

External Oblique Myocutaneous Flaps in Massive Skin Defects Post Mastectomy : A Case Series

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INTRODUCTION

Breast cancer is currently one of the most commonly diagnosed cancer and the fifth most common cause of cancer-related deaths with an estimated number of 2.3 million new cases worldwide according to the GLOBOCAN 2020 data.¹ Breast cancer is detected early in recent years by screening, and have an advanced treatment options including surgery, radiotherapy and chemo-endocrine therapy. So, these patients have a better survival rate. But, some patients still present with locally advanced, metastatic or recurrent breast cancer. The resection of locally advanced or recurrent breast carcinomas frequently results in large chest-wall skin defects. Reconstruction of large defects following mastectomy remains a technical challenge for oncosurgeons and plastic surgeons.² While skin grafts are non-aesthetic, other local fascio-cutaneous and pedicled flaps are often inadequate for full coverage. Free flaps are increasingly used for aesthetic breast reconstruction,² but they often require expertise, equipment and time that are not frequently available in a setting like ours. Since, a large number of breast cancer patients often present in late stage with skin involvement, operability and outcome are often determined by whether negative margins could be achieved with satisfactory soft tissue reconstruction. As of late, we have used external oblique myocutaneous (EOM) flap as a means of closing such large defects with encouraging results.

MATERIAL AND METHODS

Between April 2015 to August 2016, 3 patients who had mastectomy with skin defect larger than 15 cm underwent EOM flap procedure at Bhaktapur Cancer Hospital, Bhaktapur, Nepal. All surgeries were conducted by the same surgeons.

Technique:

- The surgery was conducted in a supine position after mastectomy was performed. Lymph node dissection was done simultaneously with the flap procedure.
- A sterile pen was used to mark the incision site which extended from the inferomedial corner of the skin defect towards the midline upto the umbilicus as shown in figure 1.
- Sparing the umbilicus, a diagonal incision was made half way (upto mid clavicular line) from the umbilicus towards the ipsilateral anterior superior iliac spine.
- An undercut incision from the tip of the diagonal limb of the incision to create a V was reserved, if an additional excursion of flap was required.
- The incision was taken down to the linea alba, then laterally where the anterior rectus fascia was

identified and lifted off of the rectus abdominis muscle. Care was taken so as to not to breach the fascia at the aponeurotic regions of the rectus.

- The dissection was taken laterally upto the linea semilunaris. Here the medial border of the external oblique muscle and its aponeurosis were identified.
- The EOM muscle and its aponeurotic fascia were then carefully raised along with the flap.
- The dissection proceeded from proximal to distal. The excursion and adequacy of flap was checked at all times and dissection stopped when deemed ok.
- If a larger excursion of the flap was required, the undercut on the diagonal limb was made along with severing of upper and lower most fibres of the EOM.
- The apex and the farthest points of the flap were sutured onto the defect under tension while intermittent absorbable sutures were placed between these as shown in figure 2. The rectus sheath, when harvested, provided a tough undersurface for suturing.
- Multiple 16 Fr romovac drains were placed underneath the flap to prevent dead space and seroma formation.



Figure 1. Line diagram depicting EOMF skin incisions in relation to defect.



Figure 2. Representative pictures of EOMF in patient with cystosarcoma phylloides.

Results

The demographics of the patients are given in the table 1 below. The average size of the defect was 20.3 cm superoinferiorly and 23.6 cm mediolaterally. All the flaps survived and provided adequate coverage of the defects.

No.	Age (years)	Diagnosis	Stage	Surgery performed	Defect Size(cm)	Complications	Remarks
1.	43	Ca Breast	T4	Radical mastectomy	19 x 25	Superficial skin infection	Managed with daily dressing
2.	47	Giant cystosarcoma phylloides		Radical mastectomy	20 x 22	None	
3.	52	Fungating Ca Breast	T4	Toilet mastectomy	22 x 24	Wound dehiscence	Debridement and closure by secondary healing

Table 1. Demographic character of patients.

DISCUSSION

External oblique myocutaneous flap was used for the first time in the 1950s for the coverage of a lower abdominal wall defect.³ Lately, the EOM flap has found its utility in the closure of skin defects of the chest wall following radical mastectomy and post-radiation necrosis.² The EOM is well vascularized as a type V muscle with both a single dominant blood supply and multiple segmental supply. The dominant supply of the flap is from the perforators arising from deep circumflex iliac artery, and the segmental supply arises via perforators from 5th to 12th posterior intercostal arteries.⁴

The harvest of EOM flap is technically easy and safe, as no major neurovascular structures arise in the area of dissection. It can be done in the supine position at the same setting. It allows for healing of wound by primary intention and the donor site can be closed primarily. Previous studies have mentioned successful coverage of skin defects upto 500 to 600 square cm.⁵ The largest defect filled in our series was 528 square centimeter.

In Nepalese context wherein patients often present with advanced breast cancer amidst a resource constrained environment, we have found the utility of the EOM flap to be of paramount significance. It is practical, straightforward and has consistently produced good results in our small case series.

CONCLUSION

Although infrequently used, external oblique myocutaneous flap is a useful adjunct in patients undergoing mastectomy with massive skin defect.

CONFLICT OF INTEREST

None to declare

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CONSENT TO PARTICIPATE

Written informed consent was obtained from the patients for publication of this case report and accompanying images.

ETHICAL APPROVAL : Not required.

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