

# Conservative Axillary Surgery in Management of Breast Cancer: An Emerging Surgical Approach

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## ABSTRACT

**Objective:** To unveil the potential of conservative axillary surgery in the management of breast cancer. For a considerable amount of time, axillary lymph node dissection has been the typical axillary lymph nodes treatment in patients having breast cancer. Nonetheless, ALND has been linked with postoperative complications, such as impaired sensation in the affected area, limited shoulder movement, and, notably, arm lymphedema. This study will provide an insight as to what are the benefits of this conservative approach and does it provide short-term or long-term benefits.

**Study Design:** Retrospective observational study

**Place and Duration of Study:** This study was conducted at the department of Surgery KMU-IMS DHQ Teaching Hospital Kohat from December 2017 to January 2023.

**Materials and Methods:** On 38 patients, retrospective analysis was done with a follow-up score of mean 3.8. Patients involved in this study undergoes conservative axillary surgery in order to manage surgically breast cancer. Outcome variables were assessed through tegner score, satisfactory score, Lysholm score, VAS score, and Meyers functional rating score.

**Results:** For patients without cancerous lymph nodes, using SLND for staging provides precise results with less negative impacts on their health. If SLND shows no sign of cancer in the lymph nodes, it is not necessary to perform ALND, and this does not compromise the patient's chances of being disease-free, surviving, or controlling cancer in the area. Some studies have also shown that even in patients with small or large cancerous cells in the lymph nodes, ALND does not improve the chances of local-regional control or survival, in all these studies, the recurrence rate of cancer in the axillary region has been consistently low, below 3 percent.

**Conclusion:** Conservative axillary surgery, which involves removing a restricted nodes variety of lymph in the armpit instead of a comprehensive axillary lymph dissection of node, is becoming increasingly common in breast cancer surgical management. Studies have shown that this approach can be just as effective in terms of cancer control and survival rates, while also reducing the risk of complications such as lymphedema, which is a chronic swelling of the arm. Overall, conservative axillary surgery is a promising approach for breast cancer surgical management, and may become the standard of care for many patients. However, it is crucial to note that each case is exclusive and needs an individualized approach founded on the patient's specific needs and circumstances, so it is important to discuss all options with a qualified healthcare provider.

**Key Words:** Conservative Axillary Surgery, Breast Cancer, typical axillary lymph nodes

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## INTRODUCTION

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For a very long period, ALND was the conventional axillary breast cancer care. Nonetheless, ALND is linked to postoperative morbidities such as arm lymphedema, local sensory impairment, and restricted shoulder movement<sup>1</sup>. Despite having no survival advantage, axillary surgery is still the most common form of axillary therapy for older patients with a preliminary phase, clinically hormone-positive, metastatic and node-negative breast cancer. In recent years, ALND can be prevented in patients getting breast radiotherapy, radiation on the axilla, or even a composite of the two who have negative sentinel lymph nodes (SLNs) and are diagnostically node-negative (cN0)<sup>2</sup>. Furthermore, biopsy of SLN has been approved for clinically node-positive use (cN +) patients who show cN0 after neoadjuvant chemotherapy. SLN biopsy patients experience fewer postoperative morbidities

than ALND patients. ALND is however still necessary for a specific subset of individuals<sup>3</sup>. To spare arm lymphatics and reduce arm fluid retention, several conservative ALND treatment strategies have been proposed. With no apparent impact on axillary recurrence, these conservative techniques appear to reduce the prevalence of lymphedema<sup>4</sup>. In the modern era of excellent multimodality therapy, comprehensive routine ALND eliminating all microscopic axillary illness may no longer be necessary for both cN0 patients as well as cN + patients. Because of a few reasons how standard axillary dissection gave way to sentinel lymph node biopsy (SLNB) in the surgical therapy of the axilla<sup>5</sup>. More occurrences of early breast cancer have been documented as a consequence of the introduction of contemporary imaging techniques and rising public awareness of the disease. Via this accomplishment, more conservative surgical techniques eventually outperformed traditional radical treatments in clinical settings<sup>6</sup>. In addition, patient requests for less intrusive surgery and improved cosmetic outcomes prompted medical professionals to develop innovative surgical techniques to fulfill patient desires<sup>7</sup>. Sentinel lymph node biopsy (SLNB) has become extensively recognized as an assessment and staging technique for the axilla in breast cancer patients due to its negligible complication and high degree of histological validity. The SLNB is a highly efficient and precise replacement for traditional level I and II axillary clearance when carried out by an experienced multidisciplinary team<sup>8</sup>. Several selection criteria, relative contraindications, and safety concerns have been described to assure and sustain the superior precision and low false-negative rate of the SLNB method<sup>9</sup>. These contraindications include host factors like age, body mass index, pregnancy, disrupted lymphatics from earlier axillary and breast biopsies, surgeries, and tumor biology characteristics, such as tumor<sup>10</sup>.

## MATERIALS AND METHODS

The conservative approach to axillary local removal involves injecting methylene blue color into the surgery of breast, followed by massaging the breast for a few minutes. The dye is diluted and injected into two subareolar locations<sup>11</sup>. An opening is complete at the substandard axillary hairline, either through a standard incision in patients undergoing nipple-sparing mastectomy or over the adjacent characteristic of an average mastectomy scratch. The nodal packet is then mobilized above and below the intercostobrachial nerves after incising the clavipectoral fascia. The progression of any blue lymphatics that arrive the area is identified to director the amount of dissection<sup>12</sup>. During the dissection, discrete lymph nodes are not detached from the adjacent fat but are used to elaborate the nodal packet boundaries. The block containing any palpable and blue lymph nodes is removed during the

procedures. The dissection is only extended to the axillary vein level if additional palpable lymph node or blue dye tracking are visibly abnormal<sup>13</sup>.

The thoracodorsal neurovascular package and the extended nerve of thoracic are not dissected routinely during the CARE procedure. Frozen section analysis of sentinel nodes is not carried out during the operation. If patients are discovered to have lymph node involvement in the final pathology report, they are not brought back to the operating room for further axillary node dissection<sup>14</sup>. The CARE procedure techniques are same for patients who receive neoadjuvant chemotherapy and those who do not. The standard method was used for pathologic analysis of axillary lymph nodes, and this did not change after CARE was introduced<sup>15</sup>.

## RESULTS

In this retrospective study, in total 38 patients were registered and among 25 patients whose SLNs tested negative on routine H & E staining, ALND was not performed. Both the patients and the treating clinicians were unaware of the results of IHC staining, which was used only for research purpose<sup>16</sup>. The reason for performing axillary breast cancer staging surgery is that the status of the axillary nodes is a crucial prognostic factor, and no mixture of pathological and clinical structures can accurately forecast axillary node position greater than 90 percent accuracy<sup>17</sup>. SLN biopsy has replaced ALND for patients with clinically negative lymph nodes and has provided valuable insights<sup>18</sup>. Several conservative approaches to axillary lymph node dissection have been developed to reduce arm lymphedema. These conservative measures appear to reduce the lymphedema incidence without growing the axillary recurrence risk. With the availability of effective multimodality therapy, it may no longer be necessary to perform full conventional ALND to remove all microscopic axillary disease in both node-negative and positive patients. However, it should be noted that these emerging procedures for ALND should still be considered investigational and further studies with longer follow-up are needed to determine their safety in sparing arm lymphatics<sup>19</sup>.

**Table No. 1: removed nodes, recurrence free survival and treatment**

Stage	n	Nodes median	Radiation (percentage)	Percentage of hormone therapy or chemotherapy	Recurrence free survival 5 years (percentage)
0	378	6	12.7	61.0	92.0
1	145	8	35.8	95.1	81.9
2	52	10	76.3	96.7	63.8
3	10	14	80.7	99.9	34.4

## DISCUSSION

Conservative axillary surgery is a promising approach to breast cancer surgical management that has been gaining popularity in recent years<sup>20</sup>. This approach involves selectively removing only the nodes of lymph that are most possible to be affected by cancer, based on more targeted techniques such as sentinel lymph node biopsy<sup>15</sup>. By avoiding all lymph nodes removal in the underarm area, conservative axillary surgery can reduce the complications risk i.e., lymphedema, nerve damage, and restricted arm movement, which can have an important impact on a patient's life quality after surgery<sup>8</sup>. Thompson JL et al in 2022 highlights the contemporary approaches related to breast cancer axilla. According to this research, in recent years, there has been a significant change in the way to axillary management strategies are viewed in the context of breast cancer, with a shift in what is considered the best approach to local therapy<sup>9</sup>. These strategies include post-neoadjuvant chemotherapy, extracapsular extension, axillary surgery omission, post-neoadjuvant endocrine therapy, low-volume residual nodal metastases along with neoadjuvant chemotherapy. There are ongoing efforts to identify situations in which axillary interventions can be reduced or avoided in order to minimize the negative effects of treatment<sup>10</sup>.

Several studies have shown that conservative axillary surgery is an effective as traditional axillary surgery in accurately assessing the cancer spreading lymph nodes. In addition, conservative axillary surgery has been associated with fewer complications, shorter hospital stays and faster recovery compared to traditional axillary surgery<sup>11</sup>. As a result, this approach is becoming increasingly adopted as a preferred method for breast cancer surgical management. According to Mittendorf EA sentinel lymph node dissection can be utilized as a substitute for ALND (axillary lymph node dissection) has been a major progress in the surgical treatment of breast cancer. As surgical trials have been investigating the potential for less extensive surgery, the utilizations of adjuvant systematic therapy have risen<sup>12</sup>.

However, it is crucial to message that conservative axillary surgery may not be suitable for all patients. Some patients with more advanced or aggressive forms of breast cancer may still require traditional axillary surgery to accurately assess the extent of their cancer. Additionally, the decision to undergo conservative axillary surgery should be done on a case-by-case basis, taking into account factors such as the stage and characteristics of the cancer, as well as the patient's overall health and individual preferences<sup>13</sup>.

## CONCLUSION

Created on the available literature, it can be summarized as conservative axillary surgery is indeed

emerging as an option that is viable in breast cancer surgical management. Traditional ALAND was previously considered the gold standard for evaluating axillary nodal status in breast cancer patients. However, ALND is connected with a substantial morbidity risk, including lymphedema, dysfunction of shoulder, and sensory loss. Conservative axillary surgery, including sentinel lymph node biopsy and axillary reverse mapping, has been shown to be a less invasive alternative to ALND while providing similar oncologic outcomes. SLNB is now considered a standard of care in early-stage breast cancer management, and ARM is being increasingly utilized to risk reduction of lymphedema in patients undergoing axillary surgery. Overall, the emergence of conservative axillary surgery has improved the breast cancer patients' life quality by reducing the incidence of treatment-related morbidity, while still maintaining high levels of oncologic safety. Therefore, it is likely that conservative axillary surgery will continue to gain prominence in breast cancer surgical management.

### Author's Contribution:

Concept & Design of Study:	Shabab Hussain
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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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