

Breast cancer-related lymphedema (BCRL): Should we be doing more or less for the axilla?

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Breast cancer mortality has declined steadily over the years with breast cancer screening, and improvement in diagnostic and therapeutic regimens. Despite cancer survivors living longer, breast cancer-related lymphedema (BCRL) is a significant complication after major breast surgery that can impact quality of life adversely. The incidence of BCRL reported ranges from 10.1% to 42.2%¹⁻⁵ with risk factors that include higher body mass index, larger number of dissected nodes, taxane-based regimen, total mastectomy, larger irradiation field, and conventional fractionation.⁵ To mitigate the risk of BCRL, de-escalating axilla surgery and axilla radiotherapy in place of axillary dissection are increasingly recognised as the new standard of care in recent years for early breast cancer with sentinel lymph node positive.⁶ Surgical innovation and advancements have also led to proponents of immediate lymphatic reconstruction to decrease the incidence of BCRL.⁷ However, immediate lymphatic reconstruction is a costly additional procedure and whether it constitutes value-based care to recommend this as a routine procedure in relation to the prevalence of lymphedema in Singapore is an important decision that requires careful deliberation by the breast cancer surgical community.

The article by Hing et al.⁸ is timely in providing insights to the prevalence of BCRL in Singapore via a pragmatic lymphedema surveillance programme for all breast cancer patients that underwent major breast surgery that can help formulate answers to the conundrums raised above. The authors acknowledge that the challenge lies in defining and measuring BCRL, which leads to significant variability in published studies and hence difficulty in contextualising in Singapore. As such, the proposed diagnostic algorithm by the authors—which incorporates objective arm measurement and subjective patient complaints, followed by clinical assessment by a clinician and grading for severity against a validated scale from the International Society of Lymphology—is an approach that is balanced and commendable.

Through this approach, the authors found that the cumulative prevalence rate of BCRL in

their cohort was 30.9% through data captured via all 3 assessment tools in their diagnostic algorithm. However, clinically apparent BCRL was only 6.5% with the majority being subclinical and mild in severity. Several insights can be gleaned from this. First, patients may over-report symptoms of BCRL, which may account for higher incidence of BCRL in some series. Nevertheless, as the authors rightly pointed out, these patient-reported symptoms remain important to address; they can range from recurrence of disease, fluid overload, and neurological symptoms from aromatase inhibitors and chemotherapy-induced toxicity that may alter sensation and mimic “arm swelling” from the patient perspective. Second, the absence of severe lymphedema that required radical resection or lymphatic reconstruction is also reassuring that most patients with clinical-apparent BCRL can be managed with conservative measures, such as skin care advice, compressive garment and manual lymphatic drainage. Nevertheless, early detection, treatment and prevention of progression are key, and credit still goes to the authors for having a structured surveillance programme in identifying these individuals with BCRL early.

The authors also reported that the incidence of BCRL in sentinel lymph node biopsy/axillary node sampling is 1.7% compared to 9.9% in patients undergoing axillary clearance. While the lower rate of BCRL for sentinel lymph node is not surprising, it highlights that sentinel lymph node biopsy is not a completely benign procedure and risk of BCRL exists. As such, this will be useful information to consider when offering sentinel lymph node biopsy for controversial indications such as prophylactic mastectomy for BRCA mutation and also being very selective to perform sentinel lymph node biopsy in breast conserving surgery for ductal carcinoma in situ.

The authors also reported higher rates of mastectomy and axillary clearance (>50%) in their series, which are both risk factors for BCRL. With promising contemporary data from recent studies demonstrating evidence to suggest that breast-conserving surgery could confer comparable local recurrence rates and even improved survival

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compared to mastectomy,¹⁰ coupled with the trend of de-escalating axillary surgery, intuitively the rate of BCRL could further decrease in future. Furthermore, a study in Singapore¹⁰ also demonstrated an increasing trend in younger breast surgeons trained in oncoplastic surgery, which may also contribute to an increase in breast-conserving surgery being offered to patients. Immediate lymphatic reconstruction to decrease BCRL⁷ is a notion that seems contrary to de-escalating axilla surgery and there is a need for further research to define a select group of high-risk patients that will benefit most from this complex surgical procedure. Interestingly, with the move towards de-escalating axilla surgery, assuming results from AMAROS trial⁶ become the standard of care in future, one may argue that patients who still require axillary clearance may be the ones with locally advanced primary tumours, higher axillary nodal disease burden, and need for more aggressive and toxic chemotherapy regimens—all of which are risk factors for developing BCRL and may actually self-select as potential candidates for immediate lymphatic reconstruction.

Lastly, awareness and debunking myths regarding BCRL are equally important and should form part of any evidence-based BCRL advice dispensed to patients. Two myths in particular that have plagued patients, nurses and clinicians alike are measuring blood pressure and venipuncture on the arm on the side of axillary surgery. There is no contraindication to measuring blood pressure on the arm on the side of axillary surgery. Venipuncture is also safe on the arm on the side of axillary sentinel lymph node biopsy. As for patients with axillary clearance, venipuncture should be performed on the contralateral arm where possible. However, in the absence of suitable veins on the contralateral arm, it would still be preferable to consider venipuncture or siting a venous access cannula in the ipsilateral arm instead of resorting to other sites with higher infection rates, such as the foot.¹¹

Overall, we believe instituting a pragmatic surveillance programme for BCRL is a move in the right direction pertaining to value-based care. While traditional measures of surgical morbidity such as 30-day unplanned readmission, unplanned return to operating theatre, need for blood transfusion and mortality is low and almost negligible in breast surgery, BCRL is an important long-term outcome that should be examined in closer detail and incorporated into the matrix of value determination.

With more data accrued from different centres in Singapore regarding BCRL, we will be in a better position to make sense of the impact of de-escalating axilla surgery and make decisions on emerging surgical innovations like immediate lymphatic reconstruction in Singapore.

Keywords: *axilla, breast cancer-related lymphedema, cancer, general surgery, oncology, plastic surgery.*

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