Clinical Case Report

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Mammographic and ultrasound findings in poroid hidradenoma of the breast mimicking intraductal papilloma and papillary carcinoma

A case report

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Abstract

Rationale: Poroid hidradenoma (PH) is a rare variant of benign sweat gland neoplasm without connection to the epidermis. This tumor presents clinically as a solitary lesion with a cystic component located in the subcutaneous layer abutting the skin. On ultrasound, it appears as a circumscribed complex cystic and solid mass abutting the dermis. The occurrence of PH in the breast is very rare. Its features overlap with intraductal papilloma and papillary carcinoma.

Patient concerns: A 66-year-old woman presented with a palpable lump in her right breast.

Diagnoses: Clinical examination revealed dark bluish dome-shaped nodule which presented as circumscribed round isodense mass on mammography and oval complex cystic and solid mass abutting the dermis on ultrasound. Clinically, a papillary neoplasm was suspected.

Interventions: The patient underwent En bloc surgical excision including the overlying epidermis and the surrounding adipose tissue to prevent recurrence.

Outcomes: A well-demarcated, non-encapsulated grayish white mass composed of a partly solid and partly cystic area was completely removed and histopathologically confirmed as PH. At the 12-month follow-up, no recurrence was evident.

Lessons: PH should be considered in the differential diagnosis of a slowly growing breast mass that is bluish, cystic, and solid and abuts the dermis.

Abbreviations: BI-RADS = Breast Imaging Reporting and Data System, FNA = fine needle aspiration, PH = poroid hidradenoma.

Keywords: breast, sweat gland neoplasms, ultrasonography

1. Introduction

Poroid hidradenoma (PH) is a benign sweat gland neoplasm. It is a subtype of poroid neoplasm, which was described in 1990 by Abenoza.[1] To date, approximately 50 cases of PH have been reported. This tumor presents clinically as a solitary lesion with a cystic component located in the subcutaneous layer abutting the skin.[2–5] It can resemble intraductal papilloma and papillary carcinoma. Only one case of PH of the breast could be found in a literature review.[6] Herein, we present a rare case of PH of the breast with mammographic and ultrasound imaging.

2. Case report

This was purely an observational case study. The patient's management and outcome was unaltered. Therefore, no ethical approval was required for this case report. Written informed consent was obtained from the patient for publication of this case report and accompanying images.

A 66-year-old woman presented with a 2-year history of a slowly growing palpable lump in her right lower inner breast. Family history and medical/surgical history were unremarkable. Physical examination revealed a red and dark bluish dome-shaped nodule (Fig. 1). Regional lymphadenopathy was absent. Mammography of the right breast revealed a 2-cm circumscribed round isodense mass (Fig. 2). Ultrasound revealed a 2.2-cm circumscribed oval complex cystic and solid mass abutting the dermis at the subcutaneous layer of the right breast (Fig. 3A). Radiologically, this lesion was considered Breast Imaging Reporting and Data System (BI-RADS) Category 4A (low suspicion of malignancy).[7] She underwent fine needle aspiration (FNA). After the procedure, the lesion was almost completely collapsed. The cytology specimen showed several clusters of ductal epithelial cells and many macrophages, suggestive of intraductal papillomas. We recommended surgical excision but she declined and was lost to follow-up. After 2 years, the lesion

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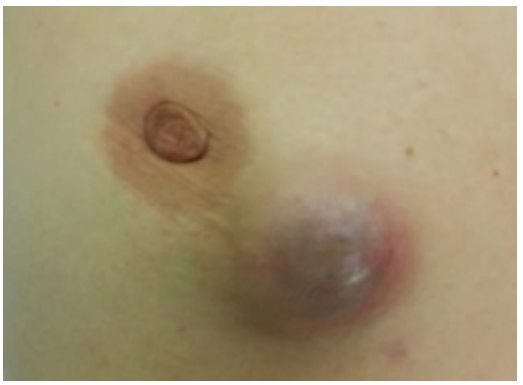

Figure 1. Red and dark bluish dome-shaped round nodule on the right lower inner breast.

had gradually increased in size, and ultrasound revealed a 3-cm complex cystic and solid mass with hypervascular mural nodule in the nondependent portion of the lesion (Fig. 3B and C). Provisional diagnosis of intraductal papilloma or papillary carcinoma was postulated. Ipsilateral lymphadenopathy was absent. The patient underwent surgical excision. The patient tolerated the surgical procedure well and no postoperative complication was noted.

Grossly, the lesion was a well-demarcated, nonencapsulated grayish white mass composed of a partly solid and partly cystic area measuring $2.8 \times 1.9 \times 0.6$ cm (Fig. 4A). Microscopically, it was restricted to the dermis with no connection to the overlying epidermis, and the cystic area was lined by cuboidal ductal cells or columnar secretory cells (Fig. 4B). The solid area consisted of solid nests of small dark-stained cells resembling eccrine poroma with moderate vascularity (Fig. 4C). These gross and microscopic findings were most consistent with the diagnosis of PH. At the 12-month follow-up, no recurrence was evident.

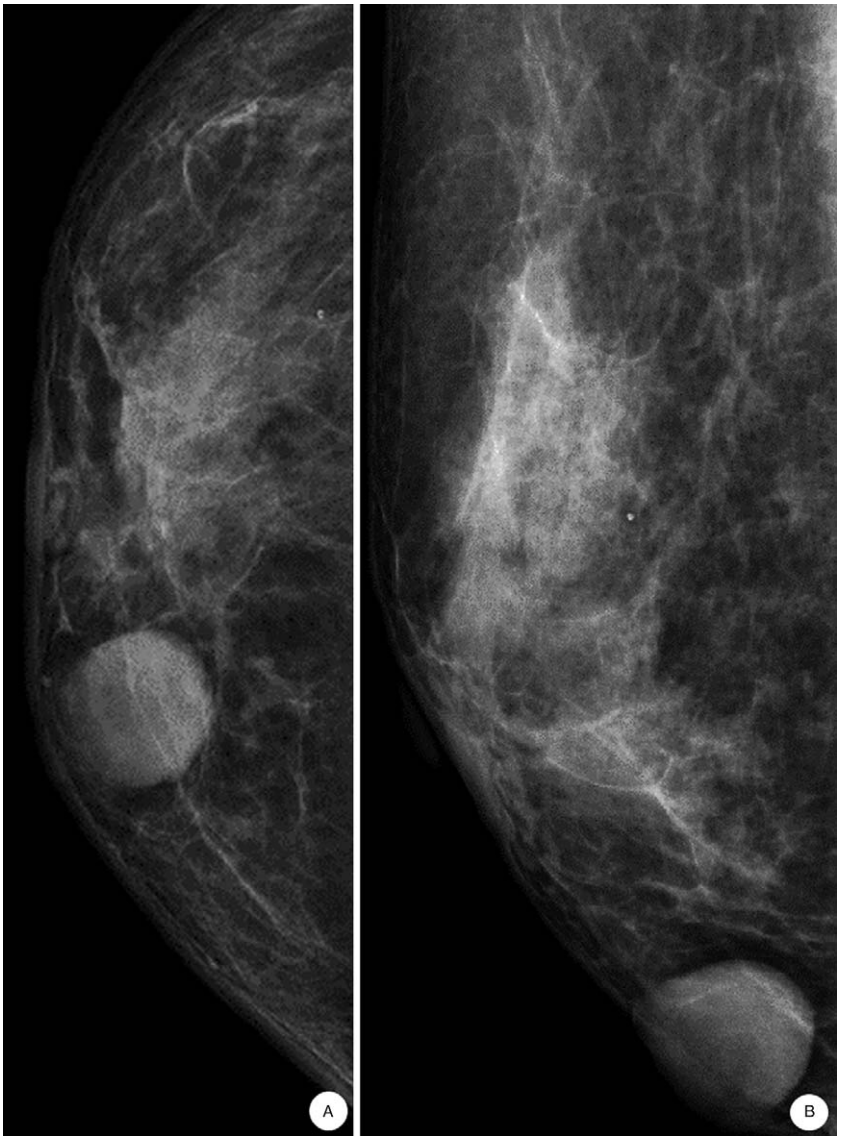

Figure 2. Mammographic findings of poroid hidradenoma in the right lower inner breast. Craniocaudal view (A) and mediolateral oblique view (B) via mammography shows a 2 cm circumscribed round isodense mass abutting the skin.

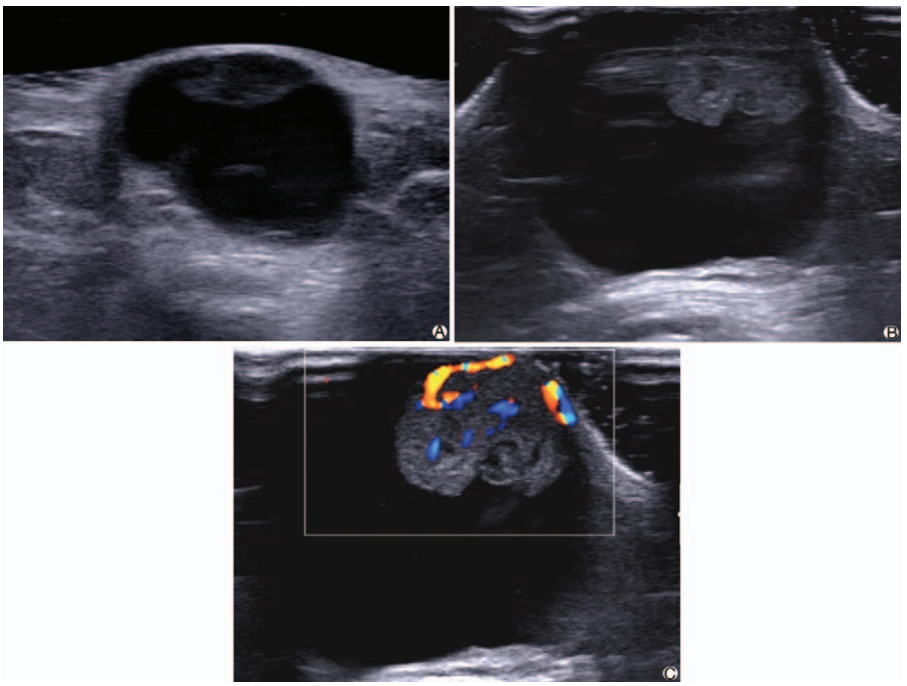

Figure 3. Ultrasonographic image of poroid hidradenoma of the breast. (A) Ultrasound image obtained at the initial visit shows a 2.2 cm well-circumscribed oval complex cystic and solid mass abutting the dermis and the subcutaneous layer of the right breast. (B and C) Ultrasound revealed a 3 cm complex cystic and solid mass with a hypervascular microlobulated solid nodule in the nondependent portion of the lesion after 2 years.

3. Discussion

Poroid neoplasm, in which neoplastic cells are thought to be composed of cells similar to those in the uppermost segment of the intradermal and in the lower segment of the intraepidermal eccrine duct, is classified into 4 groups according to its structural features: hidroacanthoma simplex, eccrine poroma, dermal duct tumor, and PH.[8] PH is an eccrine gland-derived benign neoplasm. PH is characterized by dermal nodules that have no connection with the overlying epidermis. As the term "poroid hidradenoma" indicates, this tumor has both poroma- and hidradenoma-like features. It presents the cytologic characteristics of poroid neoplasms with poroid cells and cuticular cells, the latter showing ductal

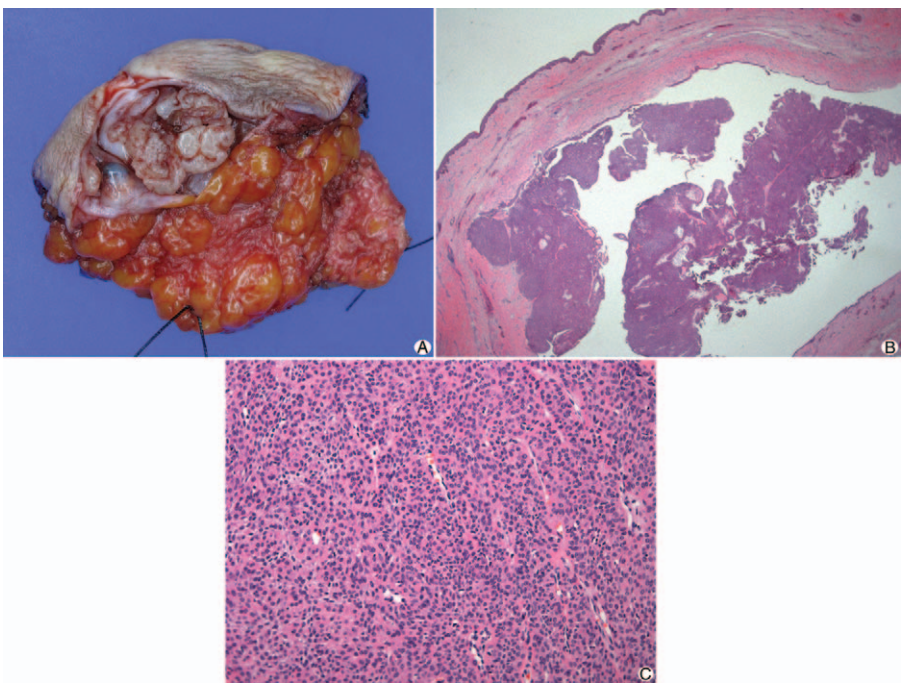

Figure 4. (A) Gross macrophotograph of the excisional biopsy showing a grayish white mass composed of partly solid and partly cystic components. (B) The tumor was located in the dermis with no connection to the overlying epidermis. The tumor was cystic in nature and lined by cuboidal ductal cells or columnar secretory cells (H&E, ×1). (C) The solid area of the tumor consisted of solid nests of small dark-stained cells resembling eccrine poroma with moderate vascularity (H&E, ×40).

differentiation. It also exhibits the architectural features of hidradenoma, which is a tumor that is usually confined to the dermis and composed of solid and cystic areas. Immunohistochemical studies suggest that PH has similarities with eccrine poroma and arises from the dermal eccrine and apocrine ducts.[9]

Patient age varies between 13 and 86 years, with a peak in the sixth and seventh decades of life and a slight female predominance. Clinically, the tumor presents as a solitary well-circumscribed red, blue, or brown papule, nodule, or plaque (1–2 cm in diameter). One study that analyzed 384 cases of poroid neoplasm found that 56 cases (14.6%) were PH; they were seen at higher rates in the scalp, face, neck, and genitalia.[10]

We found just 1 case report of PH of the breast in a literature review, and there was a lack of mammography or ultrasound imaging.[6,11] Ultrasound findings of PH in our case revealed a circumscribed complex solid and cystic mass with increased vascularity, which was similar to a previously reported case. The cystic space in PH is commonly considered eccrine dilated ducts containing eccrine secretory fluid, which may present a bluish skin color on physical examination. Clinical differentials include intraductal papilloma or papillary carcinoma, apocrine hidradenoma, and epidermal inclusion cyst. Our patient was lost to follow-up for 2 years, but when she returned to our hospital, her tumor was only 3 cm in diameter, indicating a slow PH growth rate.

The recommended treatment is complete radical excision of the lesion. En bloc surgical excision including the overlying epidermis and the surrounding adipose tissue prevents recurrence. PH becomes malignant in less than 1% of cases.[12]

In summary, we reported a case of PH of the breast. Although PH of the breast is extremely rare, it should be considered in the differential diagnosis of a slowly growing breast mass that is bluish, cystic, and solid and abuts the dermis.

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