

# A review of the literature and discussion: establishing a consensus for the definition of post-mastectomy pain syndrome to provide a standardized clinical and research approach

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See the related review article by Waltho and Rockwell on p. 342.

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#### SUMMARY

Chronic pain presents a management challenge for physicians and patients alike, and post-mastectomy pain is no exception. In this issue, Waltho and Rockwell present a review of post-mastectomy pain syndrome (PMPS) and propose a standard definition that should allow future studies to be comparable. The proposed definition of “post-breast surgery pain syndrome” includes pain after any type of breast surgery that is of at least moderate intensity and comprises neuropathic qualities, that is present in the ipsilateral breast/chest/arm, that lasts longer than 6 months and is present at least half the time. Further work is needed to clarify whether this pain syndrome is in fact driven by neuralgia resulting from the axillary dissection component of breast cancer surgery.

Post-mastectomy pain syndrome (PMPS) has typically been defined based on location and proximity to recent breast surgery, affecting the anterior thorax, axilla and medial aspect of the upper arm,<sup>1</sup> and 87% of the studies reviewed by Waltho and Rockwell<sup>2</sup> included this anatomic restriction in their definitions of PMPS. The authors propose that the clinical picture that occurs depends on which nerves are damaged during surgery, namely the intercostobrachial, medial pectoral, lateral pectoral, thoracodorsal or long thoracic nerves. Since the neuropathic pain quality is critical to the definition of PMPS, injury to 1 or more of these nerves is presumed to be the etiological factor in its development.

Breast surgery is most commonly performed to diagnose or treat breast cancer, and therefore typically involves axillary lymph node surgery for staging (limited or complete axillary lymphadenectomy). Unfortunately, the authors were not able to differentiate whether the studies included in their review included patients who had concomitant axillary surgery versus breast surgery alone, which is a common limitation of many such publications on PMPS to date.<sup>3</sup> While chronic pain has been reported after breast surgery alone without concomitant axillary surgery,<sup>4</sup> that study found that higher pain scores after the original breast and axillary surgery did in fact predict post-reconstruction pain, meaning the patients' pain syndrome can be attributed at least in part to their original axillary surgery.

It would appear that the axillary surgery may be predominantly responsible for PMPS. The nerves listed by these authors are all located within the axilla, although damage to them could also occur in the setting of breast reconstruction when elevating or transecting pectoral muscle. Historically, a complete axillary lymphadenectomy for staging was a standard part of breast cancer surgery, where intercostobrachial nerves are commonly divided in order to more readily access the lateral axillary lymph nodes (level I), while

resection of the medial lymph nodes (level II) involve medial retraction and potentially injury to the median pectoral nerve. Injury to either, or to the long thoracic and thoracodorsal nerves, is much less likely with the more recent use of sentinel node biopsy (selective axillary lymph node sampling) for the majority of breast cancer surgeries. Sentinel lymph node biopsy became a standard part of breast cancer surgery worldwide in the early 2000s and has therefore not been included in most publications in the literature regarding PMPS, although there is some emerging work demonstrating that the sentinel node axillary sampling procedure is a significant protective factor for the development of PMPS.<sup>5</sup>

In order to move forward in better understanding and quantifying PMPS among breast cancer patients, the syndrome does need a unifying definition; however, further prospective work is needed in order to understand PMPS more as an axillary pain syndrome. The prevalence of PMPS has likely already diminished substantially with the use of sentinel node biopsy for axillary staging in patients with breast cancer and may become less of an issue as clinical trials continue to expand the indications for sentinel

node biopsy among patients with positive clinical lymph nodes after neoadjuvant chemotherapy.

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## References

1. International Association for the Study of Pain (IASP). Descriptions of chronic pain syndromes and definitions of pain terms. The International Association for the Study of Pain, Subcommittee on Taxonomy. *Pain* 1986;3:S1-226.
2. Waltho D, Rockwell G. Post-breast surgery pain syndrome: establishing a consensus for the definition of post-mastectomy pain syndrome to provide a standardized clinical and research approach — a review of the literature and discussion. *Can J Surg* 2016;59:342-50.
3. Alves Nogueira Fabro E, Bermann A, do Amaral e Silva B, et al. Post-mastectomy pain syndrome: incidence and risks. *Breast* 2012;21:321-5.
4. Nelson JA, Fischer JP, Pasick C, et al. Chronic pain following abdominal free flap breast reconstruction: a prospective pilot analysis. *Ann Plast Surg* 2013;71:278-82.
5. Miguel R, Kuhn AM, Shons AR, et al. The effect of sentinel node selective axillary lymphadenectomy on the incidence of postmastectomy pain syndrome. *Cancer Control* 2001;8:427-30.

## Correction

There was an error in Figure 2 of the article by Stewart and colleagues<sup>1</sup> published in the August 2016 issue of *CJS*. The graphs were mislabelled in panels A to D. A corrected version of the article is available on our website at [canjsurg.ca](http://canjsurg.ca). We apologize for the error.

## Reference

1. Stewart JM, Tone AA, Jiang H, et al. The optimal time for surgery in women with serous ovarian cancer. *Can J Surg* 2016;59:223-32.