Section: General Surgery

Original Research Article

A STUDY ON INCIDENCE OF POST MASTECTOMY PAIN AND PHANTOM BREAST SYNDROME FOLLOWING MASTECTOMY

David Salivendra[1], Ponnuru Chandi Priya[1], Jyeshavath Venkateswara Naik[1], Blessy Rani Medikonda[2]

[1]*Assistant Professor, Department of General Surgery, Government Medical College, Ongole, Andhrapradesh, India.*
[2]*Senior Resident, Department of General Surgery, Government Medical College, Ongole, Andhrapradesh, India.*

Received *: 26/01/2026*
Received in revised form *: 07/03/2026*
Accepted *: 24/03/2026*

Corresponding Author:
Dr. Blessy Rani Medikonda,
Senior Resident, Department of General Surgery, Government Medical College, Ongole, Andhrapradesh, India..
Email: medikonda123@gmail.com

DOI: 10.70034/ijmedph.2026.2.20

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (2); 107-111

ABSTRACT

Background: Mastectomy is a commonly performed surgical procedure for the treatment of breast cancer. Although it is effective in controlling the disease, many patients experience postoperative complications such as post-mastectomy pain syndrome and phantom breast syndrome. These conditions may lead to persistent pain, discomfort, and psychological distress, thereby affecting the overall quality of life of patients. The aim is to determine the incidence of post-mastectomy pain and phantom breast syndrome in patients undergoing mastectomy for carcinoma breast.

Materials and Methods: This observational study was conducted in the Department of General Surgery for a period of 2 years. A total of 100 patients who underwent mastectomy were included in the study. Patients above 35 years of age who underwent simple mastectomy or modified radical mastectomy were enrolled after obtaining informed consent. Patients were evaluated during follow-up visits approximately 8 to 12 weeks after surgery. A detailed clinical examination and a standardized questionnaire were used to assess the presence of postoperative pain and phantom breast symptoms. Data were entered in Microsoft Excel and analyzed using Epi Info and SPSS software.

Results: Among the 100 patients studied, 67% underwent modified radical mastectomy and 33% underwent simple mastectomy. Post-mastectomy chest wall pain was observed in 21% of patients, while 11% experienced arm pain. Phantom breast pain was reported in 4% of patients, and phantom breast sensations were observed in 6% of patients. Most patients (66%) did not report any significant psychological impact following surgery.

Conclusion: Post-mastectomy pain and phantom breast syndrome remain important postoperative complications, particularly following modified radical mastectomy. Early recognition, appropriate patient counseling, and improved surgical techniques may help reduce these complications and improve postoperative quality of life.

Keywords: Breast cancer, Mastectomy, Post-mastectomy pain syndrome, Phantom breast pain, Phantom breast sensation.

INTRODUCTION

Mastectomy is an important surgical procedure used in the treatment and prevention of breast cancer. Although it is often life-saving, the procedure can have significant physical and psychological effects on patients. Women who undergo mastectomy frequently experience postoperative complications such as persistent pain, phantom breast sensations, and changes in body image. These issues highlight the importance of proper postoperative care and long-term support for patients undergoing breast surgery.[1]

Mastectomy is a surgical procedure that involves the removal of part or the entire breast tissue to treat breast cancer. Depending on the extent of the disease and the patient's condition, different types of mastectomy procedures may be performed. These include Simple (Total) Mastectomy, Modified Radical Mastectomy, and Radical Mastectomy.

While mastectomy plays a crucial role in the management of breast cancer, it may also lead to physical discomfort and emotional stress. Patients may experience post-operative pain, phantom sensations in the removed breast, and alterations in body image, which can affect their overall quality of life. Advances in surgical techniques and reconstructive procedures have helped improve outcomes and recovery in many patients.[2]

In certain cases, mastectomy may also be performed as a preventive measure in individuals who have a high risk of developing breast cancer. Although the procedure is beneficial in preventing disease progression, it may be associated with complications such as chronic pain and phantom breast syndrome. Studies indicate that up to 55 percent of women experience pain following breast surgery, and in some cases this pain may persist for months or even years. According to the International Association for the Study of Pain, pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage. Pain can be classified as acute pain or chronic pain. Acute pain is usually short in duration and lasts less than six months, resolving as healing occurs. Chronic pain, on the other hand, lasts for more than six months and may present as a continuous discomfort or as recurrent episodes of severe pain over a prolonged period.[1,3,4]

Post-mastectomy pain syndrome is defined as chronic pain that begins immediately or soon after mastectomy or removal of a breast lump and affects the anterior chest wall, axilla, or medial aspect of the upper arm. Women who undergo lumpectomy may also experience similar symptoms, even though the breast remains intact.

Phantom breast pain is a condition in which women experience pain in the area where the breast was removed after mastectomy. Even though the breast tissue has been surgically removed, patients may continue to feel sensations such as burning, stabbing, or throbbing pain in the absent breast. This condition occurs due to nerve injury during surgery and changes in the way the brain and nervous system respond to these nerve signals. Phantom breast pain can vary in severity from mild to severe and may persist for varying durations. In some patients, it resolves spontaneously, while in others it may continue for a prolonged period. The presence of phantom breast pain can significantly affect a patient's daily activities, emotional well-being, and overall quality of life. Therefore, understanding the incidence and nature of these symptoms is important in order to provide better postoperative care and support to women undergoing breast cancer surgery.[5]

The present study aims to evaluate the different types of pain experienced by women following mastectomy and to assess the incidence of post-mastectomy pain and phantom breast sensations. Understanding these outcomes can help improve treatment strategies and patient support following breast cancer surgery.

Aim and objectives

1. To determine the incidence of post-mastectomy pain in patients undergoing mastectomy for carcinoma breast.
2. To determine the incidence of phantom breast pain and phantom breast sensations in patients undergoing mastectomy for carcinoma breast.

MATERIALS AND METHODS

Place of Study: Department of General Surgery, Government Medical College, Ongole

Study Design: Observational Study.

Study Period: Two years (April 2023 – April 2025).

Sample Size: 100 patients.

Study Population: Patients who presented to the General Surgery Outpatient Department with documented evidence of Modified Radical Mastectomy were enrolled into the study after obtaining informed consent.

Inclusion Criteria

- Patients above 35 years of age.
- Patients who underwent Modified Radical Mastectomy or Simple Mastectomy.
- Patients who received neoadjuvant or adjuvant chemotherapy.
- Patients who received radiotherapy.

Exclusion Criteria

- Patients less than 35 years of age.
- Patients with bilateral breast disease.
- Patients who underwent lumpectomy, quadrantectomy, or breast reconstruction.
- Patients with previous axillary surgery.
- Patients with pain associated with upper extremity lymphedema.
- Patients with local recurrence of disease.

Sample Size Calculation

Sample size = $Z^2 \times P \times (1 - P) / E^2$

Where

P = 0.5

E = 10

Z score = 1.96

Confidence interval = 95 percent

The calculated sample size was 100 patients.

Patients were reviewed during follow-up approximately 8 to 12 weeks after surgery.

A detailed clinical examination was performed. Patients were evaluated using a standardized questionnaire in a language that was understandable and acceptable to them.

Prior approval was obtained from the Institutional Ethics Committee with purpose of the study was explained to the patients before enrollment. Written informed consent was obtained from each participant before including them in the study. All questions and doubts of the patients were clarified. Confidentiality of patient data was strictly maintained. Privacy was ensured while interviewing and examining the patients.

Data entry was performed using Microsoft Excel software. Statistical analysis was carried out using Epi Info and SPSS software. Descriptive statistical analysis was used to explore the distribution of categorical and quantitative variables. Categorical variables were expressed as frequency and percentages, while quantitative variables were expressed as mean and standard deviation. The results were presented in tables and graphs.

RESULTS

A total of 100 patients who underwent mastectomy were included in the study and followed up for assessment of post-mastectomy pain and phantom breast syndrome.

Table 1: Distribution of Patients According to Type of Mastectomy

Type of Mastectomy	Number of Patients	Percentage
Simple Mastectomy	33	33%
Modified Radical Mastectomy	67	67%
Total	100	100%

Among the 100 patients included in the study, the majority underwent Modified Radical Mastectomy (67%). Simple Mastectomy was performed in 33% of patients.

Table 2: Incidence of Chest Pain and Arm Pain

Type of Surgery	Chest Pain	Arm Pain	No Pain	Total
Simple Mastectomy	0	0	33	33
Modified Radical Mastectomy	21	11	35	67
Total	21	11	68	100

Post-mastectomy pain was reported only in patients who underwent Modified Radical Mastectomy. Chest wall pain was observed in 21% of patients, while 11% reported arm pain. No cases of pain were reported among patients who underwent Simple Mastectomy.

Table 3: Impact of Mastectomy on Patients

Impact of Mastectomy	Number of Patients	Percentage
Sadness and crying about the loss	6	6%
Difficulty in moving freely	16	16%
Sadness due to effect on sexual life	8	8%
Desire to use breast prosthesis	4	4%
None of the above	66	66%
Total	100	100%

Most patients (66%) did not report any significant psychological or physical impact following mastectomy. Among those affected, difficulty in free movement (16%) was the most common concern.

Table 4: Incidence of Phantom Breast Syndrome

Phantom Breast Syndrome	Number of Patients	Percentage
Phantom Breast Pain	4	4%
Phantom Breast Sensation	6	6%
No pain	90	90%
Total	10	10%

Phantom breast sensations were reported slightly more frequently than phantom breast pain. Overall, 10% of patients experienced symptoms related to phantom breast syndrome.

Table 5: Frequency of Phantom Pain Experienced

Frequency of Phantom Pain	Number of Patients
Never	0
Monthly	0
Weekly	0
Many times a week	5
Daily	0
Many times a day	2
Always	2

Among the patients experiencing phantom breast pain, the most commonly reported frequency was many times a week. A smaller number of patients experienced pain many times a day or continuously.

Table 6: Overall Incidence of Post-Mastectomy Complications

Complication	Number of Patients	Percentage
Chest wall pain	21	21%
Arm pain	11	11%
Phantom breast pain	4	4%
Phantom breast sensation	6	6%

Post-mastectomy pain and phantom breast syndrome together affected a significant proportion of patients following surgery, highlighting the need for better postoperative monitoring and management.

DISCUSSION

The present study was conducted to determine the incidence of post-mastectomy pain and phantom breast syndrome in patients undergoing mastectomy for carcinoma breast. Post-mastectomy pain syndrome (PMPS) is recognized as an important long-term complication following breast cancer surgery and can significantly affect the physical, psychological, and functional well-being of patients. The incidence of phantom breast pain and post-mastectomy pain is often underestimated because many patients do not report their symptoms unless specifically asked. Some patients perceive intermittent pain as a minor problem and tolerate it without seeking medical attention. Others may hesitate to report phantom sensations because they fear that pain in a surgically removed body part may not be taken seriously by healthcare providers. Recent studies emphasize that active screening during follow-up visits is essential for identifying these symptoms and providing appropriate management.

In the present study, chest wall pain was observed in 21% of patients and arm pain in 11% of patients following mastectomy. Phantom breast pain was reported in 4% of patients, while phantom breast sensations were reported in 6% of patients. Similar findings have been reported in recent literature.[6] A systematic review by Wang et al,[7] reported that the prevalence of post-mastectomy pain syndrome ranges between 20% and 50% depending on the type of surgery and duration of follow-up. Likewise, a study by Wang and colleagues,[8] found that approximately 25%–60% of women experience chronic pain after breast cancer surgery.

Several studies have identified surgical factors as major contributors to the development of PMPS. Axillary lymph node dissection and injury to the intercostobrachial nerve are particularly important risk factors. In the present study, most patients who reported pain had undergone modified radical mastectomy with axillary dissection. This observation is consistent with findings from recent research, which suggests that nerve injury during axillary dissection is a major cause of neuropathic pain following breast surgery.

A recent cohort study by Li Z, Wang F et al,[9] demonstrated that preservation of the intercostobrachial nerve during axillary surgery significantly reduces the incidence of chronic postoperative pain. Similarly, a study by Gong et al,[10] emphasized the importance of nerve-sparing surgical techniques and multimodal pain management strategies to reduce the risk of long-term postoperative pain.

The nature of post-mastectomy pain is typically neuropathic. Patients often describe the pain as burning, stabbing, pricking, or shooting in character. These symptoms are commonly associated with nerve injury and altered sensory processing following surgery. Recent research has also highlighted the role of psychological factors such as anxiety, depression, and preoperative pain sensitivity in influencing the development of chronic postoperative pain. Patient education plays an essential role in the management of post-mastectomy pain and phantom breast syndrome. Women undergoing breast surgery should be informed about the possibility of experiencing postoperative pain and phantom sensations. Adequate preoperative counseling can reduce anxiety and help patients understand that such symptoms are relatively common and manageable.

Healthcare professionals, particularly nurses and surgeons, play a crucial role in assessing postoperative pain and providing appropriate management. Early recognition of symptoms, combined with pharmacological and non-pharmacological interventions, can significantly improve patient comfort and quality of life. Recent studies have recommended a multidisciplinary approach involving surgeons, pain specialists, physiotherapists, and psychologists for effective management of post-mastectomy pain.

Overall, the findings of the present study highlight the importance of early detection and management of post-mastectomy pain and phantom breast syndrome. With improvements in surgical techniques, nerve-sparing procedures, and postoperative pain management strategies, the incidence and severity of these complications can be reduced, thereby improving long-term outcomes and quality of life in breast cancer survivors.

CONCLUSION

Among the study population, 67 percent underwent Modified Radical Mastectomy and 33 percent underwent Simple Mastectomy.Post-mastectomy chest wall pain was reported in 21 percent of patients, while 11 percent experienced arm pain.Phantom breast sensations were reported by 6 percent of patients, and phantom breast pain was observed in 4 percent of patients.The study highlights that post-mastectomy pain and phantom breast syndrome, although not extremely common, remain important complications affecting patients after breast cancer surgery.

Proper patient counseling, nerve-sparing surgical techniques, and early recognition of symptoms may help reduce the incidence and severity of these complications. Further research is required to identify effective strategies for prevention and management of post-mastectomy pain and phantom breast syndrome.

REFERENCES

1. International Association for the Study of Pain. IASP Terminology and Classification of Pain. Seattle: IASP Press; 2011.
2. Carpenter JS, Andrykowski MA, Sloan P, Cunningham L, Cordova M, Studts JL, et al. Postmastectomy/postlumpectomy pain in breast cancer survivors. Journal of Clinical Epidemiology. 1998;51(12):1285–1292.
3. Perkins FM, Kehlet H. Chronic pain as an outcome of surgery: A review of predictive factors. Anesthesiology. 2000;93(4):1123–1133.
4. Smith WC, Bourne D, Squair J, Phillips DO, Chambers WA. A retrospective cohort study of post mastectomy pain syndrome. Pain. 1999;83(1):91–95.
5. Couceiro TC, Menezes TC, Valença MM. Post-mastectomy pain syndrome: The magnitude of the problem. Revista Brasileira de Anestesiologia. 2014;64(5):347–353.
6. Suo, S., Liu, R., Yu, X. et al. Incidence and risk factors of pain following breast cancer surgery: a retrospective national inpatient sample database study. BMC Women's Health 2024: 24, 583.
7. Wang L, Guyatt GH, Kennedy SA, Romerosa B, Kwon HY, Kaushal A, Chang Y, Craigie S, de Almeida CPB, Couban RJ, Parascandalo SR, Izhar Z, Reid S, Khan JS, McGillion M, Busse JW. Predictors of persistent pain after breast cancer surgery: a systematic review and meta-analysis of observational studies. CMAJ. 2016 Oct 4;188(14):E352-E361.
8. Wang L, Cohen JC, Devasenapathy N, Hong BY, Kheyson S, Lu D, Oparin Y, Kennedy SA, Romerosa B, Arora N, Kwon HY, Jackson K, Prasad M, Jayasekera D, Li A, Guarna G, Natalwalla S, Couban RJ, Reid S, Khan JS, McGillion M, Busse JW. Prevalence and intensity of persistent post-surgical pain following breast cancer surgery: a systematic review and meta-analysis of observational studies. Br J Anaesth. 2020;125(3):346–57.
9. Li Z, Wang F, Kou X, Couban RJ, Busse JW, Wang L. Intercostobrachial nerve preservation during breast cancer surgery to prevent chronic postsurgical pain: A systematic review and meta-analysis of randomized controlled trials. Eur J Surg Oncol. 2025 Sep;51(9):110214.
10. . Gong Y, Tan Q, Qin Q, Wei C: Prevalence of postmastectomy pain syndrome and associated risk factors: a large single-institution cohort studyMedicine (Baltimore) 2020;99:0.