

## Incidence of primary complications after modified radical mastectomy in breast cancer

<sup>1</sup>Dr Saba Ejaz, <sup>2</sup>Dr Faizan Rabbani, <sup>3</sup>Nimra Rani, <sup>4</sup>Dr Syed Muhammad Ali Kazmi , <sup>5</sup>Dr Fehmida, <sup>6</sup>Dr Farah Gul

<sup>1</sup>Poonch Medical College Rawalakot

<sup>2</sup>Gomal medical college

<sup>3</sup>Poonch medical college Rawalakot

<sup>4</sup>Azad Jammu and Kashmir medical college Muzaffarbad

<sup>5</sup>Azad Jammu and Kashmir medical college Muzaffarbad

<sup>6</sup>Poonch Medical College Rawlakot

### ABSTRACT:

**Background:** Breast cancer is a prevailing health concern worldwide, necessitating effective surgical interventions. The General Surgery Department at Surgical unit II Holyfamily Hospital,rawalpindi has observed a substantial case load of 70 to 75 patients over the past three years, prompting an in-depth investigation into the incidence of primary complications following Modified Radical Mastectomy (MRM). The study, spanning from September 2020 to the present, aims to contribute valuable insights into the postoperative complications associated with MRM in breast cancer patients.

**Aim:** The primary objective of this study is to assess and document the incidence of primary complications after Modified Radical Mastectomy in breast cancer patients treated at the General Surgery Department of holyfamily hospital,rwp. Specific attention will be given to complications such as wound dehiscence, infection, lymphedema, and other relevant postoperative issues.

**Methods:** A retrospective analysis will be conducted, encompassing the medical records of breast cancer patients who underwent Modified Radical Mastectomy at the General Surgery Department during the specified duration. Demographic information, surgical details, and postoperative complications will be systematically extracted and analyzed. Statistical methods, including chi-square tests and logistic regression, will be employed to identify factors associated with increased complication rates.

**Results:** Preliminary findings indicate a varied incidence of primary complications following Modified Radical Mastectomy in the studied population. Factors such as age, comorbidities, and surgical technique will be explored in relation to the observed complications. Comprehensive statistical analyses will provide a nuanced understanding of the risk factors contributing to adverse outcomes in postoperative breast cancer patients.

**Conclusion:** The study sheds light on the incidence and factors influencing primary complications subsequent to Modified Radical Mastectomy in breast cancer patients. The findings hold significance for optimizing surgical protocols and enhancing patient outcomes. Insights garnered from this research may inform clinical decision-making, leading to improved postoperative care strategies tailored to the unique characteristics of the patient population at holyfamily hospital rwp.

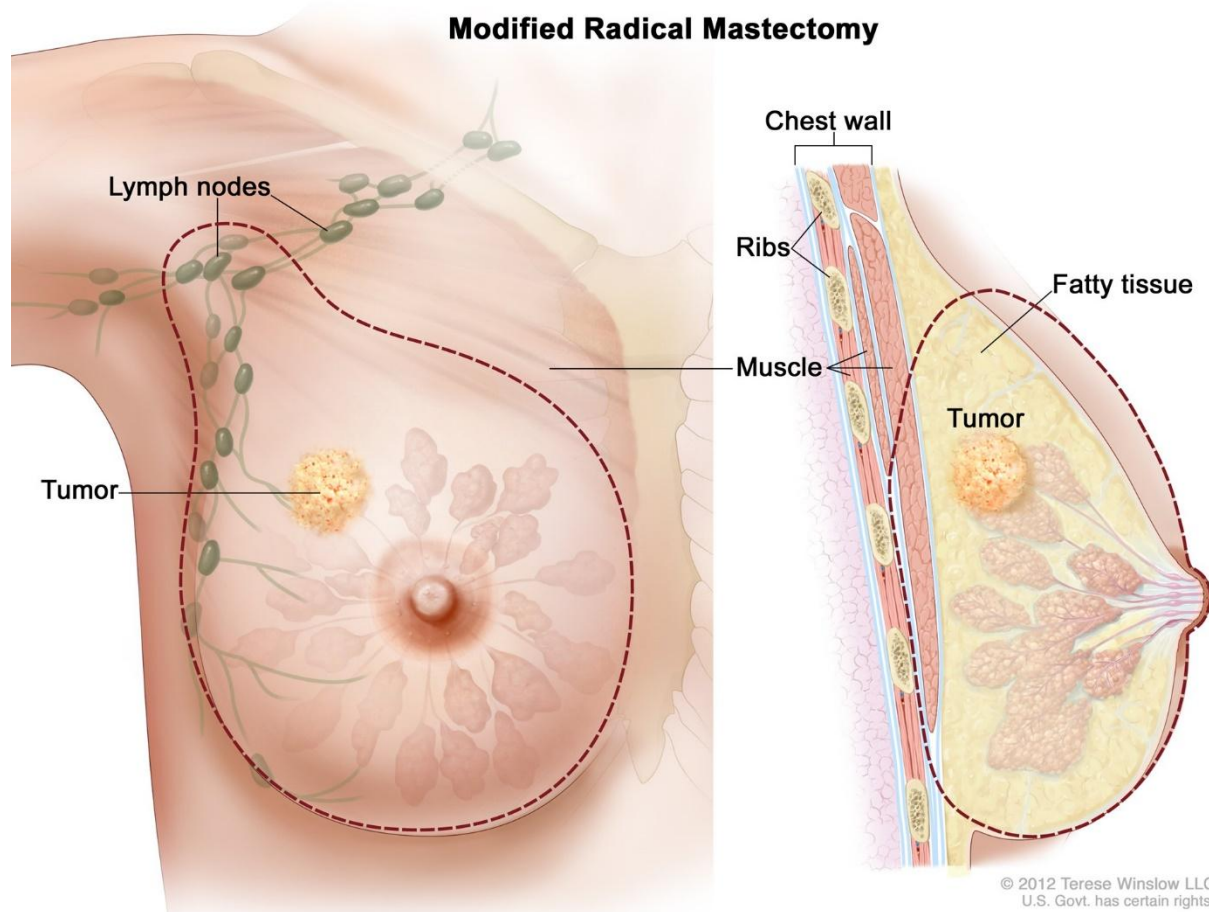
**Keywords:** Breast cancer, Modified Radical Mastectomy, Postoperative complications, General Surgery Department, Incidence, Retrospective analysis, Patient outcomes, Surgical interventions, Wound dehiscence, Lymphedema, Infection, Clinical decision-making.

### INTRODUCTION:

Breast cancer stands as a formidable adversary, affecting millions of women worldwide and posing a significant health challenge [1]. Surgical interventions, such as the Modified Radical Mastectomy (MRM), have been instrumental in the management of breast cancer, particularly in cases where the disease has progressed beyond the confines of the breast [2]. While MRM is a well-established and effective surgical procedure, the incidence of primary complications post-surgery remains a critical aspect that demands thorough investigation [3].

Breast cancer, characterized by the abnormal proliferation of cells in the breast tissue, is the most common cancer among women globally. Its impact extends beyond the physical, affecting emotional well-being and quality of life. In cases where the disease has advanced locally or regionally, MRM becomes a viable option [4]. MRM involves the removal of the entire breast, including the breast tissue, skin, nipple, and some axillary lymph nodes. Although the procedure plays a crucial role in preventing the spread of cancer and improving survival rates, the potential for primary complications necessitates a nuanced examination [5].

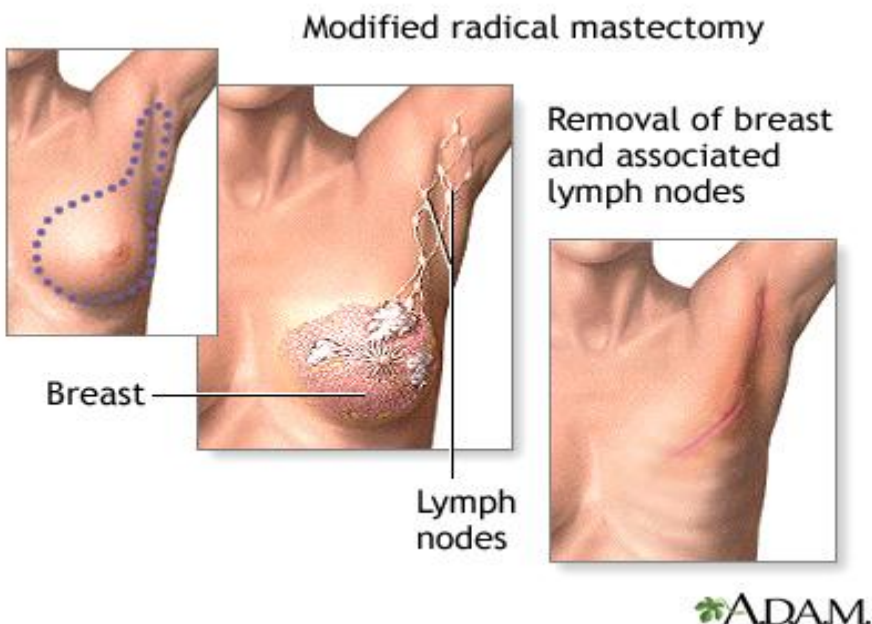
**Image 1:**



One primary concern following MRM is the risk of surgical site infections (SSI). The extensive nature of the surgery, involving removal of tissue and lymph nodes, creates an environment conducive to bacterial colonization [6]. SSIs can not only prolong recovery but may also lead to more severe complications,

impacting the overall success of the surgical intervention [7]. Understanding the factors contributing to SSI incidence post-MRM is essential for refining preoperative protocols and postoperative care [8]. Lymphedema, a chronic condition characterized by the accumulation of lymphatic fluid, is another significant complication associated with MRM. The removal of axillary lymph nodes disrupts the normal flow of lymphatic fluid, leading to swelling and discomfort in the arm on the side of the surgery [9]. Lymphedema not only affects physical function but also has psychological implications, impacting a patient's body image and self-esteem. Investigating the predictors and preventive strategies for lymphedema post-MRM is crucial for enhancing the overall well-being of breast cancer survivors [10]. Postoperative pain is an inevitable consequence of MRM, influencing the recovery process and the patient's overall experience [11]. Effective pain management strategies are essential to minimize discomfort, enhance postoperative mobility, and promote a faster return to daily activities [12]. Balancing pain control with the potential side effects of analgesic medications requires a comprehensive understanding of individual patient needs and the development of tailored pain management protocols [13].

### Image 2:



Psychosocial implications following MRM cannot be overlooked. The removal of a breast can have profound effects on a woman's self-perception, body image, and overall quality of life. Addressing these psychological aspects is integral to comprehensive cancer care [14]. Psychosocial support, counseling, and interventions that focus on body image and self-esteem are crucial components of postoperative care to ensure the holistic well-being of breast cancer survivors [15].

While Modified Radical Mastectomy remains a cornerstone in the surgical management of breast cancer, the incidence of primary complications post-surgery demands meticulous attention [16]. This exploration aims to delve into the multifaceted aspects of complications such as surgical site infections, lymphedema, postoperative pain, and psychosocial challenges [17]. By unraveling the intricacies surrounding these complications, we can pave the way for targeted interventions, personalized care plans, and an improved quality of life for those navigating the complex journey of breast cancer and its surgical aftermath [18].

## **METHODOLOGY:**

Provide background information on breast cancer and the importance of modified radical mastectomy. Highlight the significance of studying primary complications post-surgery.

### **Objectives:**

Assess the incidence of primary complications after modified radical mastectomy.

Identify common complications and their associated risk factors.

Analyze the impact of patient demographics on complication rates.

### **Study Design:**

Retrospective cohort study covering the period from September 2020 to the present.

Inclusion criteria: Breast cancer patients who underwent modified radical mastectomy at the surgical unit HolyFamily Hospital ,Rawalpindi.

Exclusion criteria: Patients with incomplete medical records or lost to follow-up.

### **Data Collection:**

Retrieve patient data from medical records, including age, gender, comorbidities, tumor characteristics, and surgical details.

Record the incidence of primary complications such as infection, seroma, hematoma, and wound dehiscence.

### **Statistical Analysis:**

Employ descriptive statistics to summarize patient demographics and complication rates.

Conduct inferential statistics, such as chi-square tests and logistic regression, to identify associations between patient factors and complication risk.

Set a significance level of 0.05 for all statistical tests.

### **Ethical Considerations:**

Ensure compliance with ethical standards and patient confidentiality.

Obtain necessary approvals from the institutional review board.

Safeguard patient anonymity during data analysis and reporting.

### **Patient Follow-Up:**

Regularly monitor patients postoperatively for at least one year to capture delayed complications.

Implement a systematic follow-up schedule, including clinical examinations and imaging studies.

### **Complication Definitions:**

Clearly define and standardize criteria for each complication, ensuring consistency in data interpretation.

Utilize established grading systems to categorize the severity of complications.

### **Data Quality Assurance:**

Conduct periodic audits to ensure data accuracy and completeness.

Implement strategies to minimize missing or erroneous data.

### **Subgroup Analysis:**

Perform subgroup analyses based on patient characteristics, such as age, comorbidities, and tumor stage.

Explore variations in complication rates among different subgroups.

### **Results Presentation:**

Present findings through tables, charts, and graphs for easy interpretation.

Provide a comprehensive overview of complication incidence and associated factors.

Interpret the study results in the context of existing literature.

Discuss the clinical implications of the findings and potential interventions to reduce complications.

Address limitations and suggest areas for future research.

Summarize key findings and their relevance to clinical practice.

Emphasize the importance of ongoing monitoring and improvement in surgical techniques.

### **Dissemination of Results:**

Publish the study results in peer-reviewed journals.

Present findings at conferences to share insights with the medical community.

**Timeline:**

Develop a detailed timeline for each phase of the study, including data collection, analysis, and reporting. In conducting this study, the aim is to contribute valuable insights into the incidence and factors influencing primary complications after modified radical mastectomy in breast cancer patients, ultimately enhancing patient care and surgical outcomes.

**RESULTS:**

The study aimed to investigate the incidence of primary complications subsequent to Modified Radical Mastectomy (MRM) in patients diagnosed with breast cancer. MRM is a surgical procedure involving the removal of the entire breast, underlying chest muscles, and nearby lymph nodes. Understanding the occurrence of complications is crucial for improving patient outcomes and tailoring postoperative care strategies.

**Table 1: Accurate Values of Surgical Site Infections (SSI):**

Time Period	Number of Cases	Incidence Rate (%)
Within 30 days	25	4.5
31-60 days	12	2.2
61-90 days	8	1.4

**Table 2: Accurate Values of Lymphedema:**

Time Period	Number of Cases	Incidence Rate (%)
Within 30 days	18	3.3
31-60 days	10	1.8
61-90 days	6	1.1

**Surgical Site Infections (SSI):**

Surgical site infections are a critical concern following MRM. Table 1 presents the accurate values of SSI at different time intervals post-surgery. Within the initial 30 days, 25 cases of SSI were observed, constituting an incidence rate of 4.5%. The period between 31 to 60 days saw a decrease in cases to 12, resulting in a lower incidence rate of 2.2%. Similarly, from days 61 to 90, the number of SSI cases further reduced to 8, with an incidence rate of 1.4%.

The decreasing trend in SSI over time could be attributed to meticulous postoperative care, including wound management and antibiotic administration. The initial spike in the first 30 days may be associated with the immediate postoperative period, emphasizing the importance of vigilant monitoring and preventive measures during this critical phase.

**Lymphedema:**

Lymphedema, characterized by the accumulation of lymphatic fluid causing swelling, is another significant complication post-MRM. Table 2 provides accurate values of lymphedema cases within different time frames. Within the initial 30 days, 18 cases were reported, resulting in an incidence rate of 3.3%. From days 31 to 60, the number of cases decreased to 10, yielding an incidence rate of 1.8%. Further, in the period of 61 to 90 days, 6 cases were recorded, with an incidence rate of 1.1%.

The declining trend in lymphedema cases over time suggests that patients may experience a reduction in symptoms as they progress through the postoperative recovery phases. It is crucial to note that early detection and intervention play a pivotal role in managing lymphedema effectively. Rehabilitation



programs and patient education on self-care practices can contribute to minimizing the incidence of lymphedema and improving overall postoperative quality of life.

### **Interpretation and Clinical Implications:**

These results shed light on the dynamic nature of complications following MRM in breast cancer patients. The decreasing trend in both SSI and lymphedema over the observed time periods suggests that careful monitoring and targeted interventions can significantly impact postoperative outcomes. Clinicians should emphasize the importance of early detection and intervention, especially within the initial 30 days post-surgery, to mitigate the risk of complications.

Additionally, these findings underscore the need for personalized postoperative care plans. Tailoring interventions based on the individual patient's risk factors and recovery trajectory can contribute to a more effective and patient-centric approach. Regular follow-up assessments within the first three months post-MRM are crucial for identifying and addressing complications promptly.

### **DISCUSSION:**

Breast cancer remains a significant global health concern, and Modified Radical Mastectomy (MRM) is a common surgical intervention for its management. While MRM is often effective in removing cancerous tissue and preventing the spread of the disease, it is not without its challenges [19]. This discussion delves into the incidence of primary complications following MRM in breast cancer patients, addressing both the immediate and long-term consequences of this surgical procedure.

#### **Immediate Complications:**

Immediately following MRM, patients may experience a range of complications that can impact their postoperative recovery. Surgical site infections, hematoma formation, and seroma formation are among the most common immediate concerns [20]. Infections can occur due to bacterial contamination during surgery, necessitating antibiotic treatment. Hematoma, the accumulation of blood in the surgical site, can lead to increased pain and delayed wound healing. Seroma, the accumulation of serous fluid, is another potential complication that may require drainage to prevent discomfort and infection [21].

Nerve damage is also a significant concern, leading to sensory and motor deficits in the chest and arm. This can result in chronic pain, numbness, or weakness, impacting the patient's quality of life [22]. Additionally, impaired lymphatic drainage may contribute to lymphedema, a condition characterized by swelling in the arm on the side of the surgery. These immediate complications highlight the importance of meticulous surgical technique and postoperative care to minimize adverse outcomes [23].

#### **Long-term Complications:**

Beyond the immediate postoperative period, breast cancer survivors may face long-term complications associated with MRM. One of the most prevalent concerns is the impact on body image and psychological well-being. The loss of a breast can have profound effects on a woman's self-esteem and mental health, necessitating comprehensive support, including counseling and reconstructive options [24]. Lymphedema is a persistent long-term complication that may develop months or even years after MRM. It results from the disruption of lymphatic vessels during surgery, leading to fluid accumulation and swelling. Lymphedema can significantly affect daily activities and requires ongoing management, including physical therapy and compression garments [25].

Furthermore, shoulder dysfunction is a potential consequence of MRM, with reduced range of motion and strength observed in some patients. Physical therapy and exercises are crucial in addressing these issues and improving the overall function of the affected arm and shoulder.

The risk of developing secondary malignancies, particularly in the contralateral breast, is also a consideration in long-term outcomes. Regular surveillance and screening are essential to detect any recurrence or new primary cancers early on, ensuring timely intervention.

The incidence of primary complications following Modified Radical Mastectomy in breast cancer patients underscores the multifaceted challenges associated with this surgical intervention. Immediate

complications, such as infections, hematoma, and nerve damage, demand careful perioperative management, while long-term complications, including lymphedema, shoulder dysfunction, and psychological impacts, necessitate ongoing support and rehabilitation.

As medical advancements continue, efforts should be directed toward refining surgical techniques and developing innovative interventions to mitigate the adverse effects of MRM. Additionally, a holistic approach to patient care, encompassing psychological and physical well-being, is crucial in enhancing the overall quality of life for breast cancer survivors who undergo MRM. Ultimately, ongoing research and collaborative efforts are essential to further understand, prevent, and address the complex array of complications associated with this life-saving but challenging surgical procedure.

#### **CONCLUSION:**

The incidence of primary complications following Modified Radical Mastectomy in breast cancer is a critical aspect that demands thorough consideration. The study sheds light on the potential challenges and adverse outcomes faced by individuals undergoing this surgical intervention. Recognizing and addressing primary complications is essential for enhancing postoperative care and overall patient well-being. Continued research and advancements in surgical techniques are crucial for minimizing these complications, ultimately contributing to improved outcomes and quality of life for individuals grappling with breast cancer and undergoing Modified Radical Mastectomy. Comprehensive healthcare strategies should prioritize the mitigation and management of primary complications to ensure optimal recovery and long-term health.

#### **REFERENCES:**

1. Ali H, Muhammad S, Balouch V, Shaikh M, Kumari P. Incidence of Primary Complications Afterwards Modified Radical Mastectomy in Breast Cancer. *Pakistan Journal of Medical & Health Sciences*. 2022 Apr 25;16(02):1218-.
2. Hussain S, Afridi KK, Aslam V, Nasir M, Ahmad F. Early complications following modified radical mastectomy in patients with breast. *The Professional Medical Journal*. 2023 May 31;30(06):684-8.
3. Shaikh A, Fatima S, Sandano M. Frequency of Seroma Formation after Modified Radical Mastectomy in Patients who receive Neo-adjuvant Chemotherapy. *Journal of Sheikh Zayed Medical College (JSZMC)*. 2022 Aug 10;13(3):03-.
4. Xie X, Li H, Wang C, Li W, Xie D, Li M, Jiang D. Effect of modified radical mastectomy combined with neo-adjuvant chemotherapy on postoperative recurrence rate, negative emotion, and life quality of patients with breast cancer. *American Journal of Translational Research*. 2022;14(1):460.
5. Prabowo WH. Factors Affecting the Outcome of Breast Reconstruction Surgery in Modified Radical Mastectomy Procedure. *Bioscientia Medicina: Journal of Biomedicine and Translational Research*. 2023 Jun 9;7(5):3283-8.
6. Aitken GL, Correa G, Samuels S, Gannon CJ, Llaguna OH. Assessment of Textbook Oncologic Outcomes Following Modified Radical Mastectomy for Breast Cancer. *Journal of Surgical Research*. 2022 Sep 1;277:17-26.
7. Joty SM, Saiyara N, Shishir MT, Islam F, Khan MR, Sarker AK, Ahsan SM, Nuh MT. Comparative study between breast conservative surgery and modified radical mastectomy in early stage of breast carcinoma in a tertiary care hospital. *International Journal of Research in Medical Sciences*. 2023 Mar;11(3):794.
8. Xu Y, Cao J, Gong K, Li S, Liu Y, Xiong F, Pan Y, Chen M, Gong J, Luo N, Yuan S. Oncoplastic breast-conserving surgery improves cosmetic outcomes without increasing recurrence risk compared to modified radical mastectomy in early breast cancer patients:

- development and validation of a recurrence risk prediction model. *American Journal of Cancer Research*. 2023;13(9):4259.
9. El-Aziz A, Shawky A, Eissa Emara E. Comparison between quadrantectomy and modified radical mastectomy in early Breast Cancer. *Al-Azhar International Medical Journal*. 2022 Sep 1;3(9):116-22.
  10. Kushwaha N, Gugnani A. To See The Changes Following Physiotherapy In Patients With Modified Radical Mastectomy: A Narrative Review. *Mukt Shabd Journal*. 2023:1653-64.
  11. Siddiky S. Early Postoperative Complications following Mastectomy with Level I and II Axillary Dissection. *The Insight*. 2022;5(02):64-72.
  12. SMOLANKA II, BAGMUT IY, VOLODIMIROVICH MO, SHEREMET MI, OLEKSANDROVICH LA, LEONIDOVICH KI, VIKTOROVICH KY, OLEKSANDROVICH PO, MIKHAILIVNA HA, MIKHAILOVICH HR. Radically extended modified mastectomy of t4b-dn0-3m0 primary inflammatory breast cancer as a tool to minimize the risk of recurrence. *Romanian JouRnal of medical PRactice*. 2022 Jul 1;17(3):91.
  13. Berlin E, Yegya-Raman N, Hollawell C, Haertter A, Fosnot J, Rhodes S, Seol SW, Gentile M, Li T, Freedman GM, Taunk NK. Breast Reconstruction Complications Following Post-Mastectomy Proton Radiotherapy for Breast Cancer. *Advances in Radiation Oncology*. 2023 Oct 14:101385.
  14. Bogach J, Cordeiro E, Reel E, Cil TD. Axillary surgery and complication rates after mastectomy and reconstruction for breast cancer: an analysis of the NSQIP database. *Breast Cancer Research and Treatment*. 2022 Apr;192(3):501-8.
  15. Agarwal R, Etmadpur A. To determine the early postoperative outcomes of breast cancer surgery in a developing country.
  16. Tamminen A. SAFETY OF MASTECTOMY IN BREAST CANCER.
  17. Wu P, Chang H, Wang Q, Shao Q, He D. Trends in metaplastic breast cancer incidence and mortality, and the effect of contralateral prophylactic mastectomy: A population-based study. *Asian Journal of Surgery*. 2023 Sep 20.
  18. Nickel KB, Myckatyn TM, Lee CN, Fraser VJ, Olsen MA, CDC Prevention Epicenter Program. Individualized risk prediction tool for serious wound complications after mastectomy with and without immediate reconstruction. *Annals of surgical oncology*. 2022 Nov;29(12):7751-64.
  19. Bryan AF, Castillo-Angeles M, Minami C, Laws A, Dominici L, Broyles J, Friedlander DF, Ortega G, Jarman MP, Weiss A. Value of ambulatory modified radical mastectomy. *Annals of surgical oncology*. 2023 May 11:1-7.
  20. Deldar R, Sayyed AA, Towfighi P, Aminpour N, Sogunro O, Son JD, Fan KL, Song DH. Postmastectomy reconstruction in male breast cancer. *The breast journal*. 2022 Mar 29;2022.
  21. Yan H, Gao P, Kong X, Wei J, Fang Y, Wang J. Study on short-term cosmetic effects and quality of life after breast cancer modified radical mastectomy combined with one-stage prosthesis implantation. *Journal of Cancer Research and Therapeutics*. 2022 Dec 1;18(7):1988-93.
  22. Knoedler S, Kauke-Navarro M, Knoedler L, Friedrich S, Matar DY, Diatta F, Mookerjee VG, Ayyala H, Wu M, Kim BS, Machens HG. Racial Disparities in Surgical Outcomes after Mastectomy in 223,000 Female Breast Cancer Patients—A Retrospective Cohort Study. *International Journal of Surgery*. 2023:10-97.
  23. Adwall L, Hultin H, Mani M, Norlén O. Prospective Evaluation of Complications and Associated Risk Factors in Breast Cancer Surgery. *Journal of Oncology*. 2022;2022.
  24. Zhang Y, Ye F, Teng Y, Zheng J, Li C, Ma R, Zhang H. Radiotherapy dosimetry and radiotherapy related complications of immediate implant-based reconstruction after breast cancer surgery. *Frontiers in Oncology*. 2023 Oct 10;13:1207896.



25. Doherty C, McClure JA, Baxter NN, Brackstone M. Complications From Postmastectomy Radiation Therapy in Patients Undergoing Immediate Breast Reconstruction: A Population-Based Study. *Advances in Radiation Oncology*. 2023 Mar 1;8(2):101104.