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## Novel technique of mastectomy for breast cancer presenting as an abscess

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### Abstract

Association of an abscess with breast cancer is quite uncommon. Breast abscess encountered in a non-lactating woman should be considered as a malignancy until proven otherwise. A case of malignancy of the breast presenting as an abscess is presented along with a novel technique of mastectomy in such uncommon cases.

**Keywords:** Carcinoma breast abscess treatment surgical

### Introduction

Breast abscess is one of the commonest benign diseases of the breast. It is usually encountered during the period of lactation<sup>[1, 2]</sup>. Many a times breast abscesses presenting in non-lactating women may be misleading, leading to misdiagnosis of an underlying malignancy. Once diagnosed as malignant, special care with respect to the technique needs to be adopted in order to achieve complete resection of the malignancy along with the abscess cavity. A novel technique of mastectomy is presented in the article.

### Case Report

A 77 year old lady presented with swelling and fullness of the right breast over a period of 2 weeks. She was diagnosed with a breast abscess and the abscess was drained under general anaesthesia. Approximately 150cc of pus was drained. Culture of the pus revealed staphylococcus aureus. The wall of the abscess cavity at the time of drainage was palpated. In certain areas excessive hardness was appreciated. In view of this, multiple biopsies were taken from the wall of the abscess cavity. Histopathology of biopsy revealed invasive carcinoma (no special type) with focal squamous metaplasia. Patient also had clinically palpable axillary lymph nodes. Patient underwent modified radical mastectomy. A novel technique to ensure complete resection of the abscess cavity along with the growth was adopted.

5cc of methylene blue with 1cc of hydrogen peroxide was injected into the abscess cavity taking utmost care to prevent spillage of the contrast through the incision (figure 1). The skin incision of the drained abscess cavity was closed with a continuous suture. (Figure 2) A sterile waterproof dressing was applied over the suture line. The mass was marked by a marking pen. The incision for mastectomy was also marked (figure 3). A right modified radical mastectomy with an axillary clearance was done. The resected specimen was turned around and examined for any methylene blue staining as well as the underlying pectoralis major muscle. (Figure 4a& 4b) The operated site was irrigated with 3% hypertonic saline and hydrogen peroxide (100 cc of hypertonic saline mixed with 3cc of hydrogen peroxide) for a period of 20minutes (figure 5). The operated site was then irrigated by normal saline. The axillary vein for a length of 10cm was cleared of all fibro fatty tissues and lymph nodes. The nerve to serratus anterior as well as nerve to latissimus dorsi was safeguarded (figure 6). Two negative suctions were placed, one over the pectoral muscles and one in the axilla. Drain was removed on the 10<sup>th</sup> post-operative day ensuring no drainage at all. Staples were removed on the 14<sup>th</sup> post-operative day and complete healing was achieved. The patient is undergoing chemotherapy. She has been following up for last 6 months with no evidence of local recurrence. (Figure 7) Histopathology revealed an invasive carcinoma (no special type) with focal squamous metaplasia. (Figure 8) (ER and PgR

were negative but HER 2 neu was positive) Metastatic deposits were present in 4 out of 13 lymph nodes studied.

### Discussion

Breast abscess is one of the commonest infective pathology of breast. It is usually considered as a benign condition and commonly diagnosed during lactation. However, if encountered in a non-lactating state it should raise the suspicion of an underlying malignancy. There have been anecdotal reports describing breast cancer presenting as abscesses [3]. Invariably the diagnosis is missed with the patient undergoing dressings for a long period of time until cancer becomes metastatic and starts fungating locally [4]. In order to avoid this disaster based on experiences, it is a safe practice to obtain multiple biopsies from abscess wall irrespective of the age and puerperal status of the patient. This will enable early diagnosis and prompt commencement of definitive treatment both surgical and adjuvant. Usually a malignant growth presenting as breast abscess should be considered as locally advanced growth and needs neo adjuvant therapy [5, 6]. However, if facilities aren't available immediately a good radical surgery may be helpful as in the case presented. Radical resection of the abscess cavity along with the growth accompanied with axillary clearance helps in removal of primary tumour. Post-operative adjuvant radiotherapy may helpful in preventing local recurrences. In the case presented, two novel concepts were incorporated in the

surgical technique. Injecting methylene blue with hydrogen peroxide enables complete resection of the abscess cavity. The resected mastectomy specimen should be examined for methylene blue staining as well as the bed that is the pectoral muscles should be inspected for bluish colouration. Absence of bluish colouration ensures no gross residual disease. Yet there may be shedding of cells during course of dissection which may lead to local recurrences. 3% hypertonic saline is a very strong tumoricidal agent and so also is hydrogen peroxide which causes cell destruction by oxygen derived free radicals. Combination of these two solutions (100 cc of 3% hypertonic saline with 3 cc of hydrogen peroxide) helps in destroying all loosely shed malignant cells at the site of surgery including the axilla. A 20 minute irrigation enables a good mechanical clearance of loosely shed malignant cells. Another advantage of hypertonic saline is that it is a very strong sclerosing agent. This helps in reducing incidence of seromas [7]. Despite there being a combination of an inflammatory lesion along with malignancy followed by a radical resection yet there was no seroma at the operating site. The use of hypertonic saline and hydrogen peroxide can be routinely used for all mastectomies. However a prospective randomised study needs to be carried out in order to advocate this technique as a standard of care during mastectomy performed for malignant tumours if the breast



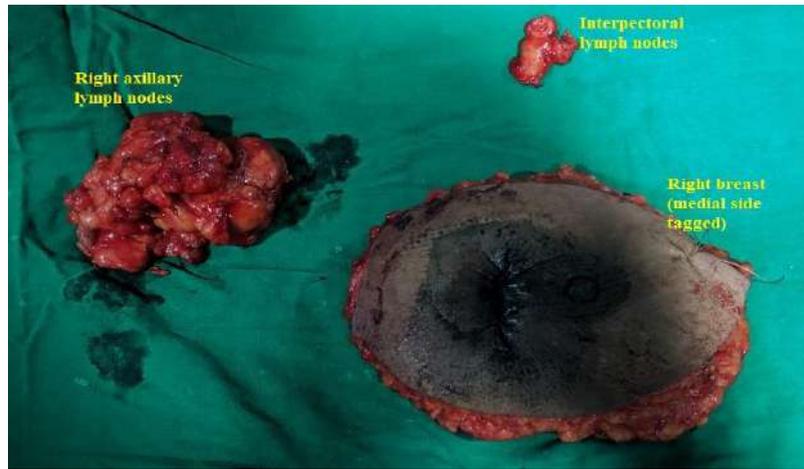
**Fig 1:** Methylene blue injected into the abscess cavity before closure.



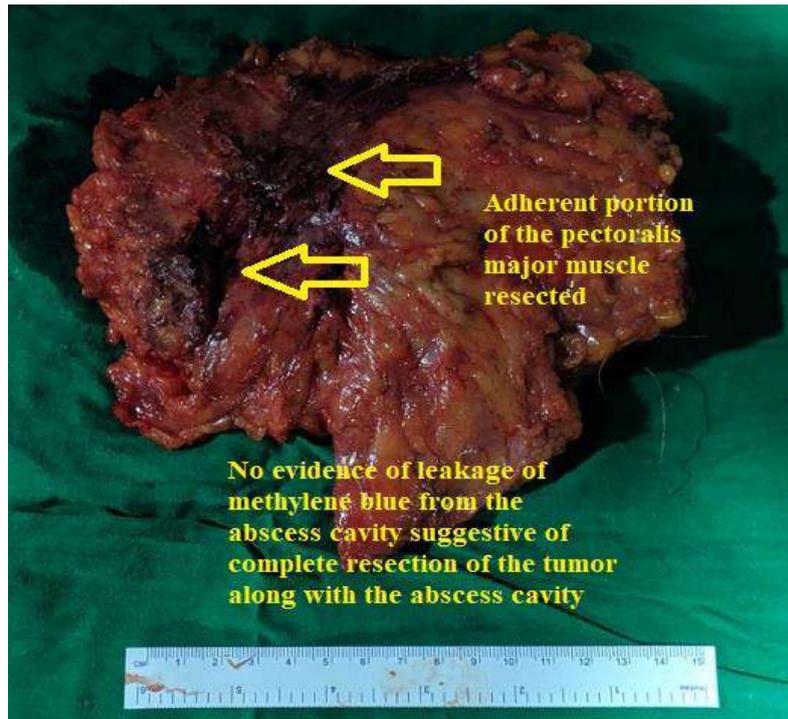
**Fig 2:** Abscess cavity closed.



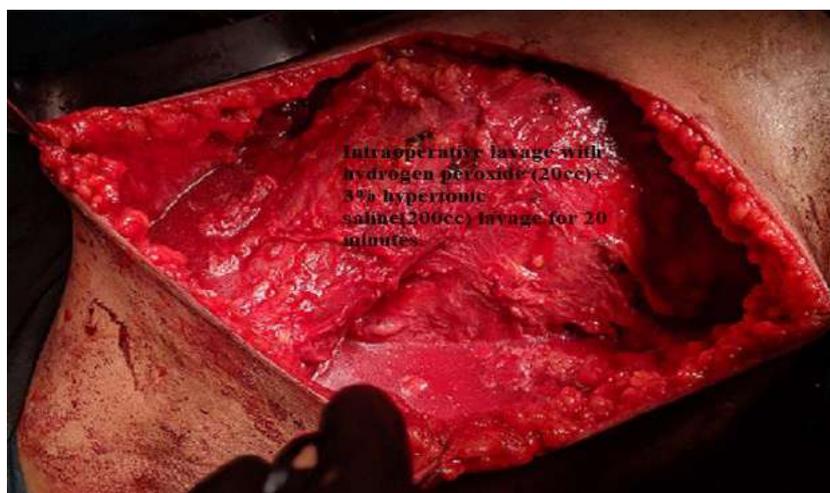
**Fig 3:** Skin incision marked after applying waterproof dressing.



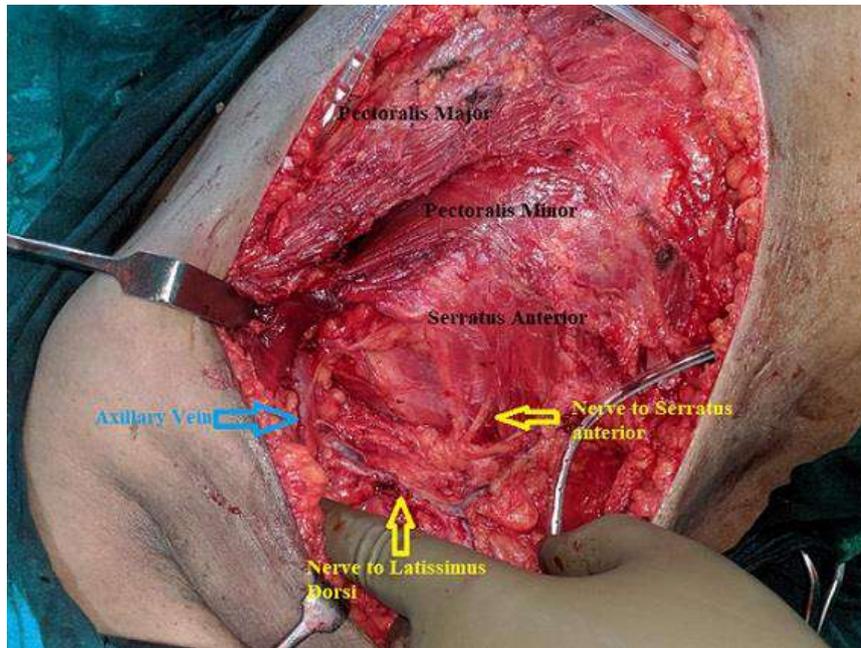
**Fig 4a:** Specimen of the right breast along with lymph nodes.



**Fig 4b:** No evidence of staining suggesting complete removal of the abscess cavity.



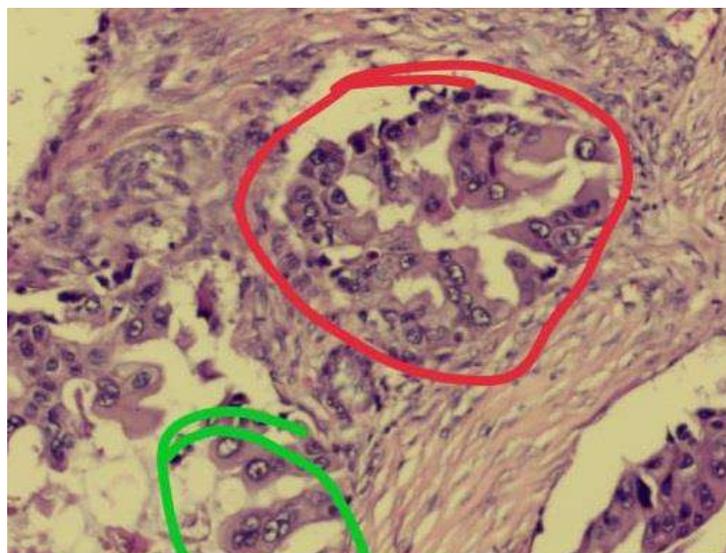
**Fig 5:** Irrigation with 3% hypertonic saline and hydrogen peroxide



**Fig 6:** Complete clearance with no staining of the pectoral muscle with methylene blue.



**Fig 7:** Final outcome



**Fig 8:** Invasive carcinoma with squamous metaplasia. (H&E staining 10X)

## Conclusion

A patient presenting with breast abscess during non-puerperal state should strongly raise the suspicion of underlying malignancy. Biopsy from the wall of abscess cavity is mandatory in such cases.

The technique described in this article with respect to intraoperative management of abscess cavity followed by irrigation of operative site with 3% hypertonic saline and hydrogen peroxide helps in reducing local recurrences.

A radical surgery followed by adjuvant therapy will give best results in such cases.

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