



Signet Ring Cell Carcinoma of the Breast: About A Case and Literature Review

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Abstract

Signet ring cell carcinoma of the breast is a rare and aggressive tumor. We report the case of a 44-year-old woman with signet ring cell carcinoma of breast who was treated in the gynecology and medical oncology departments of HASSAN II Hospital University in Fez. She received a neoadjuvant chemotherapy with the anthracyclines and taxanes. After she had radical mastectomy and radiotherapy. Currently she has remained in good control.

Keywords: breast-signet ring cell carcinoma

Introduction

Signet ring cell carcinoma (SRCC) of breast is a rare and aggressive entity. It is classified under "mucin-producing carcinomas" in 2003 WHO classification.^[1-2] This histological type can be found in association with infiltrating lobular carcinoma, ductal carcinoma but also in its pure form which remains extremely rare.^[3-4]

Case Presentation

We report the case of a 44-year-old woman, who has had a nodule on the right breast evolving for four months. Clinical examination has objectified a nodule of the upper quadrant junction making 7cmx5 cm mobile compared in both planes (figure 1). The contralateral breast was normal.



Figure 1: Clinical nodule of the breast

The echomammography had objectified an irregular tissue mass of the superior external quadrant classified ACR 5. The contralateral breast was normal. A biopsy of the right breast lesion was performed.

Microscopic examination had shown cohesive tumor cells with a round eccentric nucleus and an abundant clear vacuolar cytoplasm realizing the appearance of cells "signet ring" (figure 2) (figure 3)

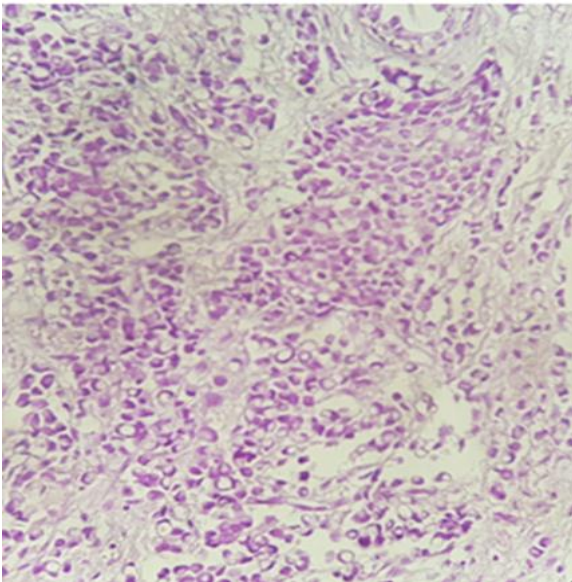


Figure 2: HESX200: carcinomatous proliferation in layers of isolated cells

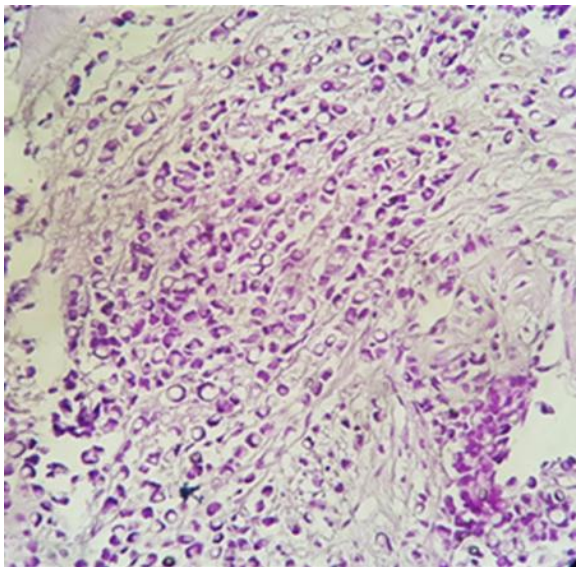


Figure 3: HESX400: signet ring cells

An immunohistochemical study had shown an expression of anti CK7 and anti CK 20 antibodies, without an expression of anti CDX2. Estrogen and progesterone receptors were 40%, HER2 was scored 0 and KI 67 was 10%.

The pathological study concluded in an invasive breast carcinoma with signet ring differentiation. A TAP CT scan was normal.

The patient received three cycles of anthracyclines and taxanes, then she had a right radical mastectomy. Currently she has remained in good control.

Discussion

Signet ring cell carcinoma was first described by Frantz in 1938 and then by Saphir in 1941 who considered it to be a variant of mucinous carcinomas (colloids).^[5] Next came Steinbrecher and Silverberg who considered this type histological as distinct with aggressive clinical and pathological features.^[6]

The prevalence of signet ring cell carcinomas varies between 2 to 4.5% in all breast cancers.^[7-8]

It is a mucin producing carcinoma with a high metastatic potential, which is most often found in association with infiltrating

lobular carcinoma.^[2,10] The pure form remains an extremely rare entity.^[10-11]

The percentage of signet ring cells is important in the prognosis. Studies have shown that if the percentage of these cells is greater than 10% in stage I of infiltrating lobular carcinoma, this is considered a factor of poor prognosis.^[12-13]

In order to differentiate between a signet ring cell carcinoma of the breast from a metastasis of SRCC, we use a protein (GCPFP-15) which represents a sensitive and positive marker in a signet ring cell carcinomas of the breast and which is negative in the gastrointestinal localizations.^[14]

Primary SRCC of the breast is generally positive for CK7 and negative for CK20, gastrointestinal SRCCs are generally positive for CK 20 and negative for CK7; ERs can be expressed in 20% of breast SRCC but can be negative.^[15]

There are currently new markers: MUC 1 and MUC 2. MUC 1 is usually expressed by breast adenocarcinoma while gastrointestinal adenocarcinomas mainly express MUC 2.^[16-17]

It has been reported that in order to distinguish between SRCCs of the breast cancer and colon cancer SRCCs, MUC 1 and ER were used as markers in SRCC breast cancer while CDX2 and MUC 2 were used in colon cancer and gastric SRCCs.^[18]

Treatment has not been reported frequently in the literature due to the rarity of this entity.

Conclusion

Signet ring cell carcinoma of the breast remains a rare tumor with a poor prognosis and a high metastatic risk. It must be differentiated from metastases of SRCCs to get better results.

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