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Mucinous Colloid Carcinoma of the Breast: A Case Report

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Abstract

We report the case of a mucinous colloid carcinoma of the breast. We managed a 63-year-old woman with a right retroareolar lesion, clinically classified as cT2 N0 M0 and radiologically suspicious. Histological analysis (biopsy) concluded it was a grade I mucinous colloid carcinoma of the breast according to the Scarff-Bloom-Richardson (SBR) grading system. Additional treatments included partial mastectomy, lymph node dissection, radiotherapy, and hormone therapy. Colloid carcinoma is rare, accounting for only 1% to 6% of all breast cancers. These tumors affect a specific population and have a better prognosis compared to other types of breast cancer. Through this case study and a review of the literature, we will discuss the main anatomical, clinical, and evolutionary characteristics of this rare form of breast cancer.

Subject Areas

Oncology

Keywords

Breast Cancer, Colloid Carcinoma, Immunohistochemistry, Radiotherapy

1. Introduction

Mucinous carcinoma of the breast is a rare histological variant that accounts for 1% to 4% of all breast cancers [1]. Two forms with different prognoses are distinguished: mixed mucinous carcinoma, where the carcinomatous and mucinous components are intertwined, and pure mucinous carcinoma, which has a favorable prognosis. In pure mucinous carcinoma, the mucus surrounds the tumor tissue, creating a mechanical barrier that reduces cellular invasion, making this form less aggressive [2].

Objective: To describe the main anatomical, clinical, and evolutionary characteristics of this rare form of breast cancer.

2. Observation

A 63-year-old patient, treated in 2011 for stage IIIA nodular sclerosing Hodgkin's lymphoma, received 2 cycles of ABVD and was then lost to follow-up.

She was admitted for management of a right breast nodule that had been evolving for 6 months before her admission. An ultrasound-mammography revealed a mass at the junction of the outer quadrants of the right breast, approximately 2 cm, classified as ACR 4B on the right and ACR 1 on the left (Figure 1) (Figure 2) (Figure 3).

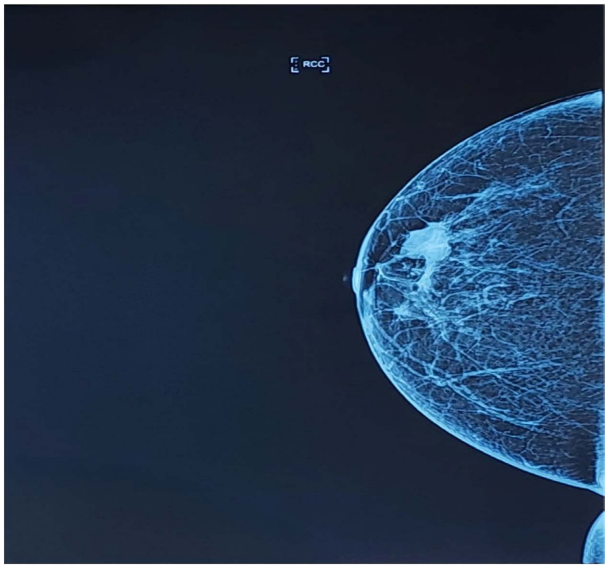

Figure 1. Mammography: Right craniocaudal image.

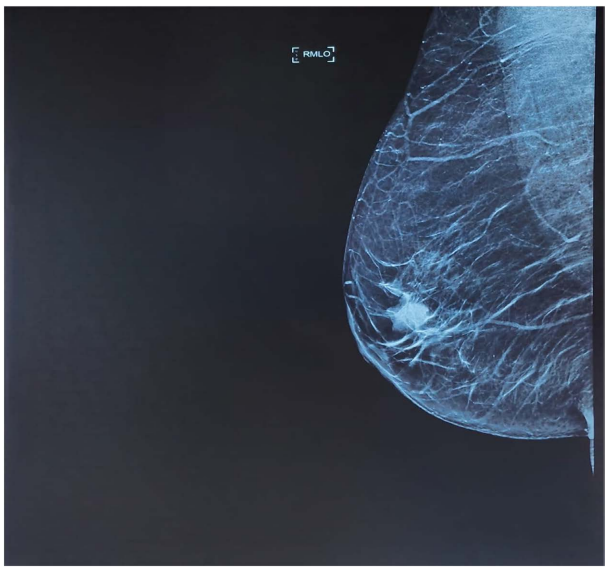

Figure 2. Mammography right mediolateral oblique image.

Figure 3. Ultrasound image at the junction of the outer quadrants of the right breast.

The biopsy of the nodule indicated a grade I mucinous colloid carcinoma according to the SBR system, without endovascular emboli or perineural infiltration, and no intraductal component. Immunohistochemistry analysis showed estrogen receptors with 90% staining, progesterone receptors with 20% staining, a KI67 proliferation index estimated at 3%, and a negative HER2 test (score 1+) (**Figure 4**) (**Figure 5**) (**Figure 6**). An extension workup with a thoracic-abdominal-pelvic CT scan revealed no abnormalities.

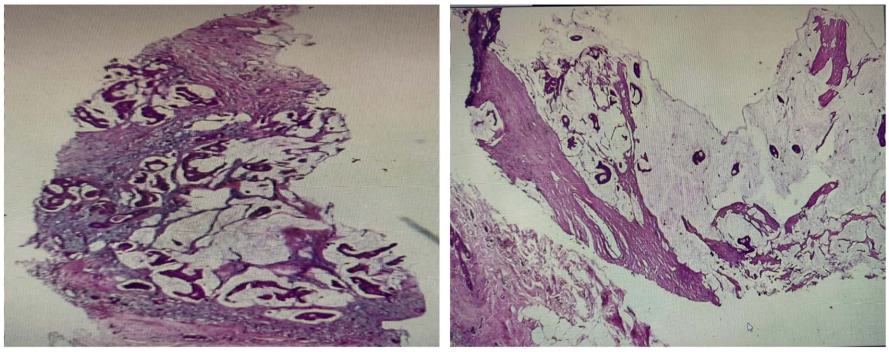

Figure 4. Low-power microscopic view showing carcinoma cells within the mucus.

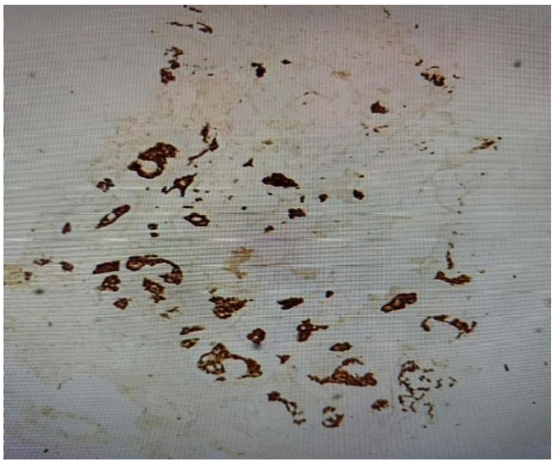

Figure 5. Nuclear immunostaining demonstrates estrogen receptors.

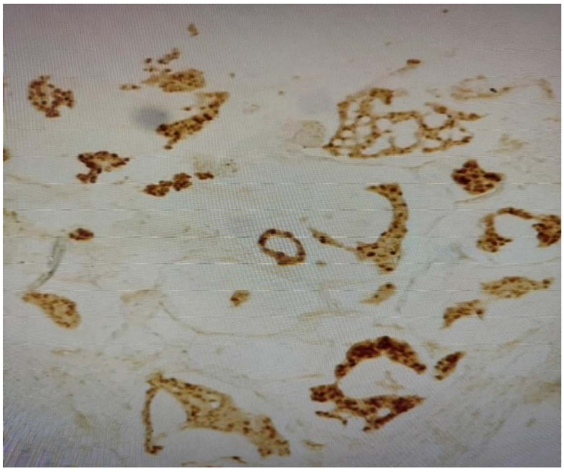

Figure 6. Nuclear immunostaining showing progesterone receptors.

A right lumpectomy with sentinel lymph node biopsy was performed, and the histological result showed a focus of approximately 3 cm of invasive mucinous carcinoma, grade I (1 + 1 + 2) according to SBR, without intraductal component or peritumoral vascular emboli. The lateral and deep excision margins were free of tumor elements, and the sentinel lymph nodes were free of tumor (0N + /2N). The tumor was classified as pT2N0M0. Radiotherapy was administered at a dose of 40.05 Gray in 15 fractions of 2.67 Gray per fraction, with a boost to the tumor bed at 10.68 Gray in 4 fractions (**Figure 7**). The patient is currently on hormone therapy with an aromatase inhibitor and is under surveillance with a 13-month follow-up.

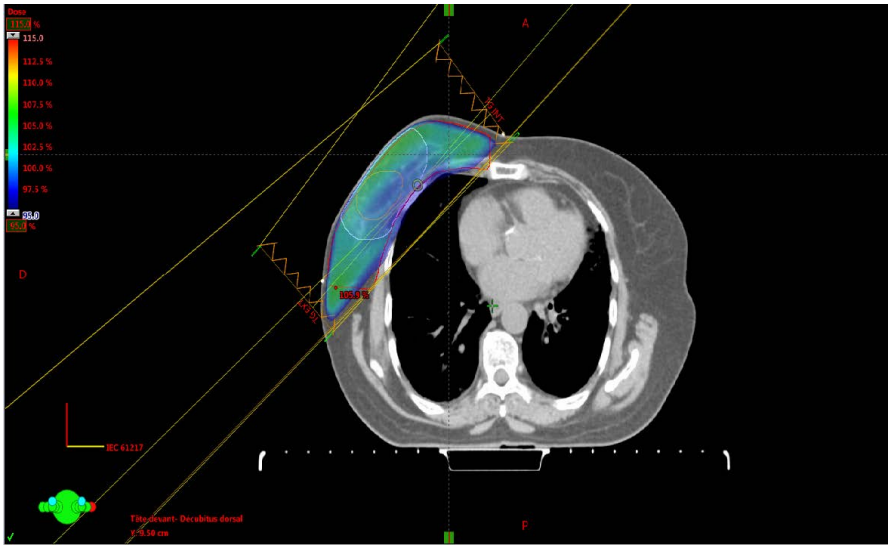

Figure 7. Dosimetric image

3. Discussion

Colloid carcinoma is a particular histological type of breast carcinoma, first described in 1826 by Geschickter [2]. It most commonly develops in women aged

60 to 70 years. The most frequent reason for consultation is a palpable breast nodule (in over 80% of cases), as was the case with our patient [3] [4] [5]. The most common location is in the upper outer quadrant [5] [6] [7]. The reported average tumor size is 1.5 cm with extremes ranging from 0.3 to 19 cm [2] [8]. In our case, the tumor size was 2 cm. Most tumors (96%) were classified as stage T1 or T2 according to the TNM classification [8]. Palpable lymphadenopathy is more common in mixed colloid carcinoma than in the pure form [2].

The typical appearance is described as a "cotton ball" due to the tumor's pushing back of surrounding tissue without actual invasion [2]. Mixed colloid carcinoma appears as a mass with irregular contours and poorly defined, sometimes speculated, margins with glandular tissue [5] [9] [10].

Microcalcifications are rare and are usually associated with the presence of associated in situ carcinoma, appearing only in the ductal component [2] [6]. Mammography may be normal in 5% to 15% of cases [6]. In our case, mammography revealed scattered microcalcifications and histological examination showed the presence of an intraductal carcinoma component.

Ultrasound and mammography can thus be invaluable in diagnosing pure and mixed colloid carcinoma [11]. The ultrasound appearance differs depending on the type of colloid carcinoma; the pure form presents as a lobulated, iso- or hypoechoic lesion with well-defined borders, difficult to differentiate from surrounding fatty tissue, and showing posterior acoustic enhancement. This enhancement is explained by the significant amount of water within the tumor and the transmission of ultrasound through the mucus. The mixed type appears as a heterogeneous hypoechoic mass with posterior acoustic attenuation, reflecting the infiltrating nature of the tumor [6].

Regarding the immunohistochemical study, hormonal receptors are often positive [12], as with our patients.

Treatment primarily relies on surgery, chemotherapy, radiotherapy, and adjuvant hormone therapy. Their indications are similar to those of other breast carcinomas [13]. Conservative surgical treatment is recommended for T1 and T2 tumors followed by radiotherapy. Exclusive radiotherapy may be attempted in inoperable cases for local or general reasons [2] [13]. Hormone therapy is indicated for tumors with positive hormonal receptors [6] [11].

The prognosis of mucinous colloid carcinoma is relatively favorable in its pure form [6] [9]. Tumor size does not seem to impact survival, and the number of axillary lymph nodes involved was the only significant predictor of death due to the disease [14].

4. Conclusion

Mucinous colloid carcinoma of the breast is rare. Its clinicopathological characteristics are often favorable. Therapeutic management aligns with that of other histological types of breast cancer. The prognosis is often favorable compared to other common types of infiltrating breast cancers.

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Tse, G.M.K., *et al.* (2004) Neuroendocrine Differentiation in Pure-Type Mammary Mucinous Carcinoma Is Associated with Favorable Histologic and Immunohistochemical Parameters. *Modern Pathology*, **17**, 568-572. https://doi.org/10.1038/modpathol.3800092

[2] Chtourou, I., Makni, S.K., Bahri, I., Abbes, K., Sellami, A., Fakhfakh, I., *et al.* (2009) Colloid Carcinoma of the Breast: Seven Cases Anatomoclinical Study *Cancer/Radiothé*rapie, **13**, 37-41. https://doi.org/10.1016/j.canrad.2008.06.004

[3] Benchellal, Z., Wagner, A., Harchaoui, Y., Huten, N. and Body, G. (2002) Breast Cancer in the Male: A Report of 19 Cases. *Annales de Chirurgie*, **127**, 619-623. https://doi.org/10.1016/S0003-3944(02)00816-7

[4] Giordano, S.H., Cohen, D.S., Buzdar, A.U., Perkins, G. and Hortobagyi, G.N. (2004) Breast Carcinoma in Men. *Cancer*, **101**, 51-57. https://doi.org/10.1002/cncr.20312

[5] Kouach, J., Elhassani, M., Elfazzazi, H., Hafidi, R., Quamouss, O., Rahali Moussaoui, D., *et al.* (2009) Mucinous Breast Carcinoma Multifocal. *Imagerie de la Femme*, **19**, 59-62. https://doi.org/10.1016/S1776-9817(09)71583-4

[6] Haddad, H., Benchakroun, N., Acharki, A., Jouhadi, H., Tawfiq, N., Sahraoui, S., *et al.* (2006) Le carcinome colloïde du sein. *Imagerie de la Femme*, **16**, 119-123. https://doi.org/10.1016/S1776-9817(06)73039-5

[7] Cherif Idrissi El Ganouni, N., Dami, K., Akka, L., Nagham, E.M., El Abbassi, H., Attar, H., *et al.* (2007) Aspect particulier d'un carcinome mucineux pur du sein. *Imagerie de la Femme*, **17**, 46-48. https://doi.org/10.1016/S1776-9817(07)88607-X

[8] Komenaka, I.K., El-Tamer, M.B., Troxel, A., Hamele-Bena, D., Joseph, K., Horowitz, E., *et al.* (2004) Pure Mucinous Carcinoma of the Breast. *The American Journal of Surgery*, **187**, 528-532. https://doi.org/10.1016/j.amjsurg.2003.12.039

[9] Ishikawa, T. (2002) Locally Advanced Mucinous Carcinoma of the Breast with Sudden Growth Acceleration: A Case Report. *Japanese Journal of Clinical Oncology*, **32**, 64-67. https://doi.org/10.1093/jjco/hyf012

[10] Cherif Idrissi El Ganouni, N., Dami, K., Akka, L., Nagham, E.M., El Abbassi, H., Attar, H., *et al.* (2007) Aspect particulier d'un carcinome mucineux pur du sein. *Imagerie de la Femme*, **17**, 46-48. https://doi.org/10.1016/S1776-9817(07)88607-X

[11] Stita, W., Trabelsi, A., Jaidene, L., Ben Abdelkerim, S., Hmissa, S., Sriha, B., *et al.* (2008) Le carcinome mucineux pur du sein: A propos de 18 cas. *Imagerie de la Femme*, **18**, 187-190. https://doi.org/10.1016/S1776-9817(08)77198-0

[12] Komenaka, I.K., El-Tamer, M.B., Troxel, A., Hamele-Bena, D., Joseph, K., Horowitz, E., *et al.* (2004) Pure Mucinous Carcinoma of the Breast. *The American Journal of Surgery*, **187**, 528-532. https://doi.org/10.1016/j.amjsurg.2003.12.039

[13] Paramo, J.C., Wilson, C., Velarde, D., Giraldo, J., Poppiti, R.J. and Mesko, T.W. (2002) Pure Mucinous Carcinoma of the Breast: Is Axillary Staging Necessary? *Annals of Surgical Oncology*, **9**, 161-164.https://doi.org/10.1007/BF02557368

[14] Komenaka, I.K., El-Tamer, M.B., Troxel, A., Hamele-Bena, D., Joseph, K.A., Horowitz, E., Ditkoff, B.A. and Schnabel, F.R. (2004) Pure Mucinous Carcinoma of the breast. *The American Journal of Surgery*, **187**, 528-532. https://doi.org/10.1016/j.amjsurg.2003.12.039