Title:

HYBRID IMMEDIATE FAT-ENRICHED LATISSIMUS DORSI FLAP IN BREAST RECONSTRUCTION IN BREAST CANCER TREATMENT: A PILOT STUDY

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ABSTRACT

Background

Despite latissimus dorsi (LD) being a reliable and versatile pedicled flap in immediate breast reconstruction, there are pitfalls and disadvantages such as thin muscle and reduction in volume due to atrophy with time. Hence, the need of combining another reconstruction
technique has been proposed previously such as prosthesis or delayed fat grafting to increase the volume of the reconstructed breast. Thus, hybrid procedures which could avoid dual procedures under general anaesthesia have been introduced. However, there is still lack of evidence in this combination procedures and improvement of cosmetic outcome without jeopardising the oncological safety.

Patients and Methods

This is a pilot study to assess the level of cosmesis and patient reported outcome of satisfaction of a hybrid fat-enriched LD flap method which was conducted from 1st November 2019 to 30th November 2020. Patients diagnosed with breast cancer who were suitable to undergo immediate or delayed breast reconstruction with latissimus dorsi flap, had the expected volume from LD flap is at least one cup size smaller than the contralateral breast, BMI between 18.5 to 30, with adequate fat over the thighs and abdomen as donor sites for fat harvesting, were recruited.

Patients were positioned in a semi lateral posture for a single step draping method for both the breast and LD flap sites. Fat is harvested using the water jet liposuction machine (@Bodyjet). Mastectomy was done concurrently, and harvested LD flap was rotated anteriorly to the chest wall. Tumescent solution was injected at the fat harvest sites and lipoaspirate harvested was then injected into the adipose tissue beneath the LD flap and over the superficial LD muscle, away from the pedicle. Comparison of the contralateral breast for the symmetry in
a sitting up position is done. LD flap was then fixed into the desired position to achieve desired contour.

Assessment using the Aesthetic Item Scale (AIS) (score 5-25, worst to best) and Hopwood’s Body Image Scale (score 10-50, best to worst) were done by the patient at the sixth month and first year after the operation. Five-view photographs (preoperative, 1 month, 6 months and 12 months) for assessment were obtained.

Results

Nine patients (n=9) had completed one-year follow-ups. The median age of the patients is 38 years old (IQR 33 – 43). Majority have normal BMI (mean = 24.2, SD ± 4.1). The mean volume of the mastectomy specimen is 341.8 grams (SD ± 187.2). The median operating time was 275 minutes (IQR 225 – 299). Approximately 280 millilitres (mls) of fat were harvested per session (SD ± 126.4) and an average of 160 mls fat (SD ± 60.5) were used in the immediate lipofilling. There were no major postoperative complications. One patient had prolonged pain in the recipient site, donor site bruising and slightly higher seroma noted at the recipient site.

Mean scores of patients who had SSM after one month are 14.2 (SD ± 2.7), 12.5 (SD ± 4.7) at 6th month and 11.0 (SD ± 3.2) at 12th month. Those who had NSM reported a mean score of 17.5 (SD ± 5.0), 16 (SD ± 1.4) and 14.5 (SD ± 2.1), based on the respective months. After six months, the mean total BIS score for SSM patients is 19.0 (SD ± 3.3) and at 12th month is 20.5 (SD ± 5.9). Postoperative 6 months BIS score among the NSM patients is 22.0 (SD ± 0.0) and
19.5 (SD ± 0.7) at 12\textsuperscript{th} month. Only one patient had postoperative bleeding from LD flap site needing evacuation.

Conclusions

Our early experience demonstrate that the hybrid fat-enriched LD flap technique is a safe autologous alternative in breast reconstruction with low complication and acceptable one-year duration of cosmetic outcome, especially among the NSM patients.