



# Core Needle Breast Biopsy Case Report and Literature Review: A Case of Iatrogenic Pseudoaneurysm in Breast Lesion Biopsy

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## Abstract

Core needle biopsy is being used for the diagnosis of breast masses and it is part of triple breast screening program in the UK. Generally, the most frequently encountered complication is hematoma. However, iatrogenic pseudoaneurysm is considered to be a potential but a rare complication. In this paper, we report a case of pseudoaneurysm occurring after a core needle biopsy in a breast lesion, part of the triple breast screening. A 51-year-old woman with no relevant medical history recalled from the breast screening program for a distortion in the upper outer quadrant of the right breast. The lesion was an X-5, P-1, U-5 with normal axilla and histologically grade 2 type Ca ER+ (Q=8 HER2-). The surgical management after the MDT meeting was a wire ultrasound guided wide local excision and sentinel lymph-node biopsy. On the day of surgery, the ultrasound scan -prior to wire guided localization procedure demonstrated findings suggestive of a pseudoaneurysm within the lesion and the wire was not placed. The conservative breast procedure was performed and the pseudoaneurysm was completely excised along with the mass while its feeding artery was identified and clipped safely. Furthermore, this paper revises most of the documented cases in the literature of iatrogenic pseudoaneurysm following a biopsy of breast lesion. Overall, this case highlights the importance of careful evaluation of needle trajectory route to avoid arterial puncture in the way between the skin and lesion.

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Received Date: 11 Nov 2019

Accepted Date: 16 Dec 2019

Published Date: 20 Dec 2019

### Citation:

Neamonitou F, Bickley B, Mahalingham S, Isgar B. Core Needle Breast Biopsy Case Report and Literature Review: A Case of Iatrogenic Pseudoaneurysm in Breast Lesion Biopsy. *Clin Surg*. 2019; 4: 2694.

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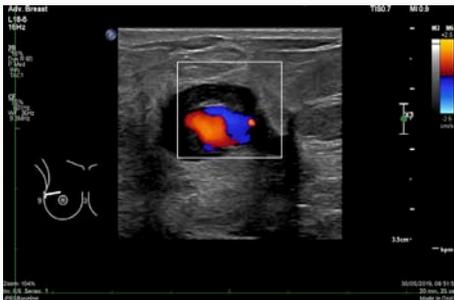
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## Case Presentation

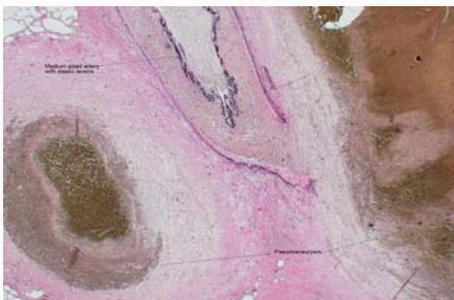
Core needle biopsy is being used for the diagnosis of breast masses. The most frequently encountered complication is hematoma. Iatrogenic pseudoaneurysm is a rare complication. We report a case of pseudoaneurysm occurring after a core needle biopsy. A 51-year-old woman with no relevant medical history recalled from the breast screening program for a distortion in the upper outer quadrant of the right breast. Further evaluation with sonography showed a malignant lesion measuring 10 mm × 10 mm and on mammography 26 mm × 15 mm. (X-5, P-1, U-5) with normal axilla. Patient underwent a guided needle core biopsy of 6 samples with a 12-gauge needle under ultrasound guidance confirming grade 2 type Ca ER+ (Q=8 HER2-). Concordant to the histology, an ultrasound wire guided wide local excision of the lesion with sentinel lymph node biopsy was planned 6 days after the CNB [1]. The patient reported no significant complications during CNB but a sudden sharp pain episode after 48 h of the procedure that was resolved with a single dose paracetamol and ibuprofen. On the day of surgery, the ultrasound scan-prior to wire guided localization procedure-demonstrated a well-defined hypoechoic mass with an anechoic pulsating center at the site of the malignancy measuring 20.2 mm × 13.6 mm in its maximum dimensions [2]. Furthermore, Doppler analysis showed swirling blood flow in the center of the mass connected through a small track to an adjacent artery, findings suggestive of pseudoaneurysmal flow (Figure 1 and 2). In view of these findings, wire was not introduced but simply the abnormality was marked at the palpable area of the skin. Surgical wide local excision of the original lesion with an additional inferior cavity shave and sentinel lymph node biopsy were performed [3]. The iatrogenic aneurism was palpable within the original lesion and the feeding artery of the aneurism was identified and it was safely clipped. The tissue samples were sent for analysis. As for the histologic examination of the excised specimen, there were extensive post-biopsy site changes [4]. Moreover, within that area there was a large well-defined area of collection of altered blood surrounded by a thick concentric layer of organizing fibroblasts in close proximity to a thick walled -blood vessel showing organizing thrombus (Figure 3). Appearance consistent with a pseudo-aneurysm which was completely excised. Furthermore, the margin of the wide local excision along with the inferior cavity shave is clear of



**Figure 1:** Ultrasound image of a palpable complex heterogeneous mass at the site of biopsied lesion.



**Figure 2:** Ultrasound image demonstrating internal high-velocity antegrade and retrograde colour Doppler blood flow - characteristic "yin and yang" sign.



**Figure 3:** Histological picture.

in situ or invasive malignancy. Pseudoaneurysm (PA) results from disruption of arterial wall and leakage of blood into the surrounding tissue. Unlike a true aneurysm, a pseudoaneurysm does not have the normal 3 layers of the arterial wall. Pseudoaneurysm of the breast is a very rare complication, which may occur after breast biopsy with a large core needle. Most cases are reported after excisions or needle biopsies. We could find 22 reported cases of breast PA during the last 20 years in the literature. Breast CNB is an easily performed and minimally invasive procedure. Breast PAs after CNB are very rare and usually present as palpable breast lumps after a few days or weeks. Many cases of breast PA undergo spontaneous thrombosis and are not clinically evident. Detection of a pulsatile mass near a recent biopsy site should draw attention to the presence of PA. Non-surgical options compression, ultrasound guided compression, percutaneous embolization, and surgical ligation of PA. Surgical excision of the lesion is usually performed when there is a primary malignancy in the breast. Review of the literature shows that compression techniques have been successful in only three of seven cases [5].

## Discussion

This case highlights the importance of careful evaluation of needle trajectory route to avoid arterial puncture in the way between the skin and lesion.

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