

## BACKGROUND

Nipple sparing mastectomy (NSM) has been proven to be an oncological safe technique for treatment of breast cancer. Patients' primary dissatisfaction with the procedure is the loss of nipple areola complex (NAC) sensation. Experience in hand surgery have shown nerve allograft as a successful conduit for nerve repair and good sensory return. Recently nerve allografts have been employed to provide sensate autologous flaps in breast reconstruction to connect intercostal nerves to sensory nerves of autologous flaps. Expanded and novel use of nerve allografts has the potential to preserve NAC sensation after nipple sparing mastectomy.



## MATERIALS AND METHOD

At the time of NSM the 4th lateral cutaneous intercostal nerve is identified as it leaves the chest wall and into the breast tissue. At least 1cm of the nerve is dissected from the breast tissue and preserved. The nerve stump is connected to a 7cm nerve allograft using 8-0 nylon and a conduit. In order reach the NAC, a second 7cm graft is connected to the distal end. The individual axons at the end of the allograft are splayed out and sutured into the deep surface of the NAC using 8-0 nylon. Breast reconstruction then proceeds and once completed, prior to skin closure the allograft is routed over vascularized tissue. Follow up sensation evaluation is done at 3 months, 6 months, 1 year and 2 years.



## RESULTS

A total of 23 patients underwent NSM and immediate breast reconstruction with direct connection of the NAC. Average age of patients was 47 years old. Five patients were unilateral mastectomy and 19 were bilateral for a total of 43 breasts with 24 breasts being prophylactic. Nine patients underwent autologous reconstruction and 14 underwent expander placement with ADM. 13 were bilateral with expanders and one was unilateral. Six patients were bilateral DIEP and three were unilateral DIEP. Four patients had neoadjuvant chemotherapy and five had post operative chemotherapy. Six patients had radiation. No complications were reported. Sensation results are illustrated in Figure 1.



- PRESENTS -

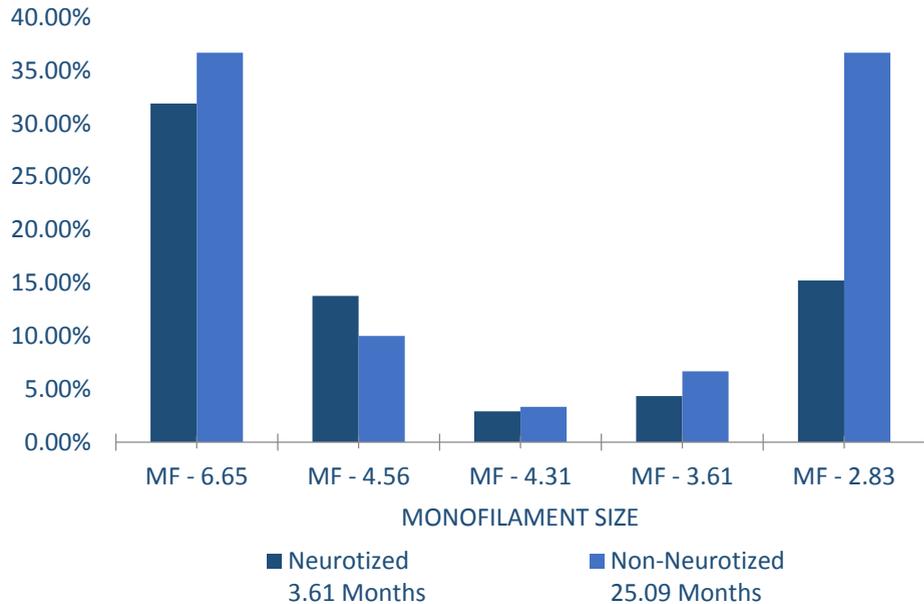
# NIPPLE SPARING MASTECTOMY WITH IMMEDIATE NEUROSENSITIZATION OF THE NIPPLE AREOLA COMPLEX

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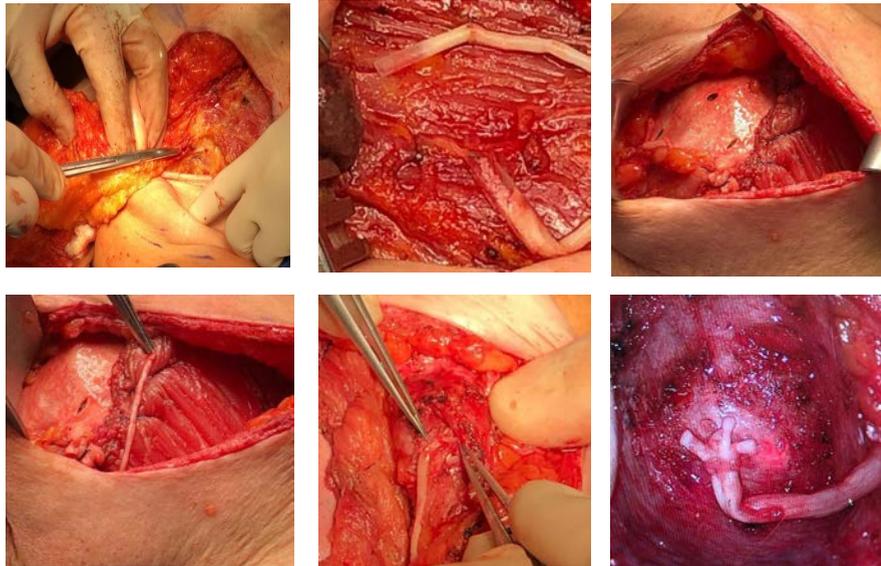
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## NEUROTIZED AND NON-NEUROTIZED



## GALLERY



**Figure 1:** At 3 months post-op for neurotized patients, MF 6.65 was felt 31.88% of the time at various breast locations and MF 2.83 was felt 15.22% of the time.

## CONCLUSION

Sensation preservation after NSM is a viable option and best performed at the time of mastectomy. Connecting the 4th lateral cutaneous intercostal nerve to the NAC would allow for return of sensation which is often lost. Coordination with breast surgeon is paramount for the identification and preservation of target nerves and success of the procedure. Use of allograft allows the nerve to be connected to the NAC without additional donor site morbidity. The procedure is technically difficult but feasible, and does not add increased complication to breast reconstruction. Longer follow up is needed for evaluation of return of sensory function.