

Immediate bilateral nipple-sparing mastectomy and implant-based breast reconstruction

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J Thorac Dis 2013;5(3):203-204. doi: 10.3978/j.issn.2072-1439.2013.05.05

Total skin-sparing mastectomy (TSSM), which preserves the nipple-areolar complex (NAC), results in better cosmesis when compared with standard skin-sparing mastectomy (SSM) and avoids the need for later NAC reconstruction. Although SSM is well-established as an oncologically safe procedure, nipple-sparing mastectomy is still avoided in many centers due to oncological concerns and the lack of long-term tumour recurrence data. Of the studies to date that have reported 5-year oncological data for the technique, however, the locoregional recurrence is less than 1% per year (1), which is acceptable when compared to simple modified radical mastectomy.

The present article by Li *et al.* examines their experience using TSSM in a young group of patients with T1 and T2 tumours with a median follow-up of 30 months (2). All patients had a contralateral prophylactic TSSM and both breasts had submuscular expander/implant-based breast reconstruction. No significant complications occurred, with no complete losses of the NAC, but a partial necrosis rate of 4 of 42 cases. No patients required adjuvant chest wall radiotherapy, and during follow-up no recurrences occurred. Aesthetic outcomes at 6 and 12 months were reported as excellent in 90% of patients.

This article raises many interesting points for discussion. This article further attests to the excellent aesthetic outcomes that can be achieved using TSSM. The follow-up and study size are too small to make conclusions regarding oncological outcomes, and the article does not discuss the criteria for patient selection or the method for histological examination of retroareolar tissue to exclude involvement. Regarding patient selection, some studies have demonstrated a relationship between tumour size and distance from the NAC as predictors of involvement of the NAC and based their inclusion on these parameters, whereas

other studies have only excluded patients with clinical evidence of NAC involvement. Examination of the retroareolar tissue can either be performed using either intraoperative frozen section of the nipple core tissue or retroareolar ductal tissue, or permanent section of the retroareolar tissue from the mastectomy specimen, with the NAC typically excised if involvement is found. The main drawback of TSSM is partial or complete NAC necrosis, occurring on average in 8.8% and 2% of cases respectively (1), similar to the rates reported in this study, and avoidance of periareolar incisions and long mastectomy skin flaps, and surgical delay, have been shown to reduce the incidence of this complication. Studies with longer-term follow-up will be necessary to examine the oncological safety of this technique, although with protocols where the NAC is excised if it is found to be involved on histology, outcomes would be expected to be similar to standard SSM.

The use of mastectomy in patients with relatively small breast cancers is noteworthy in this study. The main indication in this study would be the poor aesthetic outcomes that can result from breast-conserving surgery (BCS) in patients with small breast-to-tumour size ratio, such as is typically the case in the patient population included in this study. The application of oncoplastic BCS techniques however can be effective in such patients to improve cosmetic outcomes in this scenario, and is associated with high patient satisfaction. Although the patient group in this study are young, and following BCS there is a well-established relationship between younger age and risk of local recurrence, BCS has demonstrated long-term oncological safety that is equivalent to mastectomy for stage I and II breast cancer and remains the standard of care in suitable patients (3,4). This is particularly relevant to this study as the long-term results of implant-based breast reconstruction and patient satisfaction tend to decline with time (5,6), and these young patients have to live with their breast reconstruction for longer.

Contralateral risk-reducing mastectomy is increasingly being performed for patients who are not BRCA 1 or 2 mutation carriers, particularly in the US (7). This trend is difficult to explain for risk-reducing reasons, as the risk of contralateral breast cancer is estimated to be around 0.5% to 0.7% per year and declining (8), and the risk of breast cancer following risk-

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Submitted Apr 29, 2013. Accepted for publication, May 04, 2013.

Available at www.jthoracdis.com

ISSN: 2072-1439

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reducing mastectomy is still 5-10%; there is therefore no oncological indication or survival advantage in performing such surgery (9). Where fully informed patients request this option and desire implant-based breast reconstruction, however, better symmetry and breast area aesthetic outcome can be achieved by bilateral procedures. Patients need to be fully aware though that there is a risk they could lose their reconstruction in an otherwise normal breast if there is mastectomy skin flap necrosis and the prosthesis becomes exposed.

In summary, this article further supports the application of TSSM, particularly in the challenging patient group included in this study where the options for BCS are limited. Although the current trend particularly in the US regarding contralateral risk-reducing mastectomy is concerning, where fully informed patients have requested this procedure, bilateral implant-based breast reconstruction can achieve excellent outcomes where radiotherapy is not required.

Acknowledgements

Disclosure: The author declares no conflict of interest.

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Cite this article as: Schaverien MV. Immediate bilateral nipple-sparing mastectomy and implant-based breast reconstruction. *J Thorac Dis* 2013;5(3):203-204. doi: 10.3978/j.issn.2072-1439.2013.05.05