

Case report

SECRETORY CARCINOMA OF THE BREAST: A CASE REPORT WITH CYTOLOGIC AND HISTOLOGIC FINDINGS

Kornkanok Sukpan, M.D., Wanwisa Chanmuenwai, M.D.,
Surapan Khunamornpong, M.D.

Department of Pathology, Faculty of Medicine, Chiang Mai University

Abstract Secretory carcinoma is the one of the least common types of breast carcinoma. The tumor has distinctive histologic features with prominent secretory activity, similar to lactational change, and minimal nuclear atypia. Due to its rarity, the cytologic features of secretory carcinoma have been described in only a small number of reports. As the cytomorphologic features of secretory carcinoma overlap benign breast lesions with lactational change, the initial diagnosis of secretory carcinoma may be missed in some cases.

We present the cytological findings of secretory carcinoma in a 57-year-old woman with a two-year history of right breast mass. The specimen from fine needle aspiration showed hypercellularity of epithelial cells. Vacuolated secretory appearance was observed in the cytoplasm and smear background. There was only mild nuclear pleomorphism of epithelial cells. Bipolar naked nuclei (myoepithelial cells) were absent. The initial fine needle aspiration (FNA) diagnosis was atypical epithelial proliferative lesion with a secretory change and suspicion of malignancy. The diagnosis of secretory carcinoma was confirmed by excisional biopsy.

Secretory carcinoma should be included in the differential diagnosis of FNA from a breast mass with lactational change. Hypercellularity and absence of bipolar naked nuclei are important clues in the recognition of the secretory carcinoma. **Chiang Mai Med Bull 2005;44(4):161-166.**

Keywords: secretory carcinoma, breast

Secretory carcinoma (SC) is an uncommon type of breast carcinoma, first described and designated by McDivitt and Stewart in 1966 as "juvenile carcinoma".⁽¹⁾ In 1980, Tavassoli and Norris reported the largest series of 19 cases and recommended the descriptive term "Secretory carcinoma".⁽²⁾ Although SC was

originally reported as having tendency to occur in children within the first three decades of life, subsequent studies have reported its occurrence in postmenopausal women and adult males.⁽²⁻⁵⁾ Due to its rarity, the cytologic description of SC was limited to a small number of reports.⁽³⁻¹¹⁾

We present an unusual case of SC in a postmenopausal female patient and describe the morphologic findings in both the fine needle aspiration and biopsy specimen.

Case report

A 57-year-old postmenopausal woman presented with a mass in the right breast that had persisted for 2 years. Twenty-six years before, she underwent left breast resection with adjuvant radiation therapy for an unspecified type of tumor (detailed information unavailable). There was no family history of breast cancer. Physical examination showed a 3-cm circumscribed mass in the inner-upper quadrant of the right breast, without skin retraction or nipple discharge. The axillary lymph node was not palpable. Fine needle aspiration (FNA) of the right breast mass was performed.

The initial diagnosis from fine needle aspiration was atypical epithelial proliferation with secretory change, and suspicions of low grade

carcinoma. Three weeks later, the diagnosis of secretory carcinoma was confirmed by an excisional biopsy. Then, the patient underwent modified radical mastectomy with axillary lymph node dissection.

Cytologic findings

The smears from FNA were stained by using the Papanicolaou technique. The specimen was highly cellular. Numerous loosely cohesive sheets and clusters of epithelial cells were present within a background of abundant vacuolated pale cyanophilic material. Single cells and naked nuclei of similar appearance to the epithelial cells were commonly seen (Figure 1). Bipolar naked nuclei (myoepithelial cells) were absent. The cytoplasm, when preserved, showed a variable appearance of vacuolation ranging from small and uniform or foamy cytoplasm to large vacuoles that displaced the nuclei. Signet-ring-like cells were rarely seen. The nuclei were small to medium-

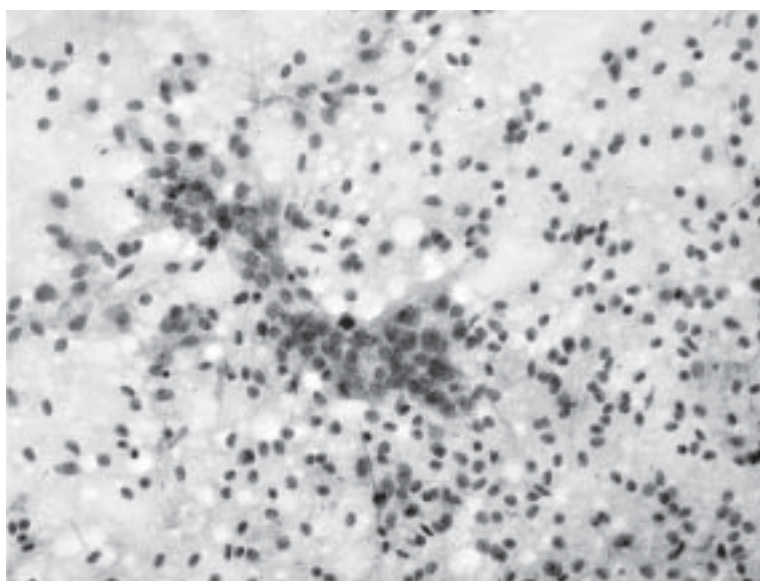


Figure 1. FNA specimen shows hypercellularity of epithelial cells. Numerous dyshesive sheets and single cells are present within abundant vacuolated pale cyanophilic material (Papanicolaou stain, x100).

sized and round to oval-shaped with small nucleoli. There was only mild nuclear pleomorphism. The nuclear membrane was smooth and thin. The nuclear chromatin was finely granular (Figure 2).

Gross pathology and histopathology

On gross examination, the specimen measuring 3.5 x 2.2 x 2.2 cm showed a well-circumscribed solid white gray mass enclosed by thin adipose tissue.

Histologically, the tumor had a pushing border with only focal extension into the adjacent fat tissue. The neoplastic cells were arranged in branching sheets and cords, with solid, papillary or microcystic pattern, separated by dense hyalinized fibrous septa. The neoplastic cells were polygonal shaped with abundant, finely granular and vacuolated cytoplasm. The nuclei were round to oval with minimal pleo-

morphism, fine chromatin and small nucleoli (Figure 3). The microcysts within epithelial cell sheets contained eosinophilic colloid-like material with clear bubbles (Figure 4). Mitoses were rare. No lymph-vascular invasion was observed. The intracellular vacuoles and extracellular material within the microcysts stained positively for alcian blue and periodic acid-Schiff (PAS) stain, with and without diastase predigestion. The mucicarmine stain was negative. Immunohistochemical stains for estrogen and progesterone receptors were negative.

The specimen from the modified radical mastectomy showed no residual tumor. All nine axillary lymph nodes were negative for malignancy.

Discussion

Secretory carcinoma of the breast is an unusual neoplasm and has been recognized as a

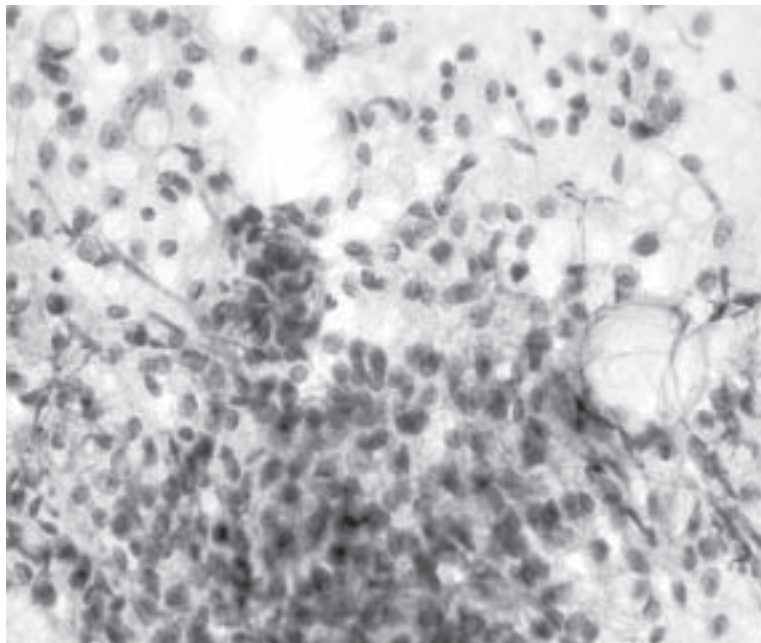


Figure 2. The neoplastic cells in the FNA specimen show vacuolated cytoplasm and mild nuclear pleomorphism. The nuclei show smooth and thin nuclear membrane with finely granular chromatin and small nucleoli. The signet-ring-like cell is noted (upper left corner) (Papanicolaou stain, x200).

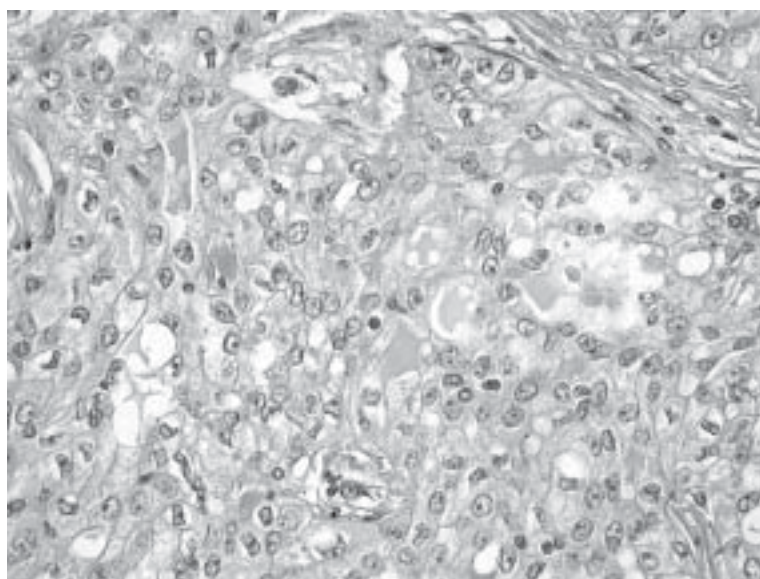


Figure 3. Histology of the biopsy specimen; the neoplastic cells are arranged in a solid pattern with microcysts. These cells are polygonal-shaped and show abundant granular or vacuolated cytoplasm. Nuclear atypia is minimal (Hematoxylin-eosin stain, x200).

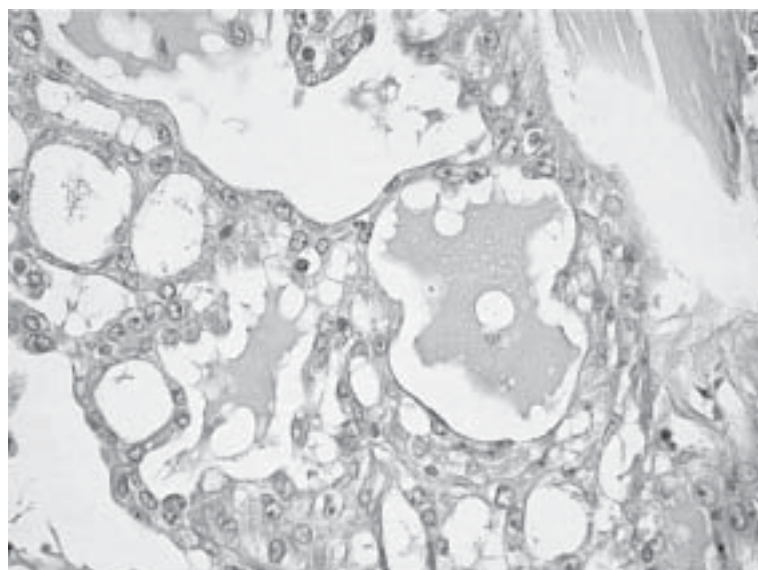


Figure 4. Microcysts containing eosinophilic colloid-like material with clear bubbles (Hematoxylin-eosin stain, x200).

distinct entity only within the last three decades.⁽¹⁾ The histologic features of SC have been extensively described in the literature, but

the cytological findings were reported in only a small number of cases.⁽³⁻¹¹⁾

The differential diagnoses of SC include a

Table 1. Cytologic features of secretory carcinoma of the breast

High cellularity*
Single cell or small loosely cohesive group*
Round to polygonal shaped cells*
Abundant granular or foamy cytoplasm*
Large cytoplasmic vacuole *
Signet-ring-like cells*
Mucous-globular structure
Minimal atypia*
Rare mitosis*
Absence of bipolar naked nuclei*

* The features were observed in this case

wide range of breast lesions from benign change or tumors associated with pregnancy and lactation to various types of breast carcinoma containing vacuoles such as lobular, mucinous, tubular, adenoid cystic, signet ring, lipid-rich and metastatic carcinoma. The reported cytologic features of SC are summarized in Table 1.⁽³⁻¹¹⁾ Typical features include highly cellular material, mild nuclear pleomorphism, and the presence of prominent intracytoplasmic vacuolation, which is the cytologic hallmark of SC. The presence of grape-like clusters of mucous globular structures has been considered a distinctive feature for distinguishing SC from other benign and malignant breast lesions.⁽⁶⁾ However, mucous globular structures were not detected in several reported cases, including ours.

The cytologic features of SC may almost completely overlap those of lactational change or lactating adenoma. It is not surprising that both over- and under-diagnosis have been reported.^(5,13,14) Important diagnostic clues are high cellularity of the FNA cytologic material and absence of bipolar naked nuclei. These features are unusual for benign conditions.^(5,12) In our cases, the high cellularity of the FNA specimen and absence of bipolar naked nu-

clei, in combination with the clinical data of breast mass in postmenopausal age, suggested malignancy. The differential diagnosis between SC and lactational change or lactating adenoma in the FNA specimen, could be very difficult in young patients, particularly those with a recent history of pregnancy or lactation. Excisional biopsy should be performed to confirm the diagnosis.

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มะเร็งเต้านมชนิด secretory carcinoma:

รายงานลักษณะทางเซลล์วิทยาและจุลพยาธิวิทยาในผู้ป่วย 1 ราย

กรรณก สุขพันธ์, พ.บ., วันวิสา จันทร์หมื่นไวย, พ.บ., สุรพันธุ์ คุณอมรพงศ์, พ.บ.

ภาควิชาพยาธิวิทยา คณะแพทยศาสตร์ มหาวิทยาลัยเชียงใหม่

บทคัดย่อ Secretory carcinoma เป็นมะเร็งเต้านมที่พบได้น้อยมาก มีลักษณะเด่นทางจุลพยาธิวิทยาได้แก่การสร้างสารน้ำคล้ายน้ำนม (secretory change) และความผิดปกติของ nucleus ในระดับต่ำ เนื่องจากลักษณะทางเซลล์วิทยาของมะเร็งมีส่วนคล้ายกับการเปลี่ยนแปลงช่วงสร้างน้ำนม (lactational change) และมีรายงานลักษณะทางเซลล์วิทยาก่อนข้างจำกัด จึงอาจทำให้การวินิจฉัยทางเซลล์วิทยาผิดพลาดเป็นรอยโรคของเต้านมชนิดไม่ร้าย (benign)

รายงานนี้นำเสนอผู้ป่วยหญิงอายุ 57 ปี มีประวัติก้อนที่เต้านมขวามา 2 ปี ลักษณะทางเซลล์วิทยาของสิ่งส่งตรวจจากการเจาะดูดด้วยเข็มเล็กพบช่องว่างใน cytoplasm ของเซลล์และในพื้นที่หลังร่วมกับมีความผิดปกติของ nucleus ในระดับต่ำ ซึ่งได้รับการวินิจฉัยเป็นรอยโรคที่มี atypical epithelial proliferation ร่วมกับ secretory change ซึ่งสงสัยว่าเป็นมะเร็ง ผลชิ้นเนื้อศัลยกรรมยืนยันการวินิจฉัย เป็น secretory carcinoma

ในการวินิจฉัยสิ่งส่งตรวจจากการเจาะดูดรอยโรคที่มี lactational change ควรคำนึงถึง secretory carcinoma ด้วย ลักษณะสำคัญที่ช่วยการวินิจฉัย คือ พบเซลล์ผิดปกติจำนวนมาก (hypercellularity) และไม่พบ bipolar naked nuclei *เชียงใหม่เวชสาร* 2548;44(4):161-166.

คำสำคัญ: secretory carcinoma มะเร็งเต้านม