Intracystic papilloma. A case report
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Section: Breast imaging
Area of Interest: Breast
Procedure: Biopsy
Procedure: Diagnostic procedure
Imaging Technique: PACS
Imaging Technique: Ultrasound-Colour Doppler
Imaging Technique: Ultrasound
Imaging Technique: MR
Imaging Technique: Mammography
Special Focus: Pathology Neoplasia Case Type: Clinical Cases
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Patient: 56 years, female

Clinical History:

A 56-year-old female patient presented with multiple bilateral breast masses, one of which was rapidly increasing in size during the past year, after a twelve-years follow-up with annual mammograms. She referred a painless palpable mass occupying the inner central quadrant of her left breast. She also had personal history of breast papilloma, removed in 2008.

Imaging Findings:
Mammography revealed multiple well-circumscribed oval-shaped nodules, one of them showed a fast size increase compared with previous mammograms. Ultrasonography follow-up had not been performed because of the size stability and benign appearance of the masses.

Ultrasonography showed a large well-defined cystic complex mass with a hypoechoigenic solid pole. Doppler study revealed marked internal vascularity in the solid component.

Magnetic resonance image (MRI) revealed low signal of the solid pole on T2-weighted images, while cystic component was hyperintense. On dynamic sequences after gadolinium a fast and early enhancement of the solid parts with plateau pattern (type 2 curve) was found. The lesion measured 35 x 20 mm and was assigned a BI-RADS 4 category.

Ultrasound-guided core needle biopsy was performed, revealing an intracystic papilloma. The patient underwent wide local excision for the lesion and diagnosis was confirmed with the histological examination of the entire mass. Annual mammography follow-up of the bilateral masses was recommended.

Discussion:

Intracystic papillomas (ICP) are benign tumours supported by a fibrovascular stalk, growing inside a cystically dilated duct. They develop by secretion and bleeding of an intraductal papilloma, which distends and obstructs a lactiferous duct [2].

Papillomas are the most common intraductal breast lesions, although intracystic pattern is seldomly found. ICP tend to occur in postmenopausal women [1, 8].

The most frequent manifestation is a small solitary lesion, located in a subareolar duct. Centrally solitary papillomas are considered to be low risk for development of malignancy, while peripheral and multiple ones have a greater incidence of atypia and malignancy. The presence of atypical hyperplasia increases the risk fourfold [1, 3]. ICP should be distinguished pathologically and clinically from papillomatosis of the breast, a premalignant condition with multiple papillomas located in distal ducts [8].

The main presenting symptom is bloody nipple discharge due to twisting of the fibrovascular pedicle, a situation that leads to ischaemia and intraductal bleeding [1, 3, 8].

Mammography findings usually consist in a high-density benign-appearing mass with well-defined margins [3, 4]. Ultrasonography shows a well-circumscribed hypoechoigenic solid nodule, which may either fill a duct or be partially outlined by anechoic fluid. Colour Doppler will demonstrate a fibrovascular stroma [2, 8]. MRI is able to visualise the dilated ducts and the nature of intraductal material, providing surgical guidance. It can determine the extent of the lesion in case of multiple papillomas, papillomatosis or papillary carcinoma. MRI is also the imaging method of choice for the follow-up of patients. Dynamic sequences after gadolinium do not provide a differential diagnosis between ICP and intracystic papillary carcinoma, as either both can exhibit fast, strong, early enhancement and washout or plateau enhancement pattern of the solid component [5, 6].

Ultrasound-guided core biopsy should be performed before surgery on all cystic complex masses for histolopathological evaluation, providing an early diagnosis [2, 3, 7].

Surgical excision is the mainstay of management, as the absence of atypia needs to be confirmed with histolopathological examination of the entire lesion. Recent studies have suggested that a conservative management can be provided when the diagnosis of benign papilloma without atypia is made with vacuum-assisted
core needle biopsy (VACNB), but only if the whole lesion is removed during the process [6, 7].

ICP are benign lesions which differential diagnosis includes premalignant and malignant conditions. As the imaging findings are non-specific, histological diagnosis must be provided and, if necessary, surgical or VACNB removal would be recommended.

Written informed patient consent for publication has been obtained.

**Differential Diagnosis List:** Intracystic papilloma, Intracystic carcinoma, Atypical ductal hyperplasia, Papillary carcinoma, Ductal carcinoma in situ, Cyst containing a blood clot

**Final Diagnosis:** Intracystic papilloma

**References:**

Description: Mammography reveals multiple well-defined oval-shaped masses with high attenuation compared with the surrounding tissue. It also shows a 3 cm oval nodule with lobulated margins located in the inner central quadrant of the left breast. Origin: Department of Radiology, Hospital Clínico San Carlos, Madrid, España.
Figure 2

Description: Ultrasonography shows a large well-circumscribed complex cystic lesion with lobulated margins. It presents an hypoechogenic solid component with an anechoic cystic pole. Doppler study reveals marked internal vascularity in the solid component. **Origin:** Department of Radiology, Hospital Clínico San Carlos, Madrid, España

Description: Ultrasound-guided core biopsy of the solid component. **Origin:** Department of Radiology, Hospital Clínico San Carlos, Madrid, España.
**Description:** Solid component shows low signal on T2-weighted images, while the cystic component is hyperintense. **Origin:** Department of Radiology, Hospital Clinico San Carlos, Madrid, España.
Description: The solid component shows heterogeneous enhancement on sequences after gadolinium.
Origin: Department of Radiology, Hospital Clínico San Carlos, Madrid, España.
Description: The lesion shows a fast and early enhancement with plateau enhancement pattern in dynamic study. Origin: Department of Radiology, Hospital Clínico San Carlos, Madrid, España.
The kinetic analysis reveals a type 2 curve, with rapid initial rise followed by a plateau in the delayed phase. **Origin:** Department of Radiology, Hospital Clínico San Carlos, Madrid, España.
Description: Haematoxylin-eosin stain reveals proliferation of ductal epithelium supported by frond-forming fibrovascular stroma. Origin: Department of Anatomopathology, Hospital Clínico San Carlos, Madrid, España
Description: High-power field shows a benign papillary outgrowth with branching fronds of stroma and overlying epithelial and myoepithelial cells. No cytologic atypia or abnormal mitoses are shown. Origin: Department of Anatomopathology, Hospital Clínico San Carlos, Madrid, España