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# Pure Colloid Carcinoma of the Breast: One Case Report

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## Abstract

Colloid carcinoma of the breast, also known as mucinous or gelatinous carcinoma, is a rare histological form of cancer accounting for 1 to 6% of all breast cancers. It is characterized by the production of extracellular mucus. Histologically, 2 types of colloid carcinoma are distinguished: pure colloid carcinoma, in which there is no infiltrating ductal carcinoma component, and mixed colloid carcinoma, which associates foci of infiltrating ductal carcinoma with the colloid component.

**Keywords:** Pure Colloid Carcinoma; Surgery-Case Report; Breast Cancer

**Abbreviations:** MC: Mucinous carcinoma, WHO: World Health Organization

## Introduction

Mucinous carcinoma (MC) of the breast or colloid carcinoma is a rare histological form, accounting for 1 to 7% of all infiltrating carcinomas of the breast **[2]**. According to the World Health Organization (WHO), it is defined by the presence of malignant mucus-secreting tumor cells floating in mucus. Most authors agree in distinguishing two types of colloid carcinoma: pure colloid carcinoma, in which there is no or a minority ≤ 10% infiltrating ductal carcinoma component, and mixed colloid carcinoma, which associates foci of infiltrating ductal carcinoma alongside the colloid component **[3]**. This subdivision is justified by the prognosis: the pure form is characterized by the presence of tumor tissue completely surrounded by abundant extracellular mucus, forming a mechanical barrier that attenuates cell invasion, making this form less aggressive and giving it a more favorable prognosis than the mixed form, which is similar to that of invasive ductal carcinoma **[4]**.

## Case presentation

51-year-old patient with a pathological history of luminal infiltrating B breast carcinoma of the left breast, HER-negative, treated with surgery radiotherapy chemotherapy hormonotherapy, admitted for management of a left breast nodule that had been evolving for 3 months. Clinical examination revealed a 2x2 cm nodule at the junction of the upper right quadrants, clinically classified T1N0MO. Mammography revealed a well-limited, rounded opacity in the right upper quadrant, with irregular, blurred contours and fine, heterogeneous spicules, with no microcalcifications. This opacity is classified as ACR 4 **(Figure1)**. Complementary ultrasonography revealed a poorly defined, spiculated, hypoechoic, heterogeneous lesion in the right upper external quadrant, measuring20 mm in long axis, with

no significant adenopathy **(Figure 2)**.

Microbiopsy of the nodule showed pure mucinous colloid carcinoma of SBR grade I without vascular emboli. Extension workup was unremarkable. The nodule was treated conservatively, with histological results indicating pure mucinous carcinoma, SBR grade I, measuring 1.4 cm, and no carcinoma in situ **(Figure 3)**. Lymph node dissection yielded 17 lymph nodes, 08 of which were metastatic without vascular emboli or capsular rupture. The tumor was classified as p T1N2Mo. Estrogen receptor labelling was 80%, progesterone receptor labelling was 100%, HER2 was negative, and Ki 67 was 28%. Chemotherapy has been started and radiotherapy and hormone therapy are planned.


**Figure1:** Mammographic appearance of the lesion.

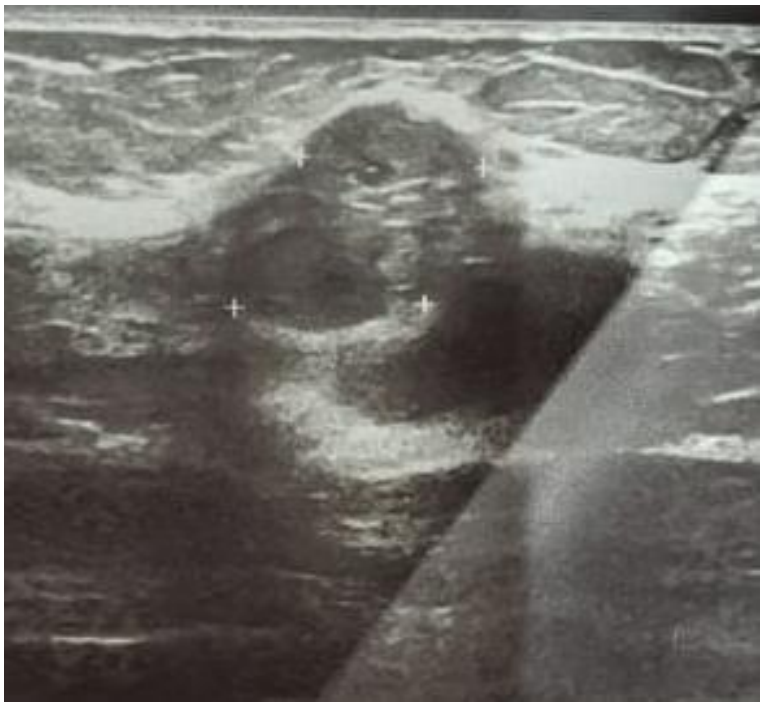

**Figure 2:** Ultrasound appearance of the lesion

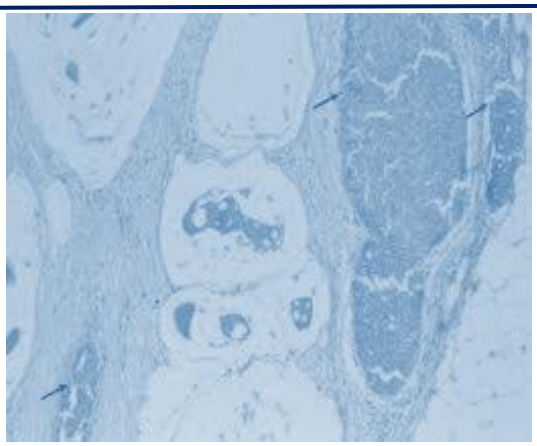

**Figure 3:** Histological aspect of a colloid carcinoma of the breast.

## Discussion

Colloid carcinoma is a rare histological entity of breast carcinoma, first described in 1982 by Geschickter **[5]**. It is a histological type that accounts for 7% of all malignant tumors of the breast after age 75 and 1% before age 35 **[6]**.

In the literature, no significant difference has been found between colloid carcinoma, tubular carcinoma and breast CCI **[7]**. Pure colloid carcinomas often present as well-limited, mobile, even lobulated masses **[8]**, which may thus be mistaken for benign formations; a sensation of suffler, crease or fluctuation is reported when colloid carcinomas of the breast are palpated **[9]**. The average tumor diameter is 1.5 cm, with extremes ranging from 0.3 to 19 cm [14]. The majority of tumors (96%) were TNM stage T1 or T2 **[9]**.

On mammography, the presence of mucin translates into a relatively well-defined, low-density lobular mass. Occasionally, they may have partially faded or obscured margins. Up to 20% of lesions may be occult on mammography.

Calcification may be rare in pure mucinous types. On ultrasonography, mucinous carcinomas often show mixed echogenicity with mixed solid and cystic components, distal enhancement and microlobulated margins are commonly found in mucinous carcinomas. A mixed mucinous carcinoma tends to be more hypoechoic. On MRI, they are one of the few cancers to have very high signal intensity on T2-weighted images involving the mucinous component, compared with other malignant breast tumors **[10]**.

Lymph node metastases in pure colloid carcinomas of the breast are their frequency increases with tumor size. Immunohistochemical studies of hormone receptors for estrogen and progesterone have often revealed a strong presence, particularly of estrogen (91% of cases) **[11]**.

Treatment is based on surgery with or without adjuvant chemotherapy and hormone therapy. Conservative surgical treatment (lumpectomy) is recommended for T1 and small T2 cases, followed by radiotherapy **[12]**. Partial and accelerated irradiation of the breast is currently the most recommended after conservative surgery **[3]**. Exclusive radiotherapy may be attempted in inoperable forms for local or general reasons **[12]**. Poortmans **[12]** reported a 70% reduction in the risk of locoregional recurrence in patients treated with irradiation, irrespective of age, tumour characteristics and systemic administration of treatment.

Most authors agree on the favorable evolution of pure colloid carcinoma compared to other forms of breast malignancy, in particular ductal carcinoma which is by far the most common histological type **[11]**. The onset of metastases in pure colloid carcinomas is delayed late. The average time to metastasis is ten years **[13]**.

## Conclusion

The distinction between pure and mixed colloid carcinoma is an important one, as the therapeutic attitude and prognostic impact depend on it. The prognosis of the mixed form, which is similar to that of infiltrating ductal carcinomas, is poorer than that of the pure form. Overall survival of women with mucinous carcinoma is better than that of infiltrating carcinoma, and surgery remains the best 1st-line therapy.

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