Intracystic papillary carcinoma of the breast

Poster No.: C-1932
Congress: ECR 2011
Type: Educational Exhibit
Authors: V. Dimarelos¹, F. TZIKOS², N. Kotziamani¹, G. Rodokalakis¹, T. MALKOTSI³; ¹Thessaloniki/GR, ²THESSALONIKI/GR, ³THESSALONIKI, TH/GR
Keywords: Breast, Mammography, Ultrasound, Ultrasound-Colour Doppler, Neoplasia
DOI: 10.1594/ecr2011/C-1932

Any information contained in this pdf file is automatically generated from digital material submitted to EPOS by third parties in the form of scientific presentations. References to any names, marks, products, or services of third parties or hypertext links to third-party sites or information are provided solely as a convenience to you and do not in any way constitute or imply ECR's endorsement, sponsorship or recommendation of the third party, information, product or service. ECR is not responsible for the content of these pages and does not make any representations regarding the content or accuracy of material in this file.

As per copyright regulations, any unauthorised use of the material or parts thereof as well as commercial reproduction or multiple distribution by any traditional or electronically based reproduction/publication method is strictly prohibited.

You agree to defend, indemnify, and hold ECR harmless from and against any and all claims, damages, costs, and expenses, including attorneys' fees, arising from or related to your use of these pages.

Please note: Links to movies, ppt slideshows and any other multimedia files are not available in the pdf version of presentations.

www.myESR.org
Learning objectives

To illustrate the mammographic and sonographic features of the intracystic subtype of papillary carcinoma of the breast. Color Doppler sonographic images are also included.

Background

Intracystic papillary carcinoma (ICPC) is a variant of papillary carcinoma, an unusual ductal malignancy. It has a better prognosis than most infiltrating ductal cancers and accounts for approximately 1-2% of breast carcinomas in women. Usually, these tumors occur in dilated ducts, not in cysts, and are called intracystic when the cystic component predominates in the lesion (1).

ICPC may be unifocal or multifocal and has a propensity to occur in post-menopausal women (the mean age at diagnosis of papillary carcinoma is about 55 years). Clinically, intracystic papillary carcinoma may have no symptoms or may present as a palpable mass or with bloody nipple discharge (2).

Diagnostic workup consists mainly of mammography and ultrasound examinations. On mammography, findings are often nonspecific. ICPC is usually seen as a round or lobulated mass, often in the retroareolar area. The tumor margins are usually well circumscribed, although they may be partially obscured or focally irregular. Spiculation and nipple retraction may be detected. These findings are not always due to invasion as they can be also related to sclerosis and inflammation of the surrounding fibroglandular tissue (1, 4).

At sonography, ICPC usually appears as a solitary or multiple predominantly cystic masses, with or without septa and a lobulated soft tissue mass projecting into the cyst lumen. Typically, the cyst wall is thickened and fluid-debris levels may be present due to spontaneous bleeding. Adjacent anechoic or hyper-echoic regions representing hemorrhage from ruptured capillaries within the cyst wall may also be observed (4). Color Doppler sonography often shows blood flow in the solid part of the tumor owing to its vascular pedicle, a finding that can help differentiate it from a blood clot. The tumor also demonstrates posterior acoustic enhancement due to its cystic component. Some lesions may have a rather mixed composition with more solid components and in these cases the term "solid papillary carcinoma" may be more appropriate. These tumors are indistinguishable from other solid masses (5).
Biopsy (either fine-needle aspiration or core needle) may be unable to distinguish between in situ and invasive papillary lesions because the center of the lesion is often targeted, whereas invasion usually takes place at the periphery of the tumor. Therefore, surgical excision is suggested when papillary lesions are suspected or diagnosed at biopsy (6-8).

**Imaging findings OR Procedure details**

In our cases, mammography findings were considered non-specific for malignancy. In two women, the mass could not be identified in the dense breast parenchyma or in the residual fibroglandular tissue (Images 1,2). A round, high-opacity mass was seen in the upper outer quadrant of the breast in one case (Image 3) and multiple benign looking circumscribed masses were seen in another patient (Image 4). In all women, further ultrasound examination was performed.

Sonography revealed in all patients predominantly cystic masses with mural nodules projecting into the cystic lumen (Images 1C, 3D, 4C) or internal septa (Image 2C,D). Some posterior acoustic enhancement was also observed in two cases (1C,D, 4C,D). Color Doppler demonstrated well the intramural blood flow of the tumor due to its vascular pedicle (Image 1C-D, 3E, 4D). In one case there were multiple lesions (Image 4C,D) and in another case the solid components were extending beyond the posterior border of the lesion.

Ultrasound-guided fine needle aspiration biopsy (FNAB) was performed in all four women. During biopsy, a dark colored, blood-containing fluid was also aspirated from 3 lesions. Cytological examination was positive for malignancy (grade C5) in 3 patients (Image 1G) and highly suspicious for malignancy (grade C4) in one patient (Image 4F). All lesions were surgically excised and proved to be intracystic papillary carcinomas at histological examination. One patient had multiple carcinomas and in another patient the tumor was invasive (arrow in image 3D).

**Images for this section:**
Fig. 1: A, B. Craniocaudal and mediolateral oblique mammograms depict dense breasts with asymmetric formations and summation shadows. C-E. Ultrasound reveals a cystic mass with a lobulated soft tissue mass projecting into the cystic lumen. Power Doppler depicts the vascular pedicle of the lesion. There is some posterior acoustic enhancement. F, G. A fine needle aspiration biopsy that was performed under ultrasound guidance turned out to be positive for malignancy.
**Fig. 2:** A, B. Craniocaudal and mediolateral oblique views of a fatty breast with residual fibroglandular tissue in upper outer quadrant. C,D. Ultrasound examination shows a cystic lesion with thickened wall and internal septum.

**Fig. 3:** A, B. Mammograms (CC and MLO views) reveal a high-opacity mass with relatively smooth margins in the upper outer quadrant. C-E. Ultrasound demonstrates a predominantly cystic mass with a solid nodule which shows intense vascularity on Power Doppler and extends beyond the margins of the lesion (arrow).
Fig. 4: A,B. Mammography demonstrates multiple high-opacity masses that are rather circumscribed, compatible with cysts. C,D. Ultrasound shows cystic lesions with mural nodules that are intensely vascular on Doppler examination. E. Small simple cysts were also seen in this breast. F. Fine needle aspiration biopsy was highly suspicious for malignancy.
Conclusion

ICPC has non-specific features in mammography, but shows certain sonographic features that may suggest the diagnosis. However, further verification with biopsy will often be required and surgical excision is the suggested treatment for ICPC.

Personal Information

All authors,

Breast Unit,
Department of Diagnostic and Interventional Radiology
Papageorgiou General Hospital
Thessaloniki, GREECE

e-mail corresponding author: ivassilis@gmail.com
Tel: (+30) 6973 306 405

References


