**Axillary ultrasound accuracy in the symptomatic breast service**

**Descriptor:**

Accuracy of ultrasound of the axilla and ultrasound guided FNAC/biopsy in the assessment of metastatic axillary lymphadenopathy in breast malignancy at presentation through the symptomatic service.

**Background:**

Following the introduction of both axillary node ultrasound as part of the routine pre-operative assessment of breast cancer at presentation and sentinel lymph node biopsy (SNLB), patients with operable breast malignancy with proven pre-operative axillary lymph node metastasis proceed directly to axillary node clearance (ANC) at the time of initial surgery. Patients without a pre-operative diagnosis of axillary node metastases undergo SLNB and if positive, undergo second stage surgery to clear the axilla. Ultrasound evaluation and guided FNA/biopsy plays a pivotal role in this decision making. Accurate pre-operative diagnosis of axillary nodal metastases saves the patient a second operative procedure. There is no agreed standard for accuracy but several groups have published their results [1-8]. The reported sensitivity for detection of metastatic axillary lymph nodes ranges from 54.1% to 69.4% and the sensitivity of ultrasound guided FNAC/biopsy ranges from 28.5 % to 55.6%.

## The Cycle

**The standard:**

1. Ultrasound should identify nodes with metastatic involvement

2. Ultrasound should be performed in all cases of primary tumours >10mm in maximal size

3. Ultrasound guided FNAC/biopsy should be accurate in the identification of metastatic disease in nodes which appear abnormal on ultrasound

**Target:**

1. 50% sensitivity

2. 100% [9]

3. Sensitivity should be equal to prevalence of axillary nodal metastatic disease in first time presenters to the local symptomatic breast service [6]

## Assess local practice

**Indicators:**

1. Sensitivity of ultrasound diagnosis

   a. Numerator– Number of patients with suspicious axillary lymph nodes in ultrasound, proven to be malignant in SLNB or ANC

   b. Denominator – Number of patients with malignant axillary lymph nodes in SLNB or ANC

2. Cases of BI-RADS score 4 or 5 measuring >10mm have a documentation of ipsilateral axillary US examination

3. Sensitivity of USG guided FNAC/biopsy

   a. Numerator– Number of patients with malignant cytology in USG guided FNAC/biopsy proven to be malignant in SLNB or ANC

   b. Denominator - same as above

**Data items to be collected:**

1. List of patients with breast malignancy who had surgery and SLNB/ANC

2. List of patients with axillary lymph node metastasis in SLNB or ANC

3. Details of ultrasound evaluation of axilla and cytology results if FNAC/biopsy performed

4. If individual operator details are also collected then individuals can use the results for revalidation purposes

The above data should be available from pathology and radiology database.

**Suggested number:**

12 months of data.

**Suggestions for change if target not met:**

1. Review local definition of abnormal lymph node

2. Review local policy regarding repeat cytology and/or consider core biopsy

3. Review individual operator results to determine whether there is a need for further training

**Resources:**

1. Secretarial assistance in data or case note extraction

2. 4-6 hours of Radiologist’s time

**References:**

1. Baruah, B.P., Goyal, A., Young, P., Douglas-Jones, A.G. & Mansel, R.E. 2010, "Axillary node staging by ultrasonography and fine-needle aspiration cytology in patients with breast cancer.", The British journal of surgery, vol. 97, no. 5, pp. 680-3.
2. Damera, A., Evans, A.J., Cornford, E.J., Wilson, A.R.M., Burrell, H.C., James, J.J., Pinder, S.E., Ellis, I.O., Lee, A.H.S. & Macmillan, R.D. 2003, "Diagnosis of axillary nodal metastases by ultrasound-guided core biopsy in primary operable breast cancer.", British journal of cancer, vol. 89, no. 7, pp. 1310-3.
3. Jung, J., Park, H., Park, J. & Kim, H. 2010, "Accuracy of preoperative ultrasound and ultrasound-guided fine needle aspiration cytology for axillary staging in breast cancer", ANZ Journal of Surgery, vol. 80, no. 4, pp. 271-275.
4. Sapino, A., Cassoni, P., Zanon, E., Fraire, F., Croce, S., Coluccia, C., Donadio, M. & Bussolati, G. 2003, "Ultrasonographically-guided fine-needle aspiration of axillary lymph nodes: role in breast cancer management.", British journal of cancer, vol. 88, no. 5, pp.702-6.
5. Susini, T., Nori, J., Olivieri, S., Molino, C., Marini, G. & Bianchi, S. 2009, "Predicting the status of axillary lymph nodes in breast cancer: A multiparameter approach including axillary ultrasound scanning", Breast (Edinburgh, Scotland), vol. 18, no. 2, pp. 103-8.
6. Houssami et al, "Preoperative Ultrasound-Guided Needle Biopsy of Axillary Nodes in Invasive Breast Cancer. Meta-Analysis of Its accuracy and Utility in Staging the Axilla", Annals of Surgery, 254(2):243-51, 2011 Aug.
7. Lee B et al, “The Efficacy of Axillary US in the Detection of Nodal Metastasis in Breast Cancer”. 2013; 200(3); W314-W320.
8. Zhang YN, Wang CJ, Xu Y, Zhu QL, Zhou YD, Zhang J, Mao F, Jiang YX, Sun Q 2015. Sensitivity, Specificity and Accuracy of Ultrasound in Diagnosis of Breast Cancer Metastasis to the Axillary Lymph Nodes in Chinese Patients. Ultrasound Med Biol. 41(7):1835-41.
9. Pereira da CostaPinehiro DJ, Elias , Pinto Nazario AC 2014. Axillary lymph nodes in breast cancer patients: sonographic evaluation. Radiol Bras 47(4): 240-244.

**Editor's comments:**

A meta-analysis by Houssami et al has shown a positive linear correlation between the preoperative USG node biopsy diagnosis of metastatic disease and the underlying prevalence of axillary node metastases. Prevalence is therefore calculated as follows:

• Numerator - number of patients with malignant axillary lymph nodes in SLNB or ANC

• Denominator - total number of patients with invasive breast cancer underwent SLNB and/or ANC

For example, if there are 50 patients in the audit sample with invasive breast cancer who underwent staging SLNB and/or ANC and 20 of these patients had malignant axillary disease, then the prevalence of axillary metastatic disease is 40% (20/50 x 100). Then the target for preoperative USG guided FNAC/biopsy is 40% i.e. 8 patients should have been identified preoperatively in this example.

Thank you to Dr P Britton for advice on this.

**Submitted by:**

Dr. Senthil Kumar Arcot Ragupathy. Updated by D Howlett

**Published Date:**

Friday 20 August 2010

**Last Reviewed:**

Sunday 15 August 2021