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The Number of Nodes Removed When Performing Targeted Axillary Dissection and Sentinel Lymph Node Biopsy for Breast Cancer Patients

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Abstract

Background: Reduction of surgical burden in the axilla has become a hot topic in the last few years. Multiple studies have shown the benefit of minimal approach in the axilla. We have looked into how many nodes were removed using targeted axillary dissection in our centre.

Methods: Retrospective study in single centre - University Hospital Olomouc, that performs targeted axillary dissection routinely since 2019. All patients above 18 undergoing TAD have been included.

Results: 190 patients' data have been included and analysed. The mean, median and mode of number of removed nodes were 3.64, 3 and 3 respectively. This showed significantly lower surgical burden as compared to axillary clearance.

Discussion: Although in some cases, higher numbers of nodes have been removed for various reasons, the average number is 3. This provides significant improvement from axillary clearance these patients would have been exposed to decades ago.

Keywords: targeted axillary dissection, sentinel lymph node, breast cancer, number of nodes

1. Introduction

Over the past few decades in management of breast cancer patients, we have moved from axillary clearances to a minimally invasive approach in the axilla. [1] In suitable cases this may mean it using the technique of sentinel node biopsy and more recently targeted axillary dissection. [2] It allows minimal surgery in patients with positive (diseased) axilla, who would have otherwise required axillary clearance. However, the number of nodes removed from the armpit when performing these procedures varies and this article is to summarise single centre experience.

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2. Method

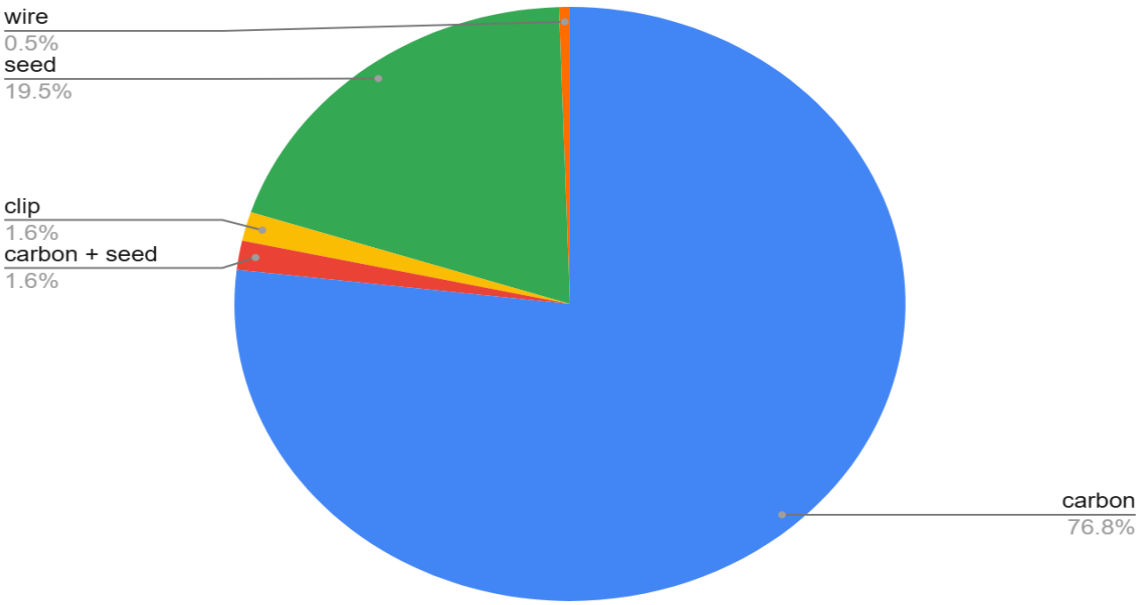
Performing sentinel node biopsy and targeted axillary dissection should limit the number of nodes removed from the axilla. However, this is dependent on the surgical skills and intra-operative judgement as well as radiological skills when marking nodes. In our centre, we use a single nuclear medicine tracer for sentinel nodes. For targeted axillary dissection we used carbon for the first few years, and we have moved to seed recently. There is a definite shift in accuracy from carbon to seed. [4] These techniques are performed together in patients with breast cancer and positive axilla who underwent neoadjuvant treatment.
This was a single centre retrospective study, which is a secondary aim of a larger doctoral thesis.

3. Results

All patients aged 18, who have been diagnosed with breast cancer and axillary spread and fulfilled the local criteria for neoadjuvant therapy and targeted axillary dissection in a single centre (University Hospital Olomouc) have been included. This initially consisted of 194 patients however 4 patients have been excluded as the decision was made to proceed with axillary clearance pre-operetively.

Out of the remaining 190 patients, there was 1 biological male. The rest of the patients were biological females.

Of all 190 cases, the carbon marking was used in 146 cases (76.8%) and seed in 37 cases (19.5%). There were few cases of using both techniques, clip or wire. The combination was used in the period when the unit started to use seed. The graph representing these numbers is available below.



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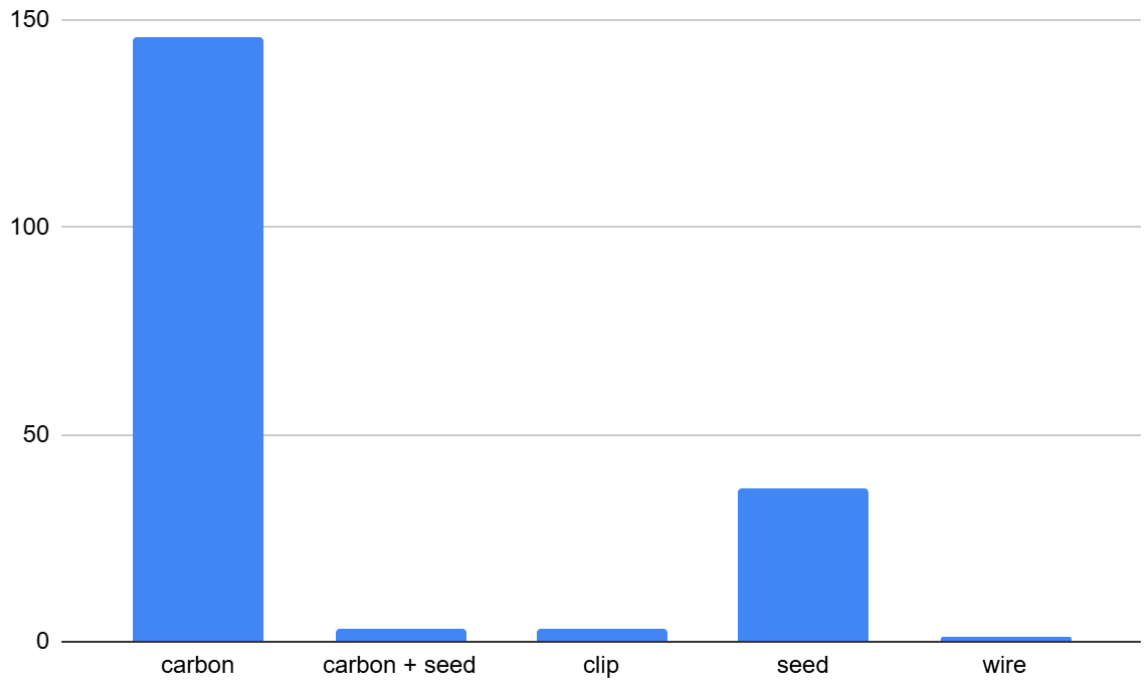

The number of nodes differed from 1-11. In a lot of cases, cluster has been removed as it was unclear which node had been marked. The mean was 3.64 with median and mode both at 3. In 1 case, sampling had to be performed due to failure of marking completely. In 3 cases a clinical decision has been made intraoperatively to proceed to axillary clearance. The graphs below are representative of the number of nodes removed.

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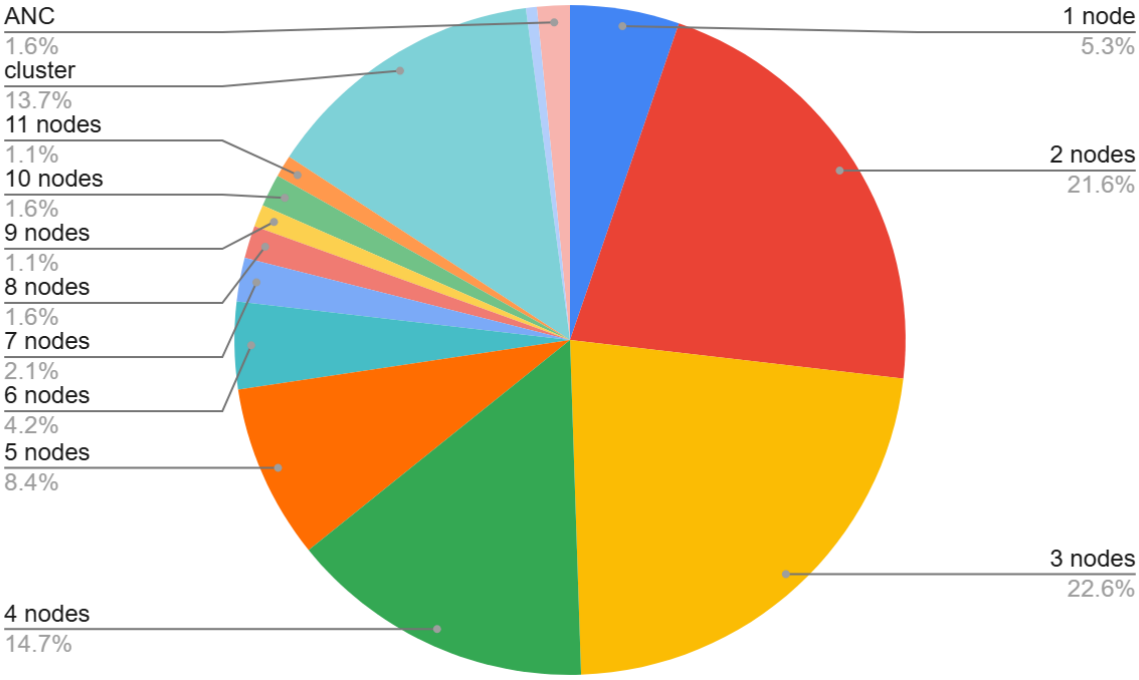

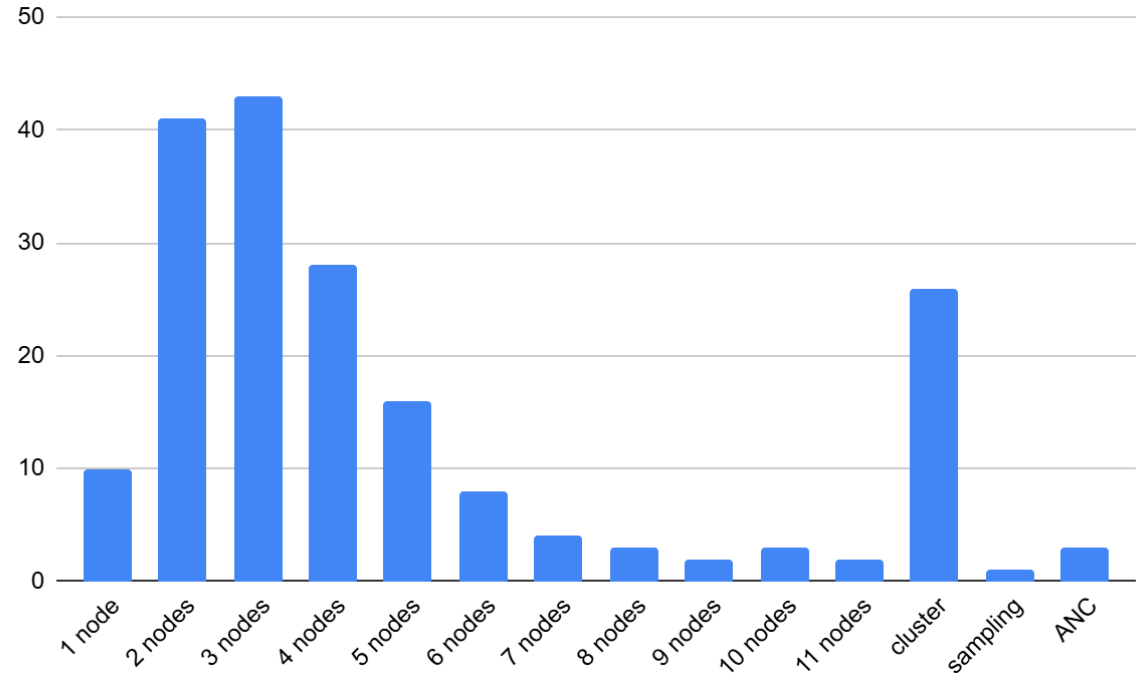

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It is important to mention that the clusters were being removed due to uncertainty of target only in cases where carbon was used. This was due to the carbon either extending through more than 1 node or sitting in soft tissue surrounding nodes. This was no further case once the unit started to use seed for localisation.

The higher number of nodes were usually removed in cases where the nodes were in chain or where there was clinical suspicion for positive disease in the nodes.

4. Discussion

Despite some higher number of nodes, the mean, median and mode were all close to number 3. This is significant improvement taking into consideration that these patients would have undergone axillary clearance just decades back. [4]

Although the technique of targeted axillary dissection is meant to minimize the surgery in the axilla, this study shows that in some cases a much higher number of nodes is removed. This was partially due to inaccuracies caused by carbon marking. It has changed with the use of seed which significantly reduced the number of clusters removed. Other reasons for removal of a larger number of nodes were either nodes presenting in a chain or surgical intra-operative judgement. Nodes that are presented as chains are a matter of debate in many units. When to make the decision to dissect in situ and remove purely the nodes required (marked) or when to proceed to removal of the whole chain. Intra-operative surgical decisions to remove further nodes which look or feel suspicious is still present. Although various research showed that surgeons are not good at judging the possible metastasis by feeling or look in the axilla, it remains a common practice.[5] It is difficult to leave behind a node you believe to be diseased when the intention is to remove disease from the patient.

Conclusion

This study has shown that there is definite reduction in surgical burden to the axilla with this technique, however an element of clinical judgement remains, and the surgeons are likely to take out more lymph nodes if these are looking suspicious. The number of nodes on average is 3, which is very different to the count from full axillary clearance these patients would require decades ago.

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