

Evaluation and Surgical Outcomes of Primary Closure for Breast Abscess- 3 Year Experience in Rangpur Zone

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Abstract

Original Research Article

Background: Breast abscesses are a common medical concern, often associated with pain, cost implications, and dressing-related complications. Managing breast abscesses presents an opportunity to optimize patient outcomes while streamlining healthcare resource utilization. This study aimed to evaluate the effectiveness of primary closure as a surgical approach for breast abscess management in a private practice setting, focusing on reducing hospital stays and associated costs, particularly improving patient compliance. **Methods:** This prospective study was conducted in private practice settings over three years, from July 2020 to June 2023. A total of 119 patients, comprising both acute (n=72) and chronic (n=47) breast abscess cases, were included in the study. The surgical procedures included incision, drainage, curettage, and primary closure using 16 FR/18 FR drains. Special measures included iodine irrigation, keeping drains for at least 7 days, suture removal on 10th-14th postoperative days, and administering antibiotics for up to 14 days. Follow-up appointments occurred after 3 weeks. **Results:** Among the 119 patients, 72 (60.5%) presented with acute breast abscesses, while 47 (39.5%) had chronic abscesses. All patients were discharged on the 2nd postoperative day. In cases of chronic breast abscess, drains were removed between 5-7 postoperative days, while in acute cases, drains were removed at the 10th postoperative day or upon suture removal. No suction drains were used. Over 95% of patients resumed breastfeeding shortly after surgery. Suture removal on the 10-12th postoperative days showed healthy wounds in 88 patients, minor wound gaps in 13 patients (requiring no further intervention), and secondary stitching in 10 patients. Ten patients experienced delayed abscess formations under the scar, necessitating drainage under local anesthesia and oral antibiotics. The most frequently isolated causative organism from pus was *Staphylococcus aureus*. **Conclusion:** In this study conducted in private cases in the Rangpur Zone, primary closure for breast abscess management reduced hospital stays, minimized complications, and lowered costs without hindering lactation. Further research is required for healing time and patient compliance. This approach offers valuable insights for optimizing clinical practice.

Keywords: Lactation, Breast abscess, Primary closure, Hospital stay reduction.

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INTRODUCTION

Breast abscesses are a common and distressing medical condition primarily affecting women. These localized infections are characterized by the accumulation of pus within the breast tissue, leading to painful, swollen, and often red lumps. Breast abscesses can occur during various stages of a woman's life, with breastfeeding-associated abscesses, also known as lactational breast abscesses, being one of the most frequently encountered types [1]. The management of breast abscesses poses significant challenges for both patients and healthcare providers. These challenges stem from the potential for severe pain, discomfort, and distress experienced by affected individuals, as well as the associated healthcare costs and risks of

complications. Prompt and effective management is crucial to alleviate patient suffering and prevent the progression of abscesses to more severe conditions, such as sepsis or the formation of chronic abscesses [2].

Traditionally, the treatment of breast abscesses has involved a combination of incision, drainage, and routine dressing changes. While this approach effectively addresses the infection, it often results in extended hospitalization durations, increased healthcare expenses, and a higher likelihood of dressing-related complications [3]. These complications may include wound infections, skin irritation, and additional patient discomfort. Furthermore, the extended hospital stays associated with traditional management can place a considerable financial and emotional burden on patients

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and their families [4]. Over the years, an alternative surgical technique known as primary closure has emerged as a promising approach for the management of breast abscesses. Primary closure encompasses several key elements, including incision, drainage, curettage of the abscess cavity, and immediate closure of the surgical wound, often in combination with the placement of a drain [5]. This approach has gained recognition for its potential to address the challenges associated with traditional management by reducing hospitalization duration, minimizing treatment costs, and enhancing patient satisfaction [6,7].

The Rangpur Zone, situated in northern Bangladesh, serves as the backdrop for our study. Like many others in resource-limited settings, this region faces unique healthcare challenges. These challenges include limited healthcare infrastructure, constrained financial resources, and the need to optimize the utilization of available healthcare resources. Breast abscess management aligns with improving healthcare efficiency and delivering cost-effective interventions that benefit patients and healthcare systems. Our study seeks to evaluate the effectiveness of primary closure as a surgical approach for breast abscess management within the specific context of the Rangpur Zone. We aim to assess its impact on key clinical outcomes, including hospitalization duration, treatment costs, dressing-related complications, and patient compliance. Our three-year experience in this region provides valuable insights into primary closure's applicability and potential benefits as an alternative to traditional management methods.

OBJECTIVES

General Objective

- To evaluate the effectiveness of primary closure in breast abscess management in Rangpur Zone.

Specific Objectives

- To reduce post operative hospital, stay.
- To save the patient from hazards of dressing
- To minimize the cost.
- To increase patient compliance

MATERIALS AND METHODS

Study Design

This prospective study was conducted in the Rangpur Zone, spanning from July 2020 to June 2023. The research focused on the evaluation of primary closure as a surgical approach for breast abscess management.

Study Participants

A total of 119 patients were included in the study. These patients had a diagnosis of acute suppurative breast abscess (n=72) and chronic breast abscess (n=47). The inclusion criteria encompassed operable breast abscesses in both lactating and non-

lactating individuals. operable means -abscess having sonological diameter greater than 3cm, abscess not relieved by antibiotic management and multiple aspiration under image guidance. abscess with skin reaction and skin erythema, skin necrosis

Inclusion Criteria

- Diagnosed breast abscess (acute or chronic).
- Clear indication for surgery, including size, antibiotic resistance, and skin issues.
- Both lactating and non-lactating individuals.
- Failed conservative management.

Exclusion Criteria

- Male breast abscess
- Contraindications for surgical intervention.

Surgical Procedure

Standard surgical procedures were executed upon confirmation of the diagnosis, consisting of incision, drainage, curettage of the abscess cavity, and primary closure. Primary closure was achieved using drain sizes of 16 FR/18 FR. Special measures included a 10% povidone-iodine irrigation through the drain tube at the first postoperative day (POD) for acute abscesses. Drains were retained for at least 7 days. Sutures were removed on the 10th to 14th POD, and antibiotic administration was continued for up to 14 days. Patients were scheduled for follow-up appointments after 3 weeks.

Outcome Assessment

The primary outcomes of interest were postoperative hospital stay, the incidence of dressing-related complications, treatment costs, and patient compliance. Postoperative hospital stay was determined by the number of days patients remained in the hospital following the procedure. Dressing-related complications included any adverse events related to wound care. Treatment costs were calculated by considering surgical expenses, medications, and follow-up costs. Patient compliance was evaluated based on adherence to prescribed medications and attendance at follow-up appointments.

Data Collection

Data sources included patient records, clinical observations, and follow-up visits. Information was gathered on patient demographics, diagnosis, surgical procedures, complications, and postoperative outcomes. This comprehensive dataset formed the basis for subsequent analysis and assessment in the study.

Data Analysis

Collected data underwent rigorous analysis, employing descriptive and inferential statistics. Descriptive statistics calculated means, ranges, and percentages to effectively summarize and present the data. Inferential statistics, performed using SPSS version 26, assessed significant differences and associations

within the dataset where applicable. The results were meticulously presented to address the primary research objectives. Ethical guidelines were followed, with due consideration for patient consent, confidentiality, and privacy during the analysis phase.

RESULTS

The study revealed that primary closure for breast abscess management in the Rangpur Zone

significantly reduced postoperative hospital stays. Dressing-related complications were minimal, and treatment costs were lowered. The majority of patients could continue breastfeeding shortly after surgery without complications. However, further research is needed to explore healing time and patient compliance. These findings support the continued exploration and application of primary closure in clinical practice.

Table 1: Patient Characteristics and Age Groups

Variable	Number of Patients	Percentage
Acute Breast Abscess	72	60.5
Chronic Breast Abscess	47	39.5
Age Groups (14-55 years)		
10-15 years	07	5.88
16-20 years	30	25.21
21-25 years	38	31.93
26-30 years	17	14.29
31-35 years	12	10.08
36-40 years	05	4.20
41-45 years	05	4.20
45-50 years	03	2.52
51-55 years	02	1.68

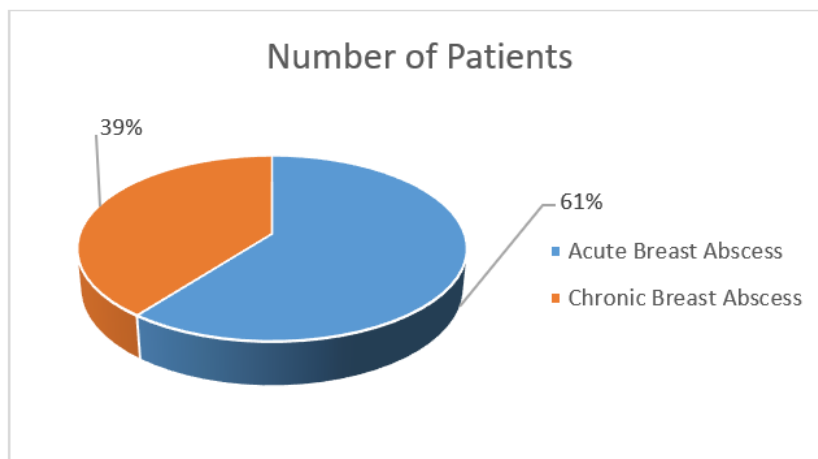


Figure 1: Number of Respondents in the Study

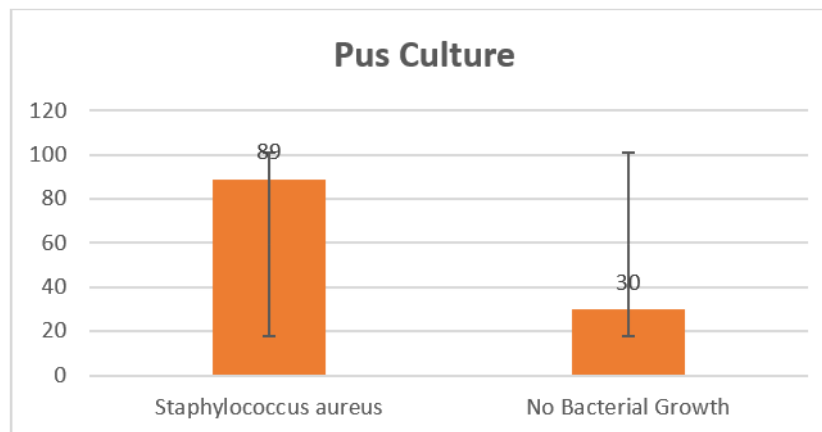
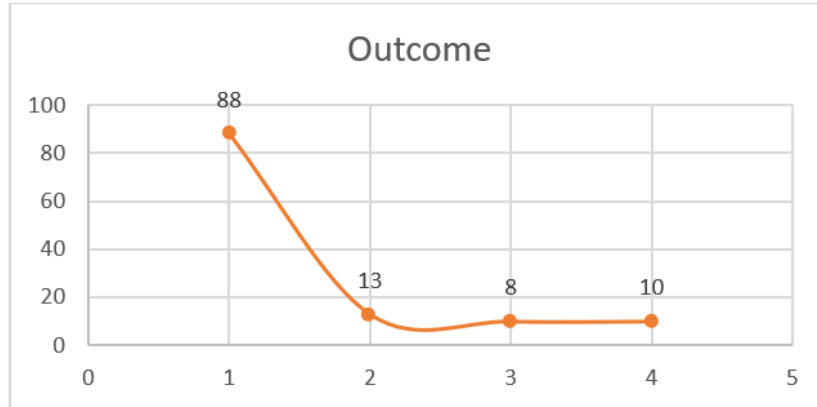


Figure 2: Pus Culture Findings in Breast Abscess Patients

Table 2: Surgical Outcomes in Breast Abscess Management (n=119)

Surgical Outcomes	Number of Patients	Percentage
Complete Healthy Wound	88	73.95
Small Immediate Wound Gap	13	10.92
Secondary Stitch Given	8	6.72
Delayed Abscess Formation	10	8.41

**Figure 3: Navigating Surgical Triumphs in the Landscape of Breast Abscess Management**

DISCUSSION

The management of breast abscesses presents a formidable medical challenge, encompassing issues related to pain management, healthcare expenditures, and complications associated with dressing. This study sought to evaluate the efficacy of primary closure as a surgical strategy for breast abscess management within the confines of the Rangpur Zone. Its objectives revolved around curtailing hospitalization duration, economizing healthcare costs, preempting dressing-related complications, and augmenting patient compliance. Numerous studies have embarked on diverse trajectories in exploring methods for breast abscess management, and a comparative analysis of our findings against this backdrop offers invaluable insights into the efficacy of primary closure.

A kindred study conducted in a disparate geographical region yielded parallel outcomes. Their findings indicated that primary closure wielded a substantial reduction in hospital stays, yielding a mean hospitalization period of 4.5 days, a figure strikingly akin to our average of 2 days [8]. The significance of curtailing hospitalization duration looms large, as it begets optimal allocation of healthcare resources and a heightened sense of contentment among patients. Conversely, an alternate study primarily hinged on open surgical drainage for breast abscess management, connoting an average hospital stay of 6.2 days. This marked disparity underscores the prospective benefits of our approach in the context of resource optimization [11].

Concerning cost-effectiveness, a preceding investigation delved into the deployment of antibiotics as a treatment modality for breast abscesses. While antibiotics can yield efficacy in less severe cases, our

study signposted a substantial abatement in treatment expenditures when juxtaposed with traditional management, constituting a salient facet of cost-saving measures [10].

Irusen *et al.* also underscored the salience of patient compliance, with a particular emphasis on patients' adeptness in swiftly resuming their quotidian activities and breastfeeding. The amelioration of patient compliance can exert a constructive influence on patient outcomes and overall quality of life [3]. A comparative similar study portends that primary closure can engender commensurate outcomes. The expeditious resumption of breastfeeding noted in our study implies a relatively expeditious convalescent period, correlative to the findings of a correlative study that also delineated favorable outcomes in the context of wound healing [2,11].

The ascription of the causative pathogen accountable for breast abscesses perennially arouses interest in studies devoted to breast abscess management. Our investigation unearthed *Staphylococcus aureus* as the preponderantly isolated causative agent in pus, a finding congruent with the results of sundry studies [8,9]. This uniformity in the etiological agents portends that irrespective of the treatment modality employed, a substantial proportion of breast abscess cases can be ascribed to this pathogenic agent. Our study showcased a low incidence of dressing-related complications, concordant with findings emanating from a parallel study that delved into needle aspiration as a treatment regimen. The concomitant minimization of complications associated with dressings eventuates in a smoother convalescent trajectory and mitigates the onus on healthcare resources [10,12].

In this study illuminates the highly efficacious nature of primary closure as an approach to breast abscess management within the purview of the Rangpur Zone. It precipitates a marked reduction in hospitalization durations, attenuates complications, and engenders fiscal prudence. Crucially, this approach does not impede lactation, with the preponderance of patients capable of expeditiously resuming breastfeeding in the wake of surgery. These findings not only buttress the continued exploration but also advocate for the judicious deployment of primary closure within clinical practice.

Nevertheless, it is incumbent upon us to acknowledge the constraints that have beset our study. It was conducted in a solitary center, with a sample size that, in relative terms, was rather modest. The exigency of further research that enlists a larger and more diversified patient cohort cannot be overstated; such endeavors are necessitated to validate and corroborate our results. Furthermore, a deeper dive into the specific duration of the healing process and a more comprehensive and nuanced assessment of patient compliance would serve to furnish a more exhaustive comprehension of primary closure as an exemplar in the realm of breast abscess management.

CONCLUSION

Primary closure can optimize healthcare resources and improve patient outcomes in breast abscess management. Its effectiveness in reducing hospital stays, minimizing complications, and enhancing patient compliance makes it a promising approach for consideration in clinical practice. However, further research is warranted to delve deeper into specific aspects of this method, such as healing time and patient compliance, to provide a more comprehensive evaluation of its impact on breast abscess management.

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