"GLOVE-SHIELD" MASTECTOMY FOR FUNGATING BREAST CANCER

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ABSTRACT

Background - Late presentation is the norm for breast cancer cases in many parts of the developing world. Consequently, some of these lesions are fungating at the time of presentation for medical treatment. The intraoperative handling of these ulcerated tumours could be messy and daunting to the surgeon if no barrier measures are provided.

Objective - To describe the use of "glove-shield" as the improvisation we found consistently useful in isolating and concealing fungating breast wounds intraoperatively. This barrier mitigates the peculiar challenges faced by the surgeon during the palliative resection of ulcerated breast malignancies.

Methodology - A retrospective study of 7 consecutive histologically confirmed cases of fungating breast cancer who underwent palliative mastectomy at a mission hospital over a three-year period (2015 – 2018). Intraoperatively, routine skin preparation and draping were performed before the ulcerated tumour was enclosed within a stretched sterile latex glove to create what we termed "glove-shield" which completely concealed the ulcerated surface.

Results - All 7 patients were females. Their ages ranged between 29 years and 56 years. The "glove-shield" was used to achieve concealment of the ulcerated tumour surface in these patients. Mean duration of post operative hospital stay was 22 days. No perioperative mortality was recorded.

Conclusion - Late cases of breast cancer may present as fungating lesions. The "glove-shield" is an intra-operative barrier which mitigates the peculiar challenges posed by fungating breast cancers to the attending surgeon during palliative (toilet) mastectomy.

Key Words - Glove-shield; Fungating breast cancer; Barrier; Late presentation; Palliative mastectomy.

INTRODUCTION

The commonest malignancy in females across the world is breast cancer.[1] For reasons of lack of screening programmes, ignorance, poverty, superstition, inimical cultural practices and stigma, late presentation of this disease is rampant in several parts of the developing world.[2,3,4]

Tumour ulceration and fungation may ultimately compel the otherwise reluctant patient to seek medical attention as last resort. Surgical treatment in the form of toilet mastectomy offers the best form of palliation for these offensive, infected, putrid, unsightly and sometimes bleeding lesions.[5] The manual aspect of handling these fungating growths intraoperatively is challenging to the surgeon as the lesion could bleed excessively and/or fragment with an escalated risk for surgical site infection. Therefore it is expedient to devise a reliable barrier which would securely isolate and conceal the ulcerated tumour surface intraoperatively so as to mitigate the peculiar challenges encountered by the surgeon as well as optimize the outcome of a palliative resection.

METHODOLOGY

A retrospective study of 7 consecutive histologically confirmed cases of fungating breast cancer who underwent palliative mastectomy at a mission hospital over a three-year period (August 2015 – July 2018).

Relevant information obtained included biodata, duration of symptoms prior to presentation, reason for late presentation, side affected and the clinical stage of the disease. The laboratory and radiological investigations of interest were the tumour histology, full blood count, blood grouping and cross-matching, retroviral screen, wound swab culture and sensitivity, fasting blood sugar, plain chest X-ray and abdominal ultrasound scan.

The anaemic patients were transfused to a PCV of ≥ 30% before surgery. Further two units of blood were provided and reserved for each patient to cover for the operation. Preoperative antibiotics were commenced in all patients according to the culture sensitivity report.

Intraoperatively, routine skin preparation and draping were performed under general anaesthesia. Thereafter, the fungating tumour was enclosed within a stretched sterile elbow-length (gynaecological) latex glove to create what we termed "glove-shield" which completely concealed and contained the ulcerated surface (Figs. 1, 2, 3, 4).

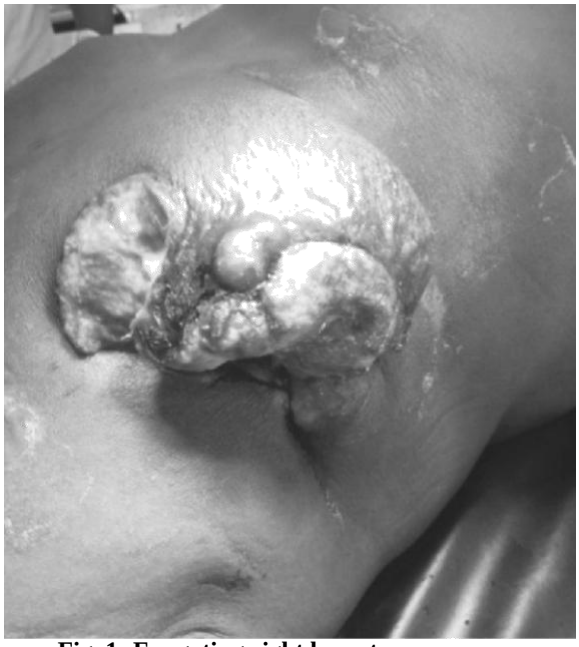

Fig. 1: Fungating right breast cancer.

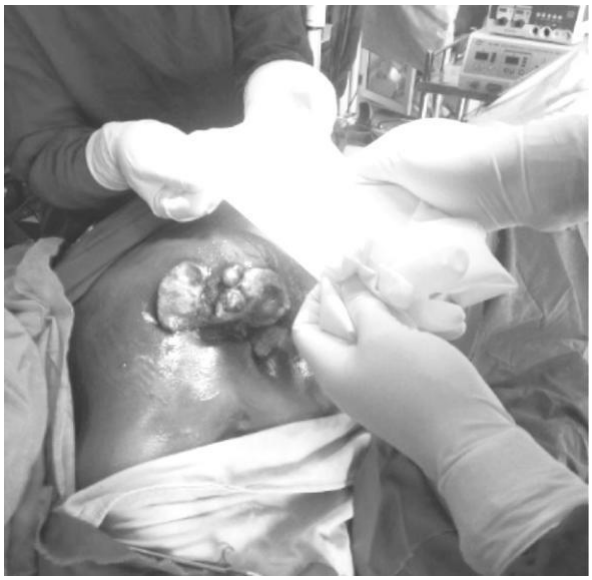

Fig. 2. Glove shield being applied.

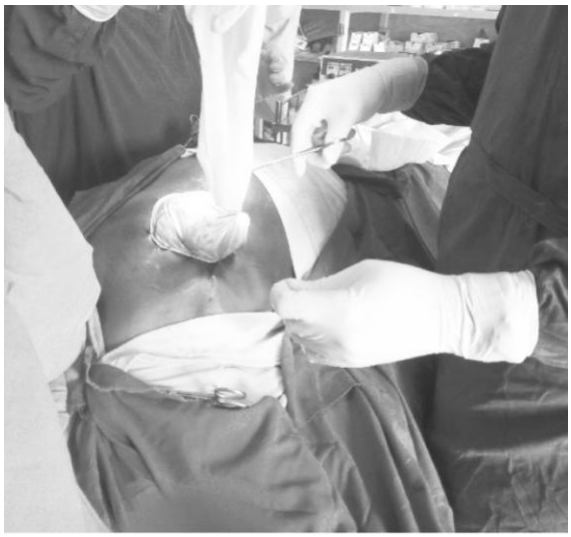

Fig. 3: Glove shield applied, secured with interrupted sutures to skin, tied and being trimmed.

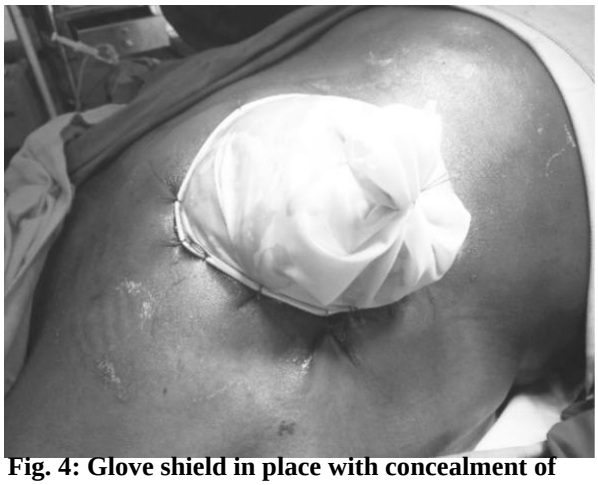

Fig. 4: Glove shield in place with concealment of ulcerated breast tumour.

The glove size used was either medium or large depending on the dimensions of the ulcerated lesion. The medium sized gloves covered smaller and intermediate lesions while larger fungating breast tumours required the large gloves. The rim of the glove was sutured peripherally to the intact skin at the base of the lesion using interrupted number 2/0 vicryl to prevent it from slipping off during the procedure (Figs. 3 & 4).

If the "glove-shield" ripped during the interrupted suture anchorage, the glove was either replaced or a second glove was worn over the first. Thereafter, the distal redundant part of the glove was tied off with same suture type and excised beyond the ligated site in order to remove the empty end of the glove (fig. 4). Subsequently, the surgeon and his assistant changed their sterile hand gloves with fresh ones to reduce wound contamination. A simple mastectomy with axillary dissection of palpably enlarged lymph nodes were performed in the conventional manner. Primary closure of the wound was achieved in each case over a vacuum drain (fig. 5).

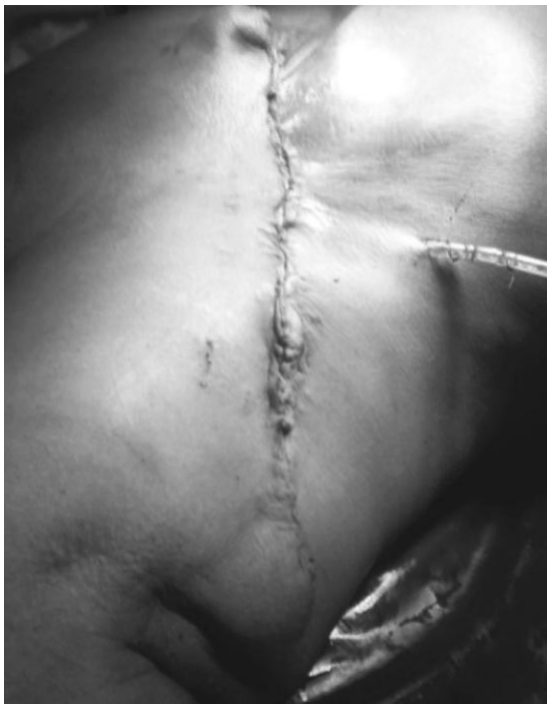

Fig. 5: Post toilet mastectomy using "glove shield" for fungated right breast cancer.

Antibiotics were continued postoperatively. The drain was removed by or before the 7th post-operative day when the effluent became 50mls or less in 24 hours, or if the wound dehisced beforehand with loss of the negative vacuum pressure.

In all cases, adjuvant chemotherapy using the 5-fluorouracil, Epirubicin, Cyclophosphamide and Docetaxel regimen was commenced three weeks post–operatively in accordance with standard protocol.

RESULTS

All 7 patients were females. Their ages ranged between 29 years and 67 years (mean 45years). Mean duration of symptoms was 13 months (range 3 months – 28 months). All had advanced stages of the disease: ≥ T4b. Two (29%) individuals had metastatic disease: one with liver secondaries and the other patient had ipsilateral pleural effusion. All the patients however remained fit for surgery. They were retroviral negative. None was diabetic. Their histological diagnosis is shown in table 1. The mean packed cell volume (PCV) was 31% (range 9% - 34%).

Patients Names	Age (years)	Symptom Durion (Months)	Tumour Histology	Type of Wound Healing	No of Post-op Days To Wound Healing
1. N.F	29	12	Invsive Ductal Ca	Primary Intention	9
2. C.G	56	4	Spindle Cell Sarcor	Secondary Intention	52
3. E.V	37	24	Invasive Ductal Ca	Secondary Intention	44
4. U.I	44	3	Invasive Ductal Ca	Primary Intention	7
5. I.G	50	13	Invasive Ductal Ca	Secondary Intention	29
6. U.A	32	28	Invasive Ductal Ca	Secondary Intention	34
7. U.R	67	6	Colloid Carcinoma	Secondary Intention	63

Table 1: Characteristics of patients who had "glove-shield mastectomy for fungating breast concern

All had toilet mastectomy and primary skin closure over vacuum drains. A palliative right chest tube drainage was performed on the lady with ipsilateral pleural effusion.

There was no perioperative mortality.

Wound healing occurred by primary intention in 2 (29%) patients and by secondary intention in the remainder. All wounds had healed by the 63th day after surgery (range 7 days – 63days).

DISCUSSION

Breast cancer fungates due to late presentation for treatment.[1,2,3,4,5,6] In certain parts of the developing world, the incidence of ulcerated breast malignancies range between 12% – 15%[1]. Factors commonly cited for late presentation are lack of breast cancer screening programmes, superstition, ignorance, poverty, inimical cultural beliefs, unpleasant previous hospital experience, and social stigma.

With this presentation of the disease, the ulcerated tumour is often infected, painful, offensive, bleeding, unsightly and may harbour maggots. Doctors in India reported a case of fungating breast cancer with more than 30 maggots.[3] These features of ulcerated breast tumours combine to distress the patient psychologically and physically. Furthermore, the patient experiences isolation from her family and community as well as a decreased quality of life. We recorded a patient in our series who was divorced by her husband due to her fungating breast wound and the attendant challenges.

The goal of treatment for this late stage of breast malignancy is not cure but palliation aimed at optimizing the quality of life, controlling odour, minimizing pain, eliminating wound infection, restoring patient's self esteem and enabling the patient live comfortably at home with her family.

Palliative mastectomy for malignant breast ulcers serves this role and consequently enhances the nutritional status and overall health condition of the patient.[5,6,7]

Radical surgery on the contrary is contraindicated in this circumstance as distant metastasis are already present in the majority of patients with fungating breast cancer.[8]

Intraoperatively, the manual handling of these tumours by the surgeon is distressing and fraught with several problems. The putrid odour, contact bleeding, purulent discharge, tumour fragmentation and unsightliness combine to make palliative (toilet) mastectomy for such cases messy. The author is unaware of any previous improvisation described in the medical literature to address these peculiar challenges which attend palliative surgical resection of the ulcerated breast malignancy. The use of "glove-shield" for toilet mastectomy masks the unsightliness and odour from fungating breast tumours as w e l l a s m i n i m i z e s c o n t a c t b l e e d i n g , t u m o u r fragmentation and the spillage of purulent contents from the ulcerated surface of these lesions. However, the risk of surgical site infection post breast amputation was not reduced by the use of "glove-shield" in this study as primary healing of the mastectomy wound occurred in only 2 (29%) of our patients. The infected nature of these fungating lesions implied they were already contaminated or dirty pre-operatively.[9]

The use of the more resistant sterile elbow-length (gynaecological) gloves rather than the thinner more fragile regular sterile surgical gloves for the wound barrier minimizes the incidence of glove breaks which we encountered earlier on in our practice.

Without prejudice to the foregoing discussion, our study has several limitations. It is a retrospective work that describes outcomes following a single method of intraoperative wound cover for fungating breast cancer. With no comparison group, our ability to assert that the method described is superior (or inferior) to another technique, eg the use of sterile gauze or drapes to cover the ulcerated lesion, is limited in terms of wound healing time, postoperative wound infection rate, odour control, blood loss and duration of surgery.

Furthermore, accurate measurement of the tumour dimensions was not taken. Therefore the glove size used to cover the fungating lesions was decided by estimation. However, we observed that in the absence of the large glove sizes, when adequately stretched, the medium size sterile gynaecological glove would still adequately cover very large ulcerated breast tumours without breaking due to their remarkable elasticity and toughness.

Finally, the study consists of a relatively small sample size and was performed at a single centre. Therefore a future prospective controlled trial on a larger patient population is required to draw definite conclusions regarding the pros and cons of the "glove-shield" improvisation for toilet mastectomy.

The above limitations of our report notwithstanding, the "glove-shield" provides an appropriate intraoperative barrier which facilitates the palliative mastectomy of fungating breast malignancies. Therefore a substantial population of patients seen with this complication of the disease would benefit from this improvisation during the operative treatment.

CONCLUSION

Late cases of breast cancer may present as fungating lesions. Palliative toilet mastectomy, where possible, improves the patient's quality of life at home with her family and in the community. The "glove-shield" is a novel intra-operative barrier which mitigates the peculiar challenges faced by the surgeon during the palliative resection of fungating breast cancer. This report forms a template for future controlled trials on the use of this improvisation during the operative palliative resection of the ulcerated advanced breast tumour.

***Conflict Of Interest**: None.*

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