Case Study

Secretory Breast Carcinoma: A Case Report With Literature Review

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ABSTRACT

Secretory breast carcinoma (SBC) is a very rare tumor in adults with a very good prognosis after surgical treatment. We report the case of a 56-year-old patient presenting for a nodule of the superior left quadrant of the left breast that had been evolving for 5 months. A biopsy was performed and showed a poorly differentiated and infiltrating carcinoma. A complement by lumpectomy with lymphadenectomy was done and concluded a secretory carcinoma of the breast without lymph node metastasis. PAS staining and immunohistochemical study were performed and confirmed the diagnosis. SBC is a rare entity. The age of onset varies between 3 and 87 years with a mean age of 33 and 40 years. The common clinical sign is the progressive establishment of a mobile and well circumscribed mammary nodule. The presence of eosinophilic and mucoid secretory material intra- and extra-cellular is the main histological sign in CS that differentiates it from other histological types. In immunohistochemistry, these tumors strongly express PS100 with a triple negative molecular profile. The risk of local recurrence is usually minimal with a long survival despite lymph node metastases.
INTRODUCTION:
Secretory breast carcinoma (SBC) is a very rare tumor in adults with a very good prognosis after surgical treatment (1). It was initially reported to be a child tumor hence the name of juvenile secretory carcinoma reported by McDivitt in 1966. Subsequent studies have shown that even adults can be affected by this tumor and the original term has been replaced by secretory breast cancer (SBC) in the 1980s. (2) This tumor represents 0.15% of breast cancers with a sex ratio close to 1 (3). The presence of eosinophilic and mucoid secretory material intra and extra-cellular is the main histological sign in SBC that differentiates it from other histological types (4). The majority of patients with SBC present a well-circumscribed mammary nodule, mobile most often palpable with a slow evolution (2). In immunohistochemistry, these tumors strongly express PS100 with a triple negative molecular profile (4). The risk of local recurrence is generally minimal with a long survival despite lymph node metastases (5). The clinical course of SBC is characterized by a tendency to local recurrence with prolonged survival, even with lymph node metastases. Death by SBC is extremely rare (2).

OBSERVATION:
We report a case of a 56-year-old female patient with no particular pathological history. She consulted for the appearance since 5 months of a nodule measuring 5 cm, of the upper quadrant of the left breast rapidly evolving in size. This nodule was painless, mobile on the deep and superficial level, without inflammatory signs. The mammogram found a mass with an oval shape, relatively well-circumscribed margins with an hypoecoic or an isoechoic internal echo texture ACR 4 (Figure 1).

Fig 1: Mass with a oval shape, with relatively well-circumscribed margins with an hypoecoic or an isoechoic internal echo texture ACR 4.

The nodule was biopsied. The histological examination of the received biopsy cores showed an infiltrating carcinomatous proliferation arranged in cords and rare glands with eosinophilic contents in places reminding the secretions reported in the SBC. The carcinomatous cells were of medium size, with anisokaryotic nuclei, hyperchromic and irregular contours. The final diagnosis was a poorly differentiated infiltrative breast carcinoma, however secretory mammary carcinoma could not be eliminated. A tumorectomy with lymph node dissection was performed and showed a tumor measuring 2 cm, poorly limited, whitish in color with a firm to hard consistency. One of the limits was tumoral. The histological examination found the same proliferation with multiple glands containing a positive anhistic eosinophilic content. Multiple foci of carcinoma in situ were noted. The immunohistochemical study showed intense and diffuse cytoplasmic expression of tumor cells of PS100 and EMA antibodies with a triple negative molecular profile.
profile.

Fig 2: (A+B): Infiltrating carcinomatous proliferation arranged in cords and rare glands (Hex 4). (C+D): eosinophilic contents in places reminding the secretions with moderate atypia (Hex 40).

DISCUSSION:
Secretory carcinoma of the breast is a rare entity. The age of onset varies between 3 and 87 years with a mean age of 33 and 40 years (3). Women are the most affected with a sex ratio of 1/6. Unlike other breast cancers, SBC has not been shown to be associated with hormonal changes, family history, or underlying genetic abnormality; however, it has been described as being related to gynecomastia or juvenile papillomatosis. (6) The majority of patients present a painless, well circumscribed, slow-growing mobile nodule, often subareolar. The tumor size is variable with an average of 3 cm. The literature mentions lymph node involvement in 15% of patients at the time of diagnosis (7). Metachronous metastases have also been reported in the literature (8). Secretory mammary carcinoma appears at ultrasound in the form of a hypoechoic lesion, sometimes rounded, sometimes ovoid, microlobulated and with clear limits, thus resembling a benign tumor (3). Mammography usually reveals a tumor with irregular boundaries (9).
Microscopically, CS is defined in WHO 2012 as an invasive low grade histologic carcinoma of solid, microcystic and tubular architecture composed of cells producing two types of secretion, mucoid and eosinophilic, intra and extra cellular (10). Infiltration of the adjacent mammary parenchyma is typically pushing type, but there is often a clear invasion. The three main patterns are often combined. The micro-cystic pattern takes on a mimicking appearance of thyroid follicles with a honeycomb appearance, alternating with tubular areas containing secretory material, and solid areas. Areas of papillary or glomeruloid architecture can also be observed. Carcinomatous cells are polygonal with eosinophilic or clarified granular cytoplasm. The nuclei are regular, the nucleoli are inconstant. The mitotic index is weak. There is constantly an intra and / or extracellular secretion material on the HES staining, with eosinophilic appearance enhanced by PAS staining.
and mucoid appearance underlined by the Alcian Blue staining. An in-situ contingency may be associated with the presence of eosinophilic secretion (10.11). The stroma reaction is fibrous hyalinized sometimes containing microcalcifications. (12) The immunophenotype of SBC is most often that of a basal-like triple negative tumor, with a joint negativity of the estrogen receptor (ER), the progesterone receptor (RP) and Her / neu, associated with a more or less intense positivity of markers of the basal type (Ck5 / 6, Ck14, EGFR, Kit). Cytokeratin 8/18, EMA, and S100 protein (PS100) are often positive (13). Tognon et al (14) demonstrated in 2002 that CSs have a recurrent translocation t (12; 15) (p13; q25), resulting in the fusion of the ETV6 gene (gene of the ETS family, variant 6) on chromosome 12p13. with the NTRK3 gene (neurotrophic tyrosine kinase receptor 3), located at 15q25. This translocation was previously known in two mesenteric metastatic neonatal fusiform cell tumors, infantile fibrosarcoma and congenital mesoblastic nephroma (15). These two pediatric tumors have a similar clinical and histological presentation, and some authors have suggested that they correspond to two different localizations of the same entity (16).

The incidence of axillary lymph node metastasis in SBC is 15 to 30%, and most patients have no more than four metastatic lymph nodes (4). Distant metastases of SBC are extremely rare (8). The differential diagnosis is made with a large group of benign and malignant lesions, including apocrine carcinoma, lipid-rich breast carcinoma, mammary carcinoma rich in glycogen, mucinous carcinoma and lactating adenoma. Morphological, immunohistochemical and genetic analysis makes it possible to exclude these diagnostics.

SBC is a slow-growing tumor and, as a result, can acquire additional genetic alterations, leading to more aggressive behavior with drug resistance. Multicentricity, tumor size > 2 cm, infiltrating margins and > 3 positive lymph nodes are indicators of a relatively poor prognosis (17) with a greater risk of distant metastases especially to the liver, bone, lung and scalp (18). Children and adults under 30 have a better prognosis compared to those over the age of 30 (9). Surgery is the best treatment for SBC. In children, local resection with sentinel lymph node examination or complete axillary dissection is preferable. In adults, a radical mastectomy can be performed depending on the size of the tumor and the condition of lymph nodes (2).

**CONCLUSION:**

Secretory carcinoma of the breast is a rare entity in both adults and children. It has particular histological and immunohistochemical characteristics. The best treatment is surgery. Prognosis is generally good but aggressive in the elderly. Lymph node metastases are common but usually less than 3 lymph nodes. Metastases remains exceptional.

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