Abstract

Apocrine carcinoma is a rare form of breast carcinoma. We report the case of a 35-year-old female with a tumor over 4 cm in the major axis located in the inner median quadrant of the right breast. Mammography revealed a breast mass hosting microcalcification. Breast ultrasound highlighted three suspect masses requiring histological verification by micro biopsy; histological diagnosis favored apocrine carcinoma.

Introduction

Apocrine carcinoma of the breast is a rare type of breast cancer, accounting for about 1% of all breast carcinomas. It is distinguished by its histopathological characteristics, immunohistochemical profile, and clinical behavior. Imaging plays a crucial role in the diagnosis, evaluation, and management of this pathology. We report the case of a 35-year-old woman with a familial risk of breast cancer who presented with palpable apocrine breast carcinoma and distinct lesions in mammographic, ultrasonographic, and MRI imaging.

Observation

Ms. B., 35 years old with no family history of cancer, presented a palpable mass in the inner median quadrant of the right breast accompanied by bloody nipple discharge. Clinical examination found a palpable mass at the union of the inner quadrants of the right breast and the presence of a palpable 2 cm axillary lymph node; no clinical anomalies were observed in the left breast, and the patient was in good general condition. The patient was referred for a radiological evaluation including a breast ultrasound.

Imaging Results

Breast ultrasound revealed three masses with irregular shapes and contours, hypoechoic heterogeneous attenuations in the right superior external quadrant (QSE), right inferior external quadrant (QIE), and at the union of the external quadrants, classified as BI-RADS 4c by ACR (Fig. 1).
The micro biopsy performed on the principal mass revealed apocrine in situ carcinoma. A locoregional extension assessment was requested:
- Bilateral mammography in frontal and oblique views was performed as part of the extension assessment.
- The right views found a mass seat of polymorphous and irregular microcalcifications grouped in a suspicious cluster in the right superior external quadrant, classified as BI-RADS 4c (Fig. 2).

- An MRI of the breast, considering the young age of the patient and the breast density, revealed multiple contiguous masses with irregular shapes and contours in hypointense T1 and heterogeneous intermediate T2...
in the right QME and QIE, enhancing heterogeneously after contrast injection, showing a type 3 hemodynamic curve. There was also the presence of non-mass heterogeneous enhancement punctuated with segmental distribution associated with the microcalcifications described in mammography. No contralateral lesions were found. The radiological file was classified as BI-RADS 6 by ACR on the right and BI-RADS 2 by ACR on the left (Fig. 3).

- A thoracoabdominal CT scan and a bone scan were conducted, both of which returned negative. The patient was classified as T3N1M0. Faced with this diagnosis of apocrine carcinoma and the multifocal nature of the lesions detected on MRI, it was decided to perform chemotherapy followed by right mastectomy with lymph node dissection, in agreement with the patient. The histopathological study of the mastectomy specimen (Fig. 4) revealed an in-situ apocrine carcinoma with tumor invasion.

Figure 3: Breast MRI in Axial Sections, T1-Weighted Sequence (a), and MIP Sequence (b) and Sub-Treated Injected (c) Highlights Three T1 Hyposignal Masses, of Irregular Shapes and Contours Enhancing after Injection of the Contrast Medium (arrow), Associated with a Suspicious Non-Homolateral Mass Enhancement (arrowhead)
HEX40: Tumoral Apocrine Cells with Abundant Cytoplasm, Eosinophilic Finely Granular and Strongly Nucleolated Nuclei

Discussion
The frequency of apocrine carcinoma varies from 0.3% to 4% in published series [1]. There are very few articles in the literature review on the imaging of apocrine carcinomas in conventional and MRI imaging. This type of cancer can affect women of any age [3]. The clinical presentation does not differ from that of other non-apocrine carcinomas. Discoveries are mainly following self-palpation [4].

The radiological presentation of apocrine carcinoma mimics that of other forms of breast carcinoma. The characteristics of apocrine carcinomas in mammography and ultrasound were superimposable to those of infiltrating ductal carcinomas, as well as in MRI [5,6]. However, certain features such as the presence of microcalcifications and a distinct multicentric enhancement pattern on MRI can guide towards a more specific diagnosis [2]. Confirmation remains histological with markers such as GCDFP-15 and androgen positives typically associated with this subtype [7,8].

Conclusion
Apocrine breast carcinoma, although rare, requires special attention due to its diagnostic peculiarities. The clinical presentation and imaging characteristics of apocrine carcinomas are often similar to those of infiltrating ductal carcinomas. However, apocrine carcinomas tend to exhibit a multicentric nature more frequently, which suggests the utility of MRI in assessing the extent of the disease.

Hormonally, these tumors are distinguished by a unique profile: they generally do not express estrogen or progesterone receptors but do express androgen receptors. This difference in hormone receptor expression could influence patient management strategies.

Research is ongoing to determine whether apocrine breast carcinoma should be considered a distinct clinicopathological entity from infiltrating ductal carcinoma. This distinction could have significant implications, particularly in terms of response to hormonal treatments, especially anti-androgenic agents, potentially altering therapeutic approaches for these patients. The future of research in this field appears promising, with studies underway on potential targeted therapies and personalized treatment strategies.

References