CASO CLÍNICO

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Secretory Carcinoma of the Breast in a 24-Year-Old Woman: A Case Report

Carcinoma secretor de mama en mujer de 24 años: reporte de un caso

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SUMMARY

Secretory carcinoma of the breast is a rare invasive carcinoma. This carcinoma shows more aggressive symptoms in older patients. In a reported case of a 24-year-old woman with a mass in her right breast, the histopathologic features consisted of tumour cell proliferation and most of it came in tubular and microcystic structures. The cell nuclei enlarged into a round and oval shape. The chromatin was coarse and came with some protuberant nucleus, foamy, and slightly granular eosinophilic cytoplasm. Atypical mitosis is difficult to find. Some glands were cystic dilated. The lumen of the gland partially contained the mass of eosinophilic amorphous secretion. The stroma consisted of fibrous connective tissue with a mild sebum cell inflammation of the lymphocytes. The blood vessels were partially dilated and congested. There was no lymphovascular invasion in this tumour mass. The prognosis is well in general PAS staining on intracellular and extracellular secretion shows positive results, unlike the P63 staining that shows negative results. In conclusion, the macroscopic and microscopic examination results show that this tumour is secretory carcinoma. The tumour mass is firmly bound, mobile, and often located near the areola. The histopathological features come with characteristics such as pushing borders on the edge of the tumours, a microcystic combination of patterns both solid and tubular, and the mass of secretions in the lumen of the gland. The prognosis is generally good.

Keywords*: Breast carcinoma, secretory carcinoma, PAS.*

RESUMEN

El carcinoma secretor de mama es un carcinoma invasivo raro. Este carcinoma muestra síntomas más agresivos en pacientes mayores. En un caso informado de una mujer de 24 años con una masa en la mama derecha, las características histopatológicas consistieron en proliferación de células tumorales y la mayoría se presentó en estructuras tubulares y microquísticas. Los núcleos celulares se agrandaron en forma redonda y ovalada. La cromatina era tosca y venía con algún núcleo protuberante, citoplasma eosinofílico espumoso y ligeramente granular. La mitosis atípica es difícil de encontrar. Algunas glándulas estaban dilatadas quísticamente. El lumen de la glándula contenía parcialmente la masa de secreción amorfa eosinofílica. El estroma consistía en tejido conjuntivo fibroso con una inflamación leve de células sebáceas de los linfocitos. Los

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vasos sanguíneos estaban parcialmente dilatados y congestionados. No hubo invasión linfovascular en esta masa tumoral. El pronóstico es bueno en general en la tinción PAS sobre secreción intracelular y extracelular mostrando resultados positivos, a diferencia de la tinción P63 que muestra resultados negativos. En conclusión, los resultados del examen macroscópico y microscópico muestran que este tumor es un carcinoma secretor. La masa tumoral está firmemente unida, es móvil y, a menudo, se localiza cerca de la areola. Las características histopatológicas vienen con características tales como bordes abultados en el borde del tumor, una combinación microquística de patrones tanto sólidos como tubulares, y la masa de secreciones en la luz de la glándula. El pronóstico es generalmente bueno.

Palabras clave: *Carcinoma de mama, Carcinoma secretor, PAS.*

INTRODUCTION

Secretory carcinoma of the breast is a rare, low-grade, translocation associated with invasive carcinoma with a solid, microcystic, and tubular architecture composed of cells that produce intracellular and extracellular secretory material (1). Secretory carcinoma of the breast is also known as juvenile breast carcinoma (1,2).

Epidemiologically the incidence of secretory carcinoma of the breast accounts for <0.15 % of all breast cancers. These tumours have been reported in both sexes. The median age of presentation is 25 years, ranging from 3-87 years (1-4).

Clinical features of secretory carcinoma of the breast are that they are well-circumscribed mobile masses located near the areola, especially in men and children (2,5,6) mortality associated with this malignant disease is still a major challenge in the health system. The tumour microenvironment (TME.

CLINICAL CASE

In October 2017, a 24-year-old woman with a lump in her right breast reportedly underwent surgery in one of the private hospitals in Medan. From the surgery, a brownish tissue from the breast with a solid and chewy consistency and uneven 1 x 1.5 x 1 cm surface was found. The cutting showed a 1 cm yellow, solid, dense, and chewy mass.

The microscopic examination showed breast tissue that appeared without epithelial coating, consisting of tumor cell proliferation which mostly formed tubular and microcystic structures. The cell nuclei enlarged in a round and oval shape. The chromatin was coarse and came with some protuberant nucleus, with foamy and slightly granular eosinophilic cytoplasm. Atypical mitosis was difficult to find. Some glands were cystic dilated. The lumen of the gland partially contained the mass of eosinophilic amorphous secretion. The stroma consisted of fibrous connective tissue with a mild sebum inflammation cell of the lymphocytes. The blood vessels were partially dilated and congested. There was no lymph vascular invasion in this tumor mass. (Picture 1) The PAS staining shows a magenta-stained secretion mass within the lumen (both intracellular and extracellular). In this case, immunohistochemical staining was performed using P63 and the result was negative. Therefore, it is suggested to check the ER, PR, and Her2.

From the above macroscopic and microscopic description, it is concluded that it was a secretory carcinoma of the breast (ICD – O WHO 8502/3).

DISCUSSION

Secretory carcinoma of the breast is a rare, low-grade, translocation-associated invasive carcinoma with a solid, microcystic, and tubular architecture, composed of cells that produce intracellular and extracellular secretory material (1). Secretory carcinoma of the breast is also known as juvenile breast carcinoma (1,2).

Clinical features of secretory carcinoma of the breast include well-circumscribed mobile masses located near the areola, especially in men and children. Secretory carcinoma usually grows as a single mass (2).

On gross examination, secretory carcinoma usually forms a circumscribed, firm mass, which may be lobulated. The margins are of the pushing type, and prominent hyalinization is often present in the central portion. The cut surface varies from gray-white to yellow-tan (1,3,4,7,8).

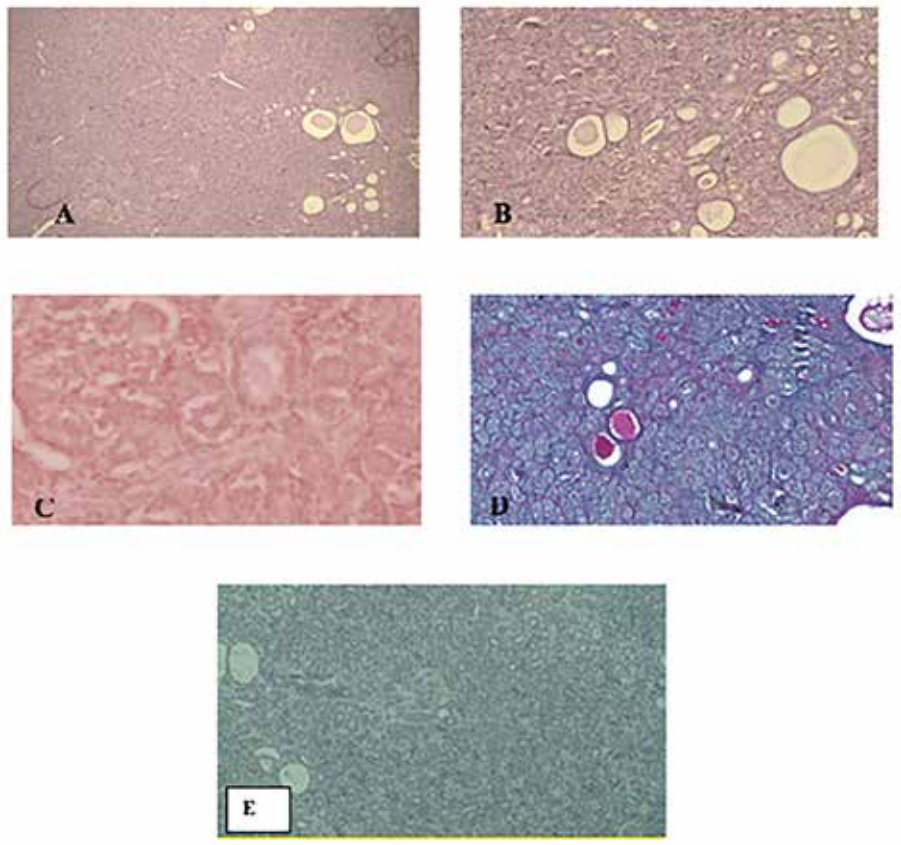

Figure 1. Secretory carcinoma of the breast. A. Microcyst and tubular shape (H&E 40X). B. Amorfeosinophilic (H&E 100X) mass in Lumen. C. Enlarged cell nuclei with round and oval shapes. Coarse chromatin with some protuberant nuclei, with foamy and slightly granular eosinophilic cytoplasm (H&E 400X). D. PAS staining shows magenta color on intra and extracellular secretion mass (PAS 100X). E. P63 staining shows a negative result.

Histopathology of secretory carcinoma of the breast shows pushing borders, but areas of frank invasion are frequent. Three patterns are seen in various combinations: microcystic, solid and tubular. The microcystic pattern is composed of small cysts mimicking thyroid follicles that can merge into solid islands. The tubular pattern shows Lumina-containing secretions. Most tumors contain all three patterns. Sclerotic tissue in the center of the lesion may be observed. Cells are polygonal with granular eosinophilic to foamy cytoplasm. Nuclei are regular with inconspicuous nucleoli. Mitotic activity is minimal (1-3,9,10).

Needle aspiration specimens from secretory carcinomas typically yield hypercellular smears containing uniform cells forming large branching cohesive sheets, loosely cohesive groups, and intact single cells. The background often appears clean, but it can demonstrate erythrocytes and cellular debris or colloid-like secretory material. Most of the tumor cells appear uniform and only slightly atypical. They contain one or two round to oval nuclei, homogeneous chromatin, nucleoli of varying size, and abundant cytoplasm. In most cases, a few cells demonstrate features indicative of more advanced atypia such as large nuclei or dark or clumped chromatin. The cytoplasmic borders can appear frayed. Cells with granular cytoplasm and prominent nuclei can also be encountered in carcinomas with apocrine differentiation. Secretory vacuoles of variable sizes occupy the cytoplasm, and they can create signet ring cells. The vacuoles sometimes enclose

large, round, dense bodies thought to represent inspissated secretory material. When the vacuoles appear especially small, the cytoplasm takes on a lacy quality. Besides containing vacuoles of secretory material, the cytoplasm can also contain intracytoplasmic lumens, which are evident during the ultrastructural examination. At times, the secretory material can also be seen in the background of the smears (8,11-13).

Mammography typically reveals a discrete tumor with smooth or irregular borders. A secretory carcinoma with a rounded contour can be mistaken for a fibroadenoma (FA) or a papilloma in imaging studies, especially in a young patient. Mammograms exhibit calcifications in rare cases only (2,8,14,15).

Sonography discloses a solid, hypoechoic to isoechoic mass, which may have a microlobulated border. Mun et al. described and illustrated the sonographic features of six secretory carcinomas in adult women. Radiologic studies are not commonly used in the evaluation of breast tumors in children, so the literature does not offer secure information regarding the imaging features of secretory carcinoma in this age range (2,8).

Tognon et al. have shown that secretory carcinoma of the breast is associated with a characteristic balanced translocation, t (12;15) that creates a ETV6-NTRK3 gene fusion. Paradoxically, secretory carcinoma of the breast harbors a translocation known to be oncogenic in two other tumor types (including mesenchymal tumors), while also demonstrating true epithelial differentiation with secretory activity. Alteration of the ETV6 gene is present in both the in situ and invasive components when analyzed by fluorescence in situ hybridization (1,16-18).

This tumor can be diagnosed in comparison with Lactating adenoma occurring in breast tissue with normal underlying architecture and sometimes these changes occur and form a limited mass. Dense, cribriform, and infiltrative forms do not occur. During pregnancy and lactation, the lumen appears empty because the secretory product dissolves in water and during the process. The eosinophilic luminal secretions that were seen in the secretory carcinoma of the breast did not appear here (2,19). In granular cell tumors, immunohistochemical studies may be used to confirm the expression of cytokeratin in secretory carcinoma of the breast. Granular cell tumor and secretory carcinoma of the breast are very positive for S100 (2). Microglandular adenosis (MGA). The MGA and secretory carcinoma of the breast have some similar features that are characterized by tubules containing solid eosinophilic substances, usually negative for ER, PR, and HER2 and are very positive for S100. It has an invasive pattern, but it is not or is rarely present in secretory carcinoma of the breast metastasis and it does not cause death. MGA is usually confused with the secretory carcinoma of the breast because of the absence of a densely packed growth pattern. In one case of reported MGA, the translocated t (12,15) characteristics of secretory carcinoma of the breast were not found (2). Cystic hypersecretory carcinoma of the breast (CHC) consists of very clear cystic spaces, filled with eosinophilic secretion which is solid. These spaces are limited by cells with a few pleomorphic and cytoplasmic hyperchromatic nuclei. The nucleus may have a nucleus that is very similar to papillary thyroid carcinoma (2,13).

The presence of intracellular and extracellular secretory material that is positive on staining with periodic acid Schiff (PAS) or Alcian blue is a consistent finding (1-4,16).

Immunohistochemistry Epithelial Membrane Antigen (EMA), alpha-lactalbumin, and S100 protein are frequently expressed. Estrogen receptor (ER), progesterone receptor (PR), HER2, and p63 are negative, while E-cadherin, keratins 8 and 18, CD117, and alpha-smooth muscle actin can be expressed. Secretory carcinomas express markers typical of basal-like carcinomas; basal cytokeratin 5/6 positive in 80 %, basal cytokeratin 14 positive in 30 %, Epidermal Growth Factor Receptor (EGFR) (HER1) positive in 50 %, and CD 117 (C-Kit) positive in 70 % but maybe weak and focal (2,8,16).

The prognosis for secretory carcinoma of the breast has a low-grade clinical course and is associated with a favorable prognosis, especially in children and young adults aged < 20 years. Axillary lymph node metastases rarely involve more than three lymph nodes. Distant metastases are extremely rare (13,17,20).

CONCLUSIONS

Secretory carcinoma of the breast occurs mainly in children and young adult patients. In prepubertal women, it shows predilection for subareolar location. It also has a firm border and three patterns: microcystic, solid and tubular, which are seen in various combinations. The prognosis is good in children and adolescents, though it may recur locally or metastasize, especially in older women. Immunohistochemistry and molecular studies can help to make the diagnosis.

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