



Revisiting Y-Shaped Closure Technique to Prevent the Dog Ear Formation in Women Undergoing Mastectomy

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Background

Mastectomy is the commonest surgery performed by surgical oncologists and breast surgeons for carcinoma breast. Among the complications of mastectomy, lateral skin-folds or “dog ears” is one of the most common and annoying problems. Not only it causes significant discomfort to the patient, but also is unsightly to look at. The lateral “dog ears” hangs over the top of the undergarments causing disfigurement and acts as a hindrance to movements of the ipsilateral arm. Even seemingly small dog ears should also be corrected during primary surgery as such dog ears become more evident when patients stand as compared to while the patient is supine intraoperatively. Skin closure can be particularly challenging in patients with large body habitus. We revisit Y-technique of closure following mastectomy initially described in the late 1980s primarily used to eliminate lateral “dog ears.” We have used this technique in two patients and described the same in this paper with an overview of other techniques.

Methods

The preoperative evaluation of patients is as per NCCN guidelines. In both patients, metastasis was ruled out, and modified radical mastectomy was planned. A transverse Stewart incision was used for mastectomy in both

of our patients. It involves an ellipse of varying dimensions depending on the size of the breast, tumor size, and location. Mastectomy and axillary dissection are performed as per standard described techniques. Closure is planned after achieving hemostasis. From the lateral end of incision marking is done at equal distance on superior and inferior flap margins depending on the redundant skin overlying the latissimus dorsi muscle (Fig. 1a). Triangular flap is advanced medially and three points as shown in picture are sutured together (Fig. 1b). Any lateral dog ears at the end is excised. Final appearance after closure is in the shape of “Y” (Fig. 1c).

In both patients, no intraoperative complications were observed. The wound healed by primary intention in both cases. No flap necrosis, hematoma, surgical site infection, and necrosis of the trifurcation point occurred. Cosmetic result was excellent without lateral dog ear deformity. Patients did not complain of any discomfort/pain in the postoperative period. In one patient after 6-month postoperative follow-up, patients are very satisfied with the cosmesis. The second patient is only 1-month postsurgery; we are awaiting long-term cosmesis in this patient.

Discussion

Dog ear is due to redundant skin and fatty tissue along the lateral aspect of the mastectomy incision [1]. Even appropriate skin incision planning sometimes cannot avoid this postoperative disfigurement. Lateral skinfolds or “dog ears” are frequently seen in obese patients with thick axillary fat and with large breast volume.

Various surgical techniques have been described to prevent or treat lateral dog ears. These include Y-shaped or fish-shaped incision, excision technique, oncoplastic technique, triangular advancement technique,

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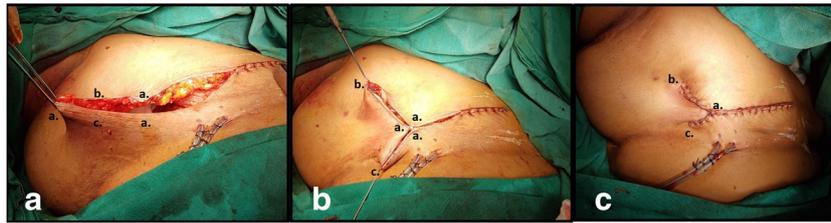
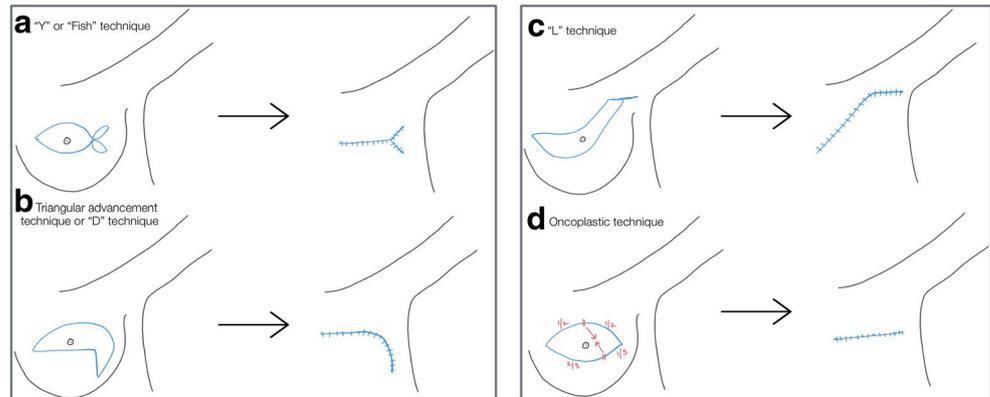


Fig. 1 Closure after achieving hemostasis. **a** From the lateral end of incision marking is done at equal distance on superior and inferior flap margins depending on the redundant skin overlying the latissimus dorsi

muscle. **b** Triangular flap is advanced medially and three points as shown in picture are sutured together. **c** Final appearance after closure is in the shape of “Y”

Fig. 2 Various surgical techniques to prevent or treat lateral dog ears. These include Y-shaped or fish-shaped incision, excision technique, oncoplastic technique, triangular advancement technique, and the “L” technique



and the “L” technique (Fig. 2). In the excision technique, which is most commonly used, redundant axillary skin and fatty tissue is resected by elongating the standard elliptical mastectomy wound. Problem with excision technique is that the incision extends up to lateral axillary fold, giving the very bad cosmetic appearance as well as it increases the field of radiation beyond the mid-axillary line. Other described methods include either adding or modifying the incision; thus, it may not carry the benefits granted by the Stewart's incision.

Y-shaped closure technique was first introduced by Farrar et al. in 1988, and the term fish-shaped closure was independently described by Nowacki et al. in the same year [2, 3]. In Y-closure technique redundant axillary tissue is pulled forward and “Y” configuration is created at the lateral half of the transverse mastectomy incision (Stewart incision). Y-technique used and described by us is simple and it does not involve additional incisions. The cosmetic outcome is superior to other techniques described.

Geok Hoon Lim et al. performed a systematic review of the studies describing techniques aimed at preventing the dog ear [4]. They found Y-closure or fish-shaped closure to be the most common described methods. In their review, they found results of 160 patients with Y-shaped or fish-shaped closures and found 8 complications in

them, which included necrosis in 3, infection in 4, and hematoma in 1. All complications were treated successfully. He concluded this technique to be safe and gives best cosmetic outcome.

The merits of Y-shaped closure are as follows [5]:

- Easy to close without undue tension
- Cosmetically superior
- No hindrance to movement of ipsilateral arm
- Brassiere fits without any discomfort
- Avoids seroma formation in the lateral pocket of the dog ear
- Avoids lateral shift of scar thus reducing the volume to be irradiated

The demerits of Y-shaped incision creates a tri point at risk for necrosis.

Conclusion

The Y-shaped approach for modified radical mastectomy is a simple and safe technique. It improves cosmesis and prevents discomfort in obese women by eliminating lateral dog ear deformity.

Compliance with Ethical Standards

Ethical Statement I testify on behalf of all co-authors that our article submitted to IJSO has not been published in whole or in part elsewhere and is not currently being considered for publication in another journal. All authors have been personally and actively involved in substantive work leading to the manuscript, and will hold themselves jointly and individually responsible for its content.

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