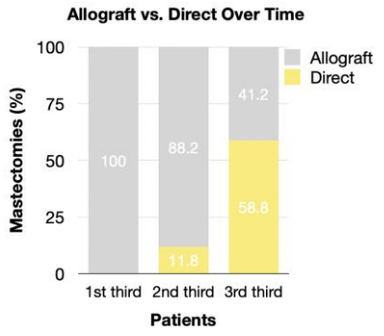
Objective: Gender-affirming mastectomy with free nipple graft (FNG) is the most frequently performed procedure in female to male transgender patients. However, sensory disturbance are common with up to 100% of patients reporting loss of NAC sensation. Targeted nipple areola complex reinnervation (TNR) is a novel technique that preserves and reconstructs intercostal nerves (ICN) to improve postoperative sensation. This study analyses the anatomy and sensory outcomes of TNR in gender-affirming double incision mastectomy with FNG.

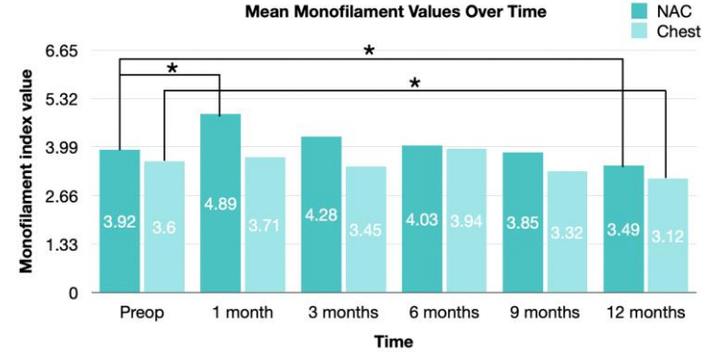


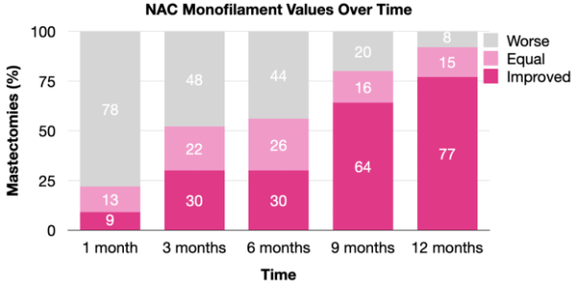
Methods: 25 patients were prospectively enrolled. Data included demographics, surgical technique, use of allograft and axon/fascicle counts. Quantitative sensory testing with monofilaments at patient-reported outcomes were completed preoperatively, and at 1, 3, 6, 9 and 12 months postoperatively.

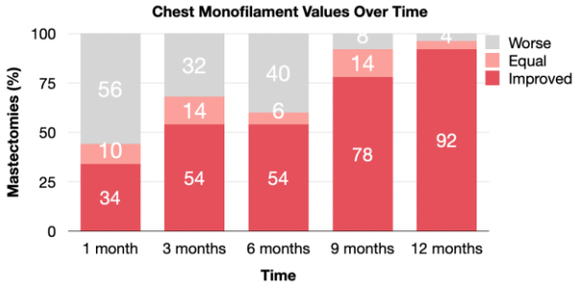


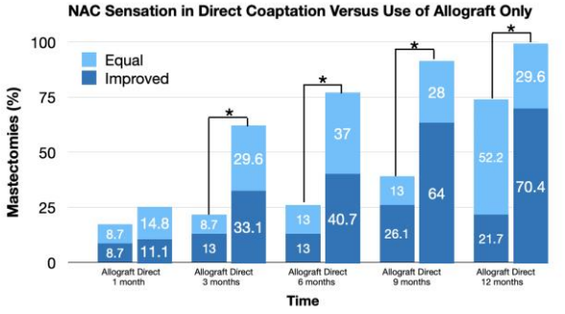
Results: 50 mastectomies were performed. Per mastectomy, the median number of ICN used was 2 (1-5). Axon and fascicle counts were not significantly different between ICN branches (p>0.05). BMI ≥30kg/m^2 and mastectomy weight ≥800g were associated with significantly worse preoperative sensation (p<0.05). Compared to preoperative values, NAC sensation was worse at 1 month (p<0.01), comparable at 3 months (p>0.05), and significantly better at 12 months (p<0.05) postoperatively. Chest sensation was comparable to preoperative measurements at 1 and 3 months (p>0.05), and significantly better at 12 months (p<0.05) postoperatively. NAC sensation was significantly better when direct coaptation was performed compared to use of allograft only (p<0.05), and with direct coaptation of ≥2 branches compared to direct coaptation of a single branch (p<0.05). All patients reported return of nipple and chest sensation at one year postoperatively.

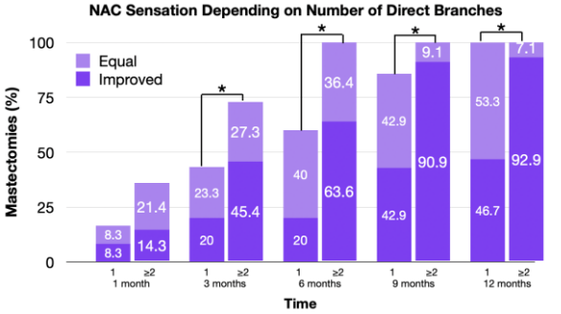












Conclusion: TNR allows for restoration of NAC & chest sensation within 3 months postop. Use of multiple ICN branches and direct coaptation led to the best sensory outcomes.