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Worrisome Yet Benign Nipple Discharge Overlooked by MRI in a Patient with Previous History of Breast-Conserving Surgery: Role of Ductography

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Abstract

A fistula between the postsurgical seroma and lactiferous duct in a patient with history of breast conserving surgery overlooked by MRI and diagnosed only with ductography highlights the indication of this diagnostic tool in patients with history of breast cancer presenting with nipple discharge.

1. Introduction

Nipple discharge accounts for 5% of all breast symptoms, ranking third after breast pain and breast mass [1]. Nipple discharge can be physiologic when, bilateral, milky, or green and from multiple orifices and pathologic when serous or bloody, unifocal and spontaneous. Intraductal papilloma is the most common cause of pathologic nipple discharge accounting for 35 to 48% of the cases [2]. The risk of underlying malignancy in a patient presenting with pathologic nipple discharge is estimated between 5% and 21% and increases with age and if associated with a palpable abnormality [3].

Ductography was initially recommended as a second line diagnostic tool after a negative mammographic and sonographic evaluation to assess a pathologic nipple discharge. It is, however known to be time-consuming and technically challenging [1] and has been more and more replaced by MRI. In fact, ductography is limited due to a high false negative rate reported as high as 20% to 30% and its difficulty to distinguish benign from malignant finding.

MRI has proven to be superior to ductography with a negative predictive value of 100% [4].

We present a case of nipple discharge, secondary to a fistula between the post-surgical seroma and the lactiferous duct, newly appeared almost two years after completion of breast conservative treatment for an invasive breast cancer that was diagnosed by ductography alone.

2. Case Report

Our patient is a 51-year-old woman who underwent a conservative surgery with axillary dissection in January 2020 for an invasive ductal carcinoma grade 2, luminal A, T1b N1 of the right breast, followed by adjuvant radiation therapy and letrozole. In August 2021 she presented a sero-sanguinous, spontaneous, right nipple discharge. Breast MRI performed two months earlier was negative demonstrating post-surgical changes and a seroma in the mid-outer quadrant of the right breast. No suspicious enhancement was detected. Since no other abnormality was found on mammographic and sonographic assessment as well, except the post-surgical changes (FIG. 1a), a ductogram was performed.

This demonstrates the presence of iodine contrast within the seroma (FIG. 1b) that was seen prior the administration of contrast, leading to the diagnosis of a fistula between a lactiferous duct and the seroma that is responsible of the discharge. The patient was reassured of the absence of recurrence and an ultrasound-guided drainage of the seroma was then done in an attempt to dry the discharge.

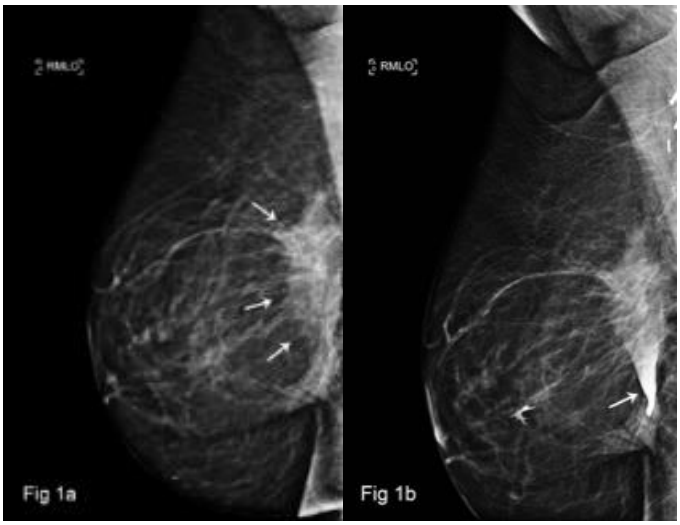

FIG. 1. **(a,b): (a) Right mediolateral oblique view demonstrating post-surgical changes in the posterior central part of the breast (arrows). (b) Right mediolateral oblique view after ductography, showing opacification of the seroma (arrow) with iodinated contrast administered through the canulated duct responsible of the nipple discharge. This is diagnostic of a fistula between the seroma and one of the ducts at 3 o'clock position.**

3. Discussion

Women with prior history of breast conservative surgery remain at risk for local recurrence with a 10-year risk of recurrence estimated at 5% hence the subsequent yearly follow-up [5]. When a new symptom occurs, for instance, a newly appeared nipple discharge, local recurrence should be ruled out. Although nipple discharge is most commonly benign, it may reflect an underlying malignancy in 5%-21 % of women [1,6].

Traditionally, ductography used to play an important role in the evaluation of a clinically suspicious nipple discharge i.e., a unilateral, single-duct, spontaneous or persistent sero-sanguinous discharge when the 1st line evaluation with bilateral mammogram and ultrasound was negative.

Breast MRI has proven to be superior to ductography with a sensitivity and specificity of 96 % and 85% respectively [7] compared to the pooled sensitivity of 69% and specificity of 39% for ductograpphy as reported in the meta-analysis by Berger et al [8]. Given this higher diagnostic performance, MRI is considered the preferred imaging modality in the assessment of nipple discharge [8] and ductography is less and less performed.

In our patient with previous breast-conserving surgery presenting with serosanguinous, spontaneous nipple discharge, it was mandatory to rule out local recurrence. The etiology of this benign discharge would have not been elucidated properly had she been investigated with breast MRI alone. In fact, the fistula between the seroma and one of the ducts at 3 o'clock position accounting for the nipple discharge (FIG. 1 a,b) could not be detected on the MRI performed recently. In fact, the fistula could have been overlooked, had she been assessed only with MRI without a ductogram.

Radiologists involved in the follow-up of cancer patients, should be aware of this benign complication and the contribution of ductography in this clinical scenario allowing not only reassurance of the patient but also obviating the need for surgical management.

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