

Case report: intraductal papilloma's imaging

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HISTORY

The patient is a 51-year-old woman with a 1 year history of spontaneous yellow discharge from the nipple of her left breast. The discharge had increased in volume during the year. The findings from the physical examination were unremarkable apart from the discharge, which could be readily elicited by pressing on a point at about 9 o'clock in the subareolar region of the left breast.

IMAGING FINDINGS

Figure 1 is a mammogram images performed acquired on the standard cranio-caudal plane. It show a breasts with fibro-fat structure ; the fibrous residue are in retro-areolar region and in upper-outer quadrant. No evidence of abnormalities.

Figures 2A, 2B sonogram obtained with a 7.5-MHz linear transducer in the transverse plane of the subareolar region. They show a dilated tubular structure with a solid mass within it just behind the nipple. These findings is the hallmark of a dilated duct with an intraluminal mass like in intraductal papilloma.

Figure 2B shows duplex Doppler images of the left subareolar region. In this images we can notice the focal increase in flow within the mass

Figure 3A, 3B, 3C, 3D MRI was performed using a 3-T magnet (Magnetom Avanto, General Electric Medical Solution, Erlangen, Germany) with a dedicated bilateral breast surface coil with prone position. Then, contrast-enhanced dynamic imaging was performed with an injection of 20 mL of gadopentetate dimeglumine (Magnevist, Berlex Laboratories, Wayne, NJ, USA); five sequential contrast-enhanced images were aquired at every 1 min dynamic contrast breast MRI subtraction 1 minute (1), 3 minutes (2), 5 minutes (3) images.

The mass showed lobulated shape, and smooth margin characterized by early and heterogeneous enhancement and by delayed wash out (time-intensity curve of type II).

The core biopsy and excision were done, and pathologic result was intraductal papilloma.

DISCUSSION

Surgical excision of this patient's abnormal duct revealed the mass to be a solitary benign intraductal papilloma(6).

The most common cause of spontaneous nipple discharge is a solitary central intraductal papilloma that may cause a serous or bloody nipple discharge and is usually non palpable. The nipple orifice from which the discharge arises subtends the involved duct (1,2). Although intraductal papillomas can present at any age, solitary intraductal papillomas typically occur in perimenopausal women aged 35-55 years and are usually less than 0,5 cm in diameter (3).

Solitary intraductal papillomas may be pathologically related to proliferative fibrocystic epithelial hyperplasia. They are 2–3 mm and appear as broad-based or pedunculated polypoid epithelial lesions that may obstruct and distend the involved duct. They may cause cysts by obstructing the duct.

Pathologically, a large duct papilloma is a benign proliferation of duct epithelium that projects in to the lumen of the duct. The papillary fronds are composed of a fibrovascular core covered by ductal epithelial and myoepithelial cells (1,2, 5). Papillomas are usually located within a major duct in the subareolar region. Multiple peripheral papillomas are associated with an increased risk for breast cancer, whereas a solitary intraductal papilloma carries little risk of developing subsequent breast cancer. The epithelial component can be subject to a spectrum of morphologic changes ranging from metaplasia to hyperplasia, atypical intraductal hyperplasia, and in situ carcinoma [2, 3]. According to a consensus committee of the College of American Pathologists (4), women with solitary lesion have a 1.5- to 2-times relative risk of developing invasive breast carcinoma in their lifetimes. Intraductal papilloma is a discrete benign tumour of the

epithelium of mammary ducts. It shows a predilection for the extreme ends of the ductal system the lactiferous sinuses and the terminal ductules (7).

Mammograms of women with a solitary papilloma are most frequently normal. This is probably because the lesions are small when the patients present with a nipple discharge, and they lie completely within a duct without extension into the surrounding breast. When imaging findings are present, they include solitary or multiple dilated ducts, a circumscribed benign appearing mass, or a suspicious cluster of calcifications (8,9).

However on conventional mammography, intraductal papilloma could not be detected, and it has a positive predictive value of only 25%. The sensitivity is particularly low in young women who have dense breast (10).

Ultrasound features of intraductal papilloma primarily depend on the gross macroscopic appearance of the lesion. Three basic patterns of intraductal papilloma are recognized on ultrasound – intraductal mass with or without ductal dilatation, intracystic mass and a predominantly solid pattern with the intraductal mass totally filling the duct (8) . If the lesion is small, a focally dilated duct may be the only observation. A solitary dilated duct, even in the absence of a demonstrable intraductal mass, is highly suggestive of an intraductal papilloma, especially, if the patient is presenting with a serosanguinous nipple discharge (11). Dilated duct with an intraductal mass or a cyst with an intracystic solid mass is the hallmark of intraductal papillomas . Intraductal papilloma have a characteristic flow pattern on colour flow studies. A distinct vascular pedicle is identified in intraductal papilloma within the central core with branching vessels arborising within the mass (11). Colour flow studies are sensitive in identifying even very small intraductal papilloma , in view of its characteristic vascularity. Intraductal papillomas and papillary carcinomas have considerable overlap in imaging features and it may not be possible to differentiate them on ultrasound (13). However, sonography is not able to predict malignancy and its positive predictive value is 75%.

Although MRI is a highly sensitive method for diagnosing breast cancer (9,10,11,12,13) its role in the management of papillomas is still controversial. Infact, in terms of mass enhancement, the MRI findings were variable. In literature it reports two main enhancement patterns: irregular shape enhancement and lobulated shape enhancement.

The MRI kinetics of intraductal papilloma is characterized usually by a persistent delayed enhancement, is considered the possibility of benign mass.

If the lesion showed suspicious findings in other imaging modalities, however, the MRI kinetics of the masses showed persistent delayed enhancement, thus making us to consider the possibility of benign mass. There were more papillomatosis or high risk lesions in plateau pattern enhancement than persistent. We had another different pattern of enhancement, such as ductal enhancement or segmental enhancement. Especially, in cases of clinically, mammographically and sonographically negative breast, breast MRI is helpful for lesion detection and treatment of nipple discharge. Even there was a mass or asymmetry in mammography or sonography, MRI could find more masses than other image modalities. The limitation of this technique was: the sample size was too small. More samples of papillary lesions of the breasts, including atypism or papillary carcinoma, are needed. In conclusion, breast MRI could detect papillomas of the breast more than any other image modalities; however its MRI findings were variable. Especially, in terms of multifocal papillomas and papillomatosis, breast MRI plays a key role for evaluation of disease extent.

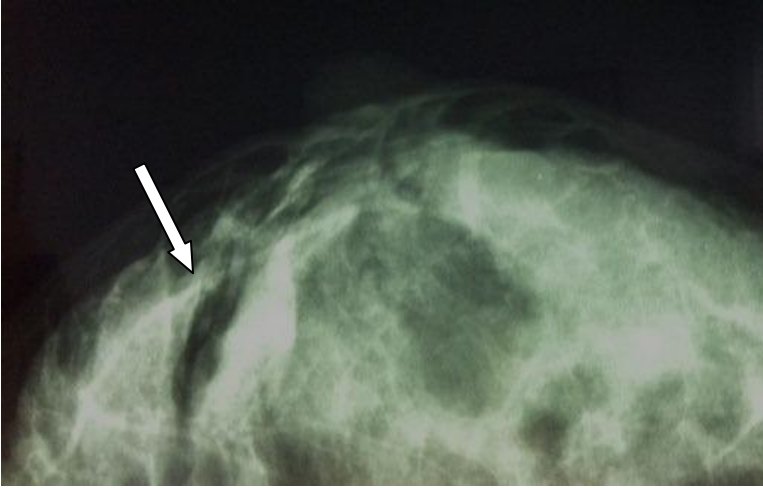


Fig. 1.- mammogram. A cranio caudal view of mammography showed heterogeneous dense parenchyma within the solitary dilated duct in the subareolar region (straight arrow).

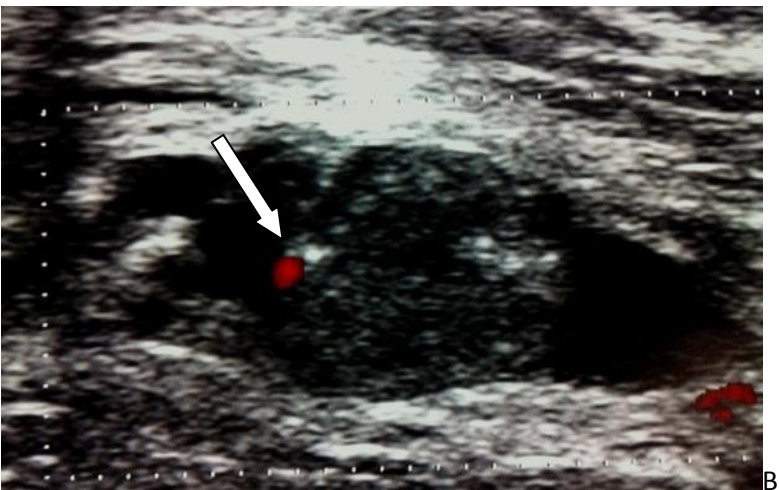
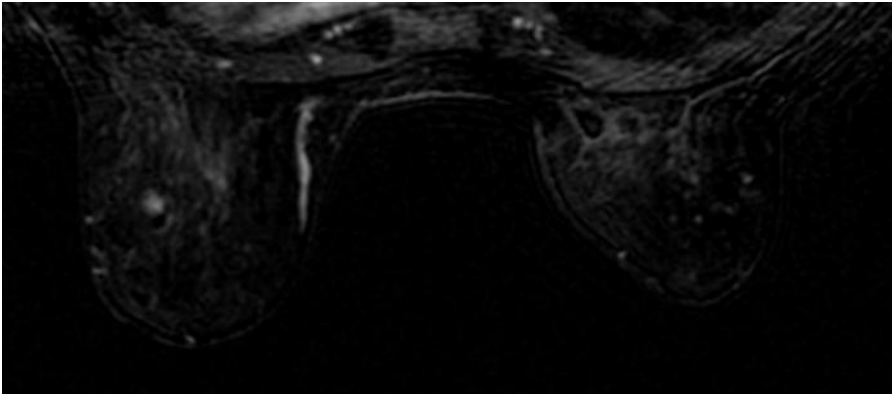
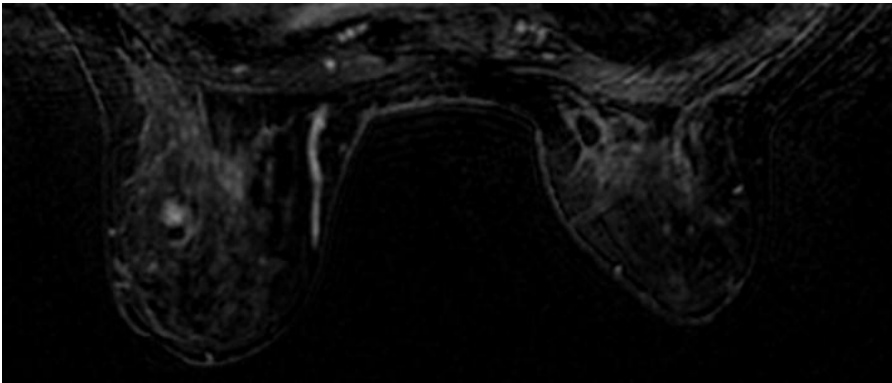


Fig. 2. –US. Transverse sonogram obtained with a 7.5-MHz linear transducer in the subareolar region. The curved arrow indicates the intraluminal solid mass. The straight arrow indicate the dilated duct (A).

Doppler images (B) of the left subareolar region show the focal increase in flow within the mass (straight arrow).



A



B

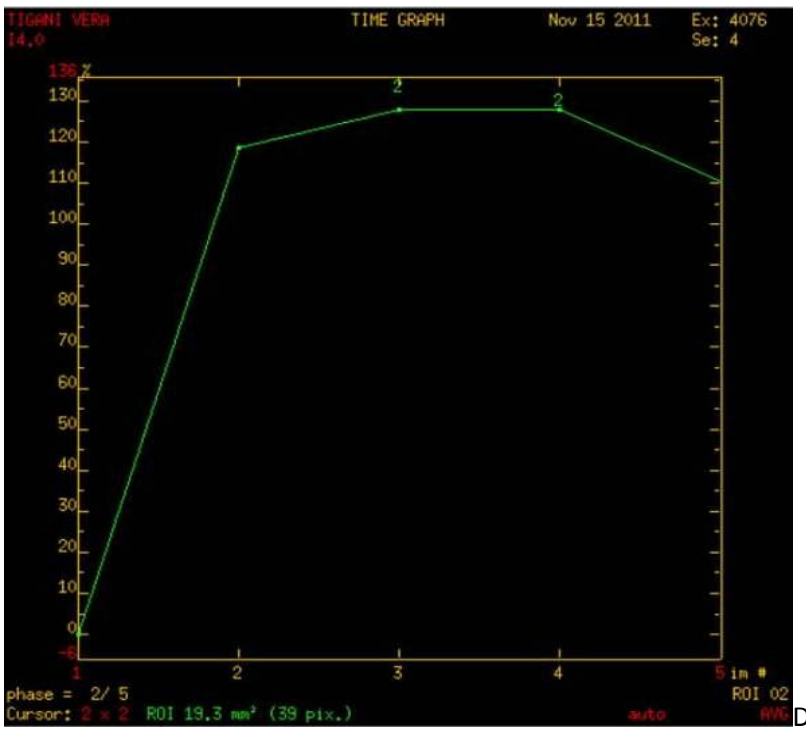
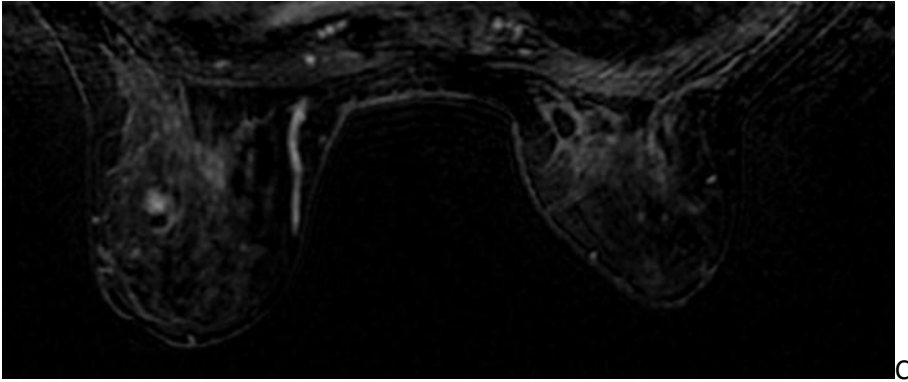


Fig. 3.- MRI. Dynamic contrast breast MRI subtraction 1 minute (A), 3 minutes (B) and 5 minutes (C) images.

The mass showed an early and heterogeneous enhancement (A, B,C) with time-intensity curves of type II (D). This lesion appears in continuity with a main duct dilated.

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