Mucinous carcinoma of the breast

Published on 26.02.2017

DOI: 10.1594/EURORAD/CASE.14483
ISSN: 1563-4086
Section: Breast imaging
Area of Interest: Breast
Procedure: Diagnostic procedure
Imaging Technique: Mammography
Imaging Technique: Ultrasound
Imaging Technique: MR
Special Focus: Pathology Case Type: Clinical Cases
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Patient: 80 years, female

Clinical History:

An 80-year-old female patient was referred to our Breast Unit due to a palpable nodule in her left breast.

Imaging Findings:

Mammography showed a breast composition based on scattered areas of fibroglandular density (B type). On the upper quartile line of the left breast there was a round nodule with obscured margins and high density. There were no calcifications, architectural distortions or asymmetries. Skin and axillae were normal (Fig. 1).

Ultrasound showed on the upper quartile line of the left breast (at 12 o’clock position) and correlated to mammography finding a solid, round nodule with microlobulated margins, with a slightly heterogeneous echo pattern, predominantly isoechoic, with posterior enhancement (BI-RADS 4C). Axillae were normal (Fig. 2).

We made a core needle biopsy guided by ultrasound whose histological examination showed a pure mucinous breast carcinoma.

A posterior MRI examination showed a round, circumscribed nodule on the left breast. It was hypointense on T1-WI and hyperintense on T2-WI due to its mucinous component, with heterogeneous internal progressive enhancement with a curve type I (Figs. 3-4).

Discussion:

A. Background
Mucinous breast carcinomas (or colloid carcinomas) are well-differentiated adenocarcinomas that are formed by extracellular mucus produced by tumour cells [1]. They are typically supposed among 1-7% of breast carcinomas, being the prevalence of 7% in women 75 years of older [1, 2]. They can be classified in two types due their histological composition, as mixed or pure mucinous carcinomas [1, 2]. Mixed carcinomas have nonmucinous components that make them more aggressive and liable to metathatize [1, 2].

B. Clinical Perspective
Mucinous carcinomas usually present as a palpable soft mass in elderly women [3, 4].

C. Imaging Perspective
On mammography, mucinous carcinomas are usually round tumours with circumscribed and microlobulated margins
in mixed and pure type, respectively [2-4].

On ultrasound, they can be presented as a complex mass with solid and cyst components with posterior acoustic enhancement [2, 3]. Pure mucinous carcinomas should be isoechoic and homogenous while mixed type should be heterogeneous and hypoechoic [2].

On MRI, pure mucinous carcinomas are typically very hyperintense on T2-WI due to its mucinous component [1, 5] and show a gradually enhancing pattern. On the other hand, in mixed carcinomas, the nonmucinous component has a signal intensity and enhancement pattern similar to invasive ductal carcinomas, so they are isointense on T2-WI and have strong enhancement on early and delayed phases [1].

D. Outcome

Pure mucinous breast carcinomas, due their better prognosis, are usually treated by less invasive surgery, and lymphadenectomy can be avoided [1]. In our case, the Breast Unit Committee decided to do a surgical resection with previous localization of the lesion by an ultrasound guide-wire. The surgical histologic examination revealed a pure mucinous carcinoma that correlates with the ultrasound finding (predominant isoechoic lesion) and MRI (very hyperintense signal due to his pure mucinous component).

Because of their possible lymph node spread, axillary examination with sentinel node biopsy was done and it was negative.

Final TNM-staging was T2 N0 M0.

E. Take Home Message

The presence of a circumscribed and very high intensity on T2-WI nodule with posterior enhancement on ultrasound in an elderly woman can suggest a mucinous carcinoma.

**Differential Diagnosis List:** Mucinous pure carcinoma, Invasive ductal carcinoma, Metaplastic carcinoma, Papillary carcinoma, Phyllodes tumour, Myxoid fibroadenoma

**Final Diagnosis:** Mucinous pure carcinoma

**References:**


Figure 1

**Description:** Left and right cranio-caudal mammography (L-CC, R-CC, respectively) shows a round nodule, with obscured margins and high density, on the upper quartile line of the left breast. **Origin:** Department of Radiology, Hospital Universitario Morales Meseguer, Murcia/Spain 2017.
Description: Left and right mediolateral oblique mammography (L-MLO, R-MLO, respectively) shows a round nodule, with obscured margins and high density, on the upper quartile line of the left breast.

Origin: Department of Radiology, Hospital Universitario Morales Meseguer, Murcia/Spain 2017
Figure 2

Description: Ultrasound shows on the upper quartile line of the left breast (at 12 o'clock position) a solid, round nodule with microlobulated margins, predominantly isoechoic, with posterior enhancement. The size is 2 x 1.6 x 2.1 cm. Origin: Department of Radiology, Hospital Universitario Morales Meseguer, Murcia/ Spain 2017
**Description:** Ultrasound shows on the upper quartile line of the left breast (at 12 o'clock position), a solid, round nodule with microlobulated margins, predominantly isoechoic, with posterior enhancement. The size is 2 x 1.6 x 2.1 cm. **Origin:** Department of Radiology, Hospital Universitario Morales Meseguer, Murcia/ Spain 2017
Description: MRI shows a round, circumscribed nodule on the left breast. It is hypointense on T1-WI and hyperintense on T2-WI, due to its mucinous component. Origin: Department of Radiology, Hospital Universitario Morales Meseguer, Murcia/ Spain 2017
Description: MRI shows a round, circumscribed nodule on the left breast. It is hypointense on T1-WI and hyperintense on T2-WI, due to its mucinous component. Origin: Department of Radiology, Hospital Universitario Morales Meseguer, Murcia/ Spain 2017
Description: Dynamic subtracted breast MRI shows a nodule with heterogeneous internal enhancement. Origin: Department of Radiology, Hospital Universitario Morales Meseguer, Murcia/Spain 2017
Description: The nodule shows a curve type I. Origin: Department of Radiology, Hospital Universitario Morales Meseguer, Murcia/ Spain 2017