


Successful retrieval of a needle point from the breast through a vacuum-assisted breast biopsy system

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Abstract

Stereotactic vacuum-assisted breast biopsy (VABB) system is generally used to perform breast biopsies after identifying suspicious lesions that are occult on ultrasound. In this case, we used an 8-Gauge VABB to retrieve a needle point retained in the outer-lower quadrant of the right breast of a patient previously treated with lumpectomy. The use of stereotactic VABB system in this specific clinical setting has been never described before and resulted minimally invasive and perfectly suitable for correct localisation and retrieval of the 3-mm needle point; moreover, it may be easily reproduced elsewhere.

Keywords

needle biopsy, foreign bodies, unilateral breast neoplasms, lumpectomy

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Introduction

The presence of foreign bodies in a breast has been previously described^{1,2} and attempts to remove them may contemplate various approaches,^{2,3} more or less invasive for patients.

Stereotactic vacuum-assisted breast biopsy (VABB) is generally used to perform breast biopsies after identifying suspicious lesions that are occult on ultrasound.

Case report

A 50-year-old patient presented to our centre, requesting the removal of a metallic foreign body retained in her right breast's parenchyma (Figure 1). She had been previously treated with lumpectomy for a breast neoplasm, the operative report described the loss of the point of a needle during surgery and intraoperative unsuccessful attempts to retrieve it. Few months after surgery, the patient was scheduled for a follow-up right breast mammography, which led to identification of the 3-mm needle point in the outer-lower

quadrant. Given the small dimension of the foreign body, the absence of any kind of discomfort, and the assumption that a granulomatous reaction would have secured the needle point in one place, the patient initially opted to avoid any attempts of removal.

Subsequently, she needed to undergo magnetic resonance imaging for other health reasons, but the presence of a ferromagnetic foreign body in her breast would represent a contraindication. Therefore, she was referred to our centre to investigate the possibility to remove it in the least invasive possible way.

We decided to use an 8-Gauge VABB system to retrieve the needle point retained in the breast. The procedure was carried out through a stereotactic digital prone table

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connected to a Giotto mammography system. A radiographic scout view at 0° and two stereotactic projections at $+15^\circ$ and -15° were run to evaluate the position of the foreign body in the breast. Following stereotactic principles, the software transmitted the numerical values to govern

placement and depth of the needle in the target to the device command unit, where the probe was installed.

Local anaesthesia was performed with 10 mL of 2% mepivacaine, followed by two stereotactic projections at $+15^\circ$ and -15° to confirm the correct target.

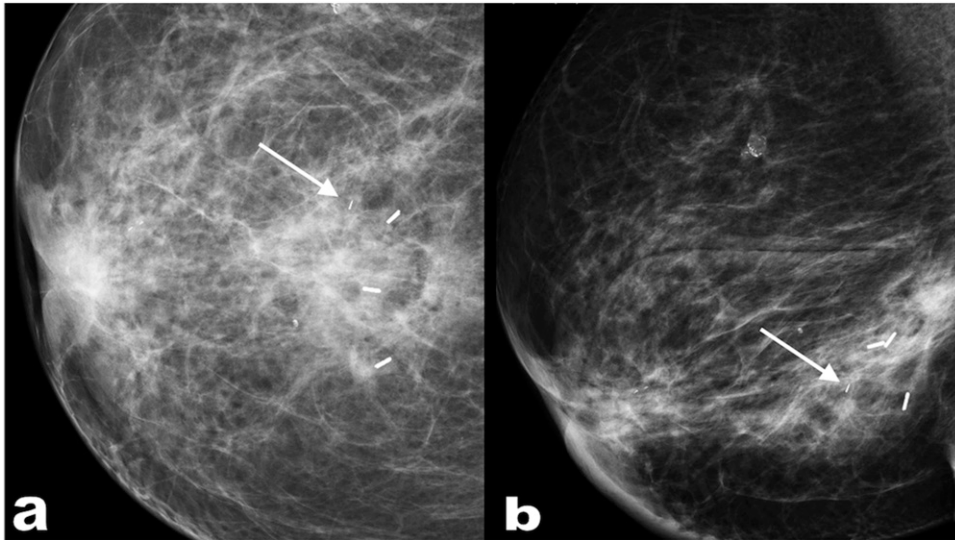


Figure 1. Mammography with a craniocaudal view (a) and mediolateral oblique view (b) showing the presence of the needle point (white arrows) in proximity of the titanium clips positioned in the lumpectomy site.

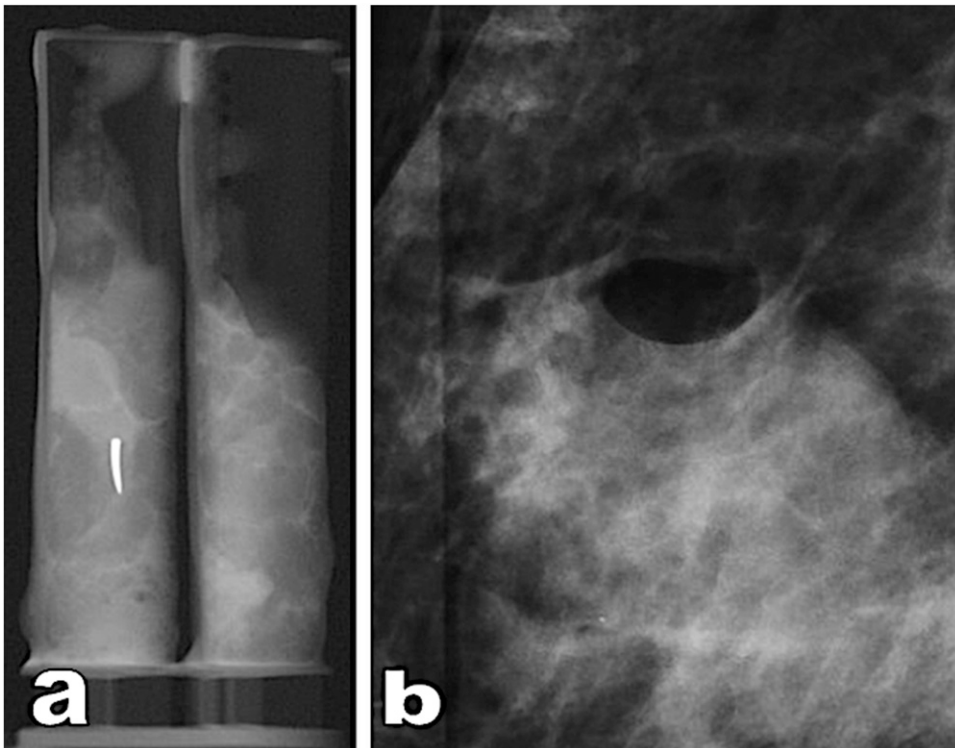


Figure 2. Image of the needle point within the excised specimen (a), corresponding biopsy cavity obtained at the end of the procedure (b).

The needle was inserted through a 4-mm skin incision; two stereotactic pre-fire and two post-fire projections were performed to verify respectively the correct distance between the needle tip and the ferromagnetic foreign body, and that the target was at the centre of the biopsy needle chamber.

During the sampling phase, the breast tissue was excised by a rotating blade, in conjunction with forced aspiration, and placed in a sample chamber. Twelve samples were automatically collected, after which film checking proved the presence of the needle point in one of the frustules (Figure 2); no VABB needle malfunctioning occurred.

Discussion

Analogous clinical scenarios have been previously reported, but retrieval of the foreign body was performed either surgically³ or through a breast lesion excision system,² a percutaneous image-guided device that uses radiofrequency energy to deliver intact gross specimens. This technology is not produced anymore; therefore, it is not available to use in all breast radiology centres and may result even more invasive compared to a standard VABB.

In conclusion, the use of a stereotactic 8-Gauge VABB system in this specific clinical setting has been never described before and resulted minimally invasive and perfectly suitable for correct localisation and retrieval of the 3-mm needle point; moreover, it may be easily reproduced elsewhere.

Declaration of conflicting interests

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Data sharing statement

No data were generated or analysed during the study.

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