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Modified Transpectoral Approach for Ultrasound Guided Axillary Lymph Node Core Biopsy in Challenging Cases

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Abstract

The axillary nodal status is a very important factor in the preoperative staging in breast cancer patients. Our department for the last three years has utilised predominantly US guided core biopsy 14G, and in cases with limited access or anatomical difficulties we reverted to utilising FNA sampling. The standard widely used approach for these procedures is from the infero-lateral to supero-medial aspect towards the target to avoid major vessels and muscles. To optimise access to the axilla, a wedge pillow is placed under the patient's back to rotate the patient's body and elevate the targeted area.

Introduction

Occasionally axillary biopsy has to be performed for patients with significantly reduced mobility of the shoulder, or patients with very high or extremely low BMI (1-7). The axillary lymph nodes in these cases still could be scanned but biopsy due to reduced anatomical access is technically challenging. Lymph nodes may be too deep or positioned just above vessels. Concave or excessively full axilla often reduces the possibility of a safe approach (Figure 1 and 2).

The modified method described below was once developed in our breast clinic for a particular patient with a healing shoulder fracture and since then used in complex cases when standard approach is not feasible to sample suspicious lymph nodes (2,5).

Discussion

The axillary nodal status is a very important factor in pre-operative staging in breast cancer patients. It is crucial in pre-op planning between a sentinel node biopsy oran axillary lymph node dissection.

As described above, this inventive core biopsy method of sampling non-palpable axillary lymph nodes is performed using a modified reverse transpectoral approach. 5 ml of 2 % Xylocaine isinjected for superficial and deep local anesthesia.Fourteen-gauge (2.1 mm) needle was used with an automatic biopsy gun, and 22 mm notchselected (Bard-Magnum Biopsy Instrument) with three needle passes usually.

I am aware that transpectoral approach can be more painful therefore few minutes longerpause

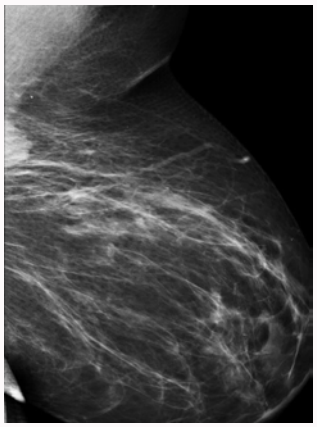

Figure 1: 46 yoHigh BMI patient with reduced left shoulder mobility. She presented symptomatically with large axillary tail malignant looking mass visible on MLO view only.

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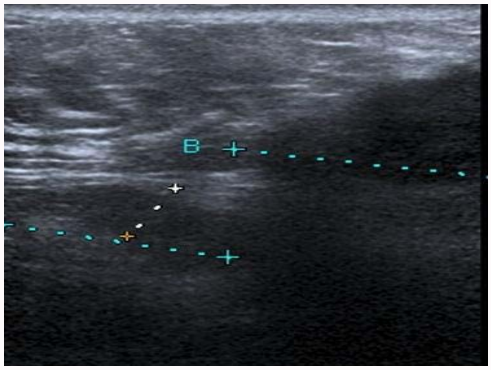

Figure 2: Conventional axillary US demonstrates a large malignant irregular hypoechoic mass and adjacent to it craniomedially an abnormal looking lymph node. Only the mass was biopsied at that occasion.

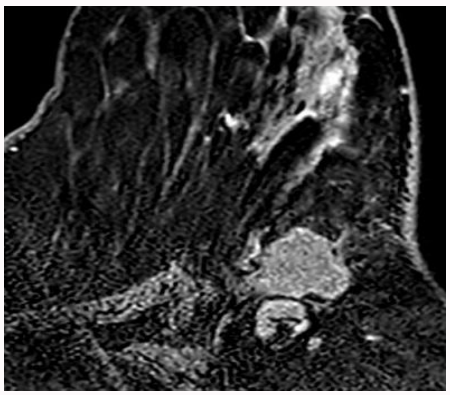

Figure 3: Breast MRI confirming challenging proximity of the biopsy proven cancerand abnormal looking lymph node.

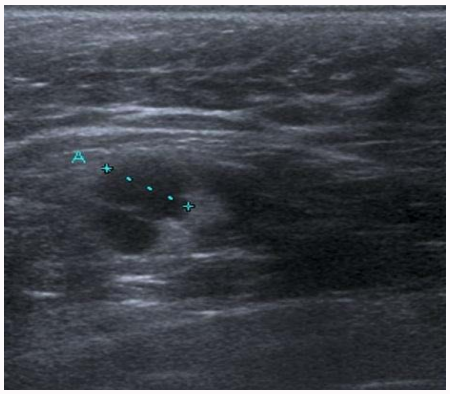

Figure 4: Transpectoral US of the area of interest.Using the modified ultrasound technique the abnormal lymphnode is now closer to the transducer and there is no anatomical limitation of the shoulder, underlying vessels or overlying breast cancer.

between local anesthetics injection and biopsyused consciously to achieve better anesthesia (Figure 3 and 4). 16-18G needles or half-notch sampling can be used according to the patient build and lymph node position. To our best knowledge, previous studies performed the core biopsy by using 16-gauge or 18-gauge needles(Figure 5), and there are a few reports about the 14-gauge needle core biopsy of the axilla lymph node [7-10].

A special care should be taken for reducing unwanted complications by fully acknowledging detailed anatomy including

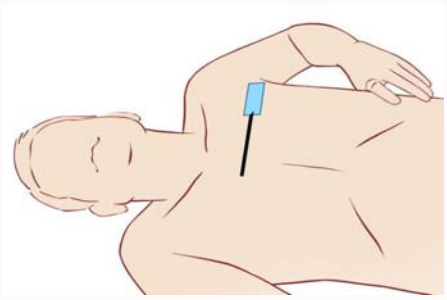

Figure 5: Modified position for the scan on previous image and subsequent US guided core biopsy. The maximal stretching and flattening of the pectoral muscle and overlying axillary soft tissue is noted.

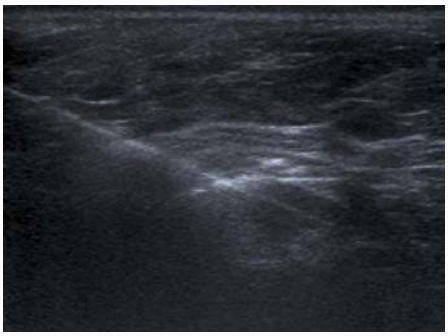

Figure 6: Transpectoral biopsy with reverse approach – from superomedial to lateral, parallel to the chest wall, enables a safer sampling of the challenging lymph node. Metastatic deposits were confirmed on histopathology.

vessels and nerves in the axilla. Proper care andan individual approach should be applied while positioning the patient and performing ultrasound guided biopsy(Figure 6), both with the traditional approach as well as with described above modified approach, to avoid traumatic injuries during the large needle core biopsy of the axilla.

In conclusion modified transpectoral ultrasound guided core biopsyof the axillary lymph nodes could be an effective alternative to surgical biopsy for the histological diagnosis in certain complex challenging cases.

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