

## Carcinoma ductal in situ arising in a fibroadenoma: report of a rare case

### *Carcinoma ductal in situ associado à fibroadenoma: relato de caso*

Anna Carolina Pereira Jácome<sup>1</sup>; Bárbara Mendes Pinto<sup>2</sup>; Érika Monteiro Pinheiro Mourão<sup>1</sup>; Fábila Silveira Beraldo<sup>1</sup>; Luís Cláudio dos Santos<sup>1</sup>

#### ABSTRACT

Although fibroadenoma is one of the most common lesions of the breast, its correlation with malignant changes is rare. When it occurs, the clinical presentation is similar to typical fibroadenomas, anatomopathological diagnosis is after surgery and treatment goes according to the carcinoma histological type. A case of a 52-year-old woman is presented, with an impalpable nodule in the right breast, diagnosed from screening exams. Core-biopsy suggested carcinoma ductal in situ developed within fibroadenoma, confirmed in the postoperative anatomopathological analysis. Treatment and follow-up followed as established in the literature for carcinoma in situ. Due the low incidence, there are poor scientific evidence regarding the diagnosis, treatment and prognosis of this type of injury. Therefore, presenting cases of Carcinoma ductal in situ arising in a fibroadenoma to the scientific community is so relevant.

**Keywords:** Carcinoma ductal in situ. Fibroadenoma. Breast cancer.

#### RESUMO

Apesar de fibroadenoma ser uma das lesões mais comuns da mama, sua correlação a alteração maligna é rara.<sup>1,2,3,5,7</sup> Quando ocorre tem apresentação clínica similar a dos fibroadenomas típicos, diagnóstico anatomopatológico em geral pós-cirúrgico e tratamento conforme do carcinoma do mesmo tipo histológico isolado.<sup>1,2,3,4,6</sup> Apresentamos caso de mulher de 52 anos, apresentando em propedêutica investigativa nódulo em mama direita. Core-biopsy sugeriu carcinoma ductal in situ desenvolvido dentro de fibroadenoma, confirmado em análise anatomopatológica pós-operatória. Tratamento e seguimento se deu conforme já estabelecido pela literatura para carcinoma in situ. Devido baixa incidência, há poucas evidências científicas quanto ao diagnóstico, tratamento e prognóstico desse tipo de lesão. Portanto, apresentar à comunidade científica casos de carcinoma inclusos a fibroadenoma se faz relevante.

**Palavras-chave:** Carcinoma ductal in situ. Fibroadenoma. Câncer de mama.

<sup>1</sup> Mastologia, Hospital Felício Rocho, Belo Horizonte, MG, Brasil.

<sup>2</sup> Ginecologia e Obstetrícia, Maternidade Odete Valadares, Fundação Hospitalar do Estado de Minas Gerais, Belo Horizonte, MG, Brasil.

#### Corresponding author:

Anna Carolina Pereira Jácome

E-mail: annacarolinapj@gmail.com

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## INTRODUCTION

Fibroadenoma is the most common breast cancer among young women. It can occur at any age. Nevertheless, the maximum peak of incidence are the second and third decades of life, since it is responsive to hormones<sup>1,2,3,5,7</sup>. Ultrasonography presents itself as a nodule with regular and defined contours with an orientation of a larger axis parallel to the skin. It has a biphasic composition of stromal and epithelial components and can be considered simple or complex depending on the histological characteristics<sup>2,4,6</sup>. Those that include cysts, sclerosating adenosis, epithelial calcifications or apocrine papillary metaplasia are said to be complex and are related to a greater potential for malignancy<sup>4,5,6</sup>. Anyway, fibroadenoma is not considered a premalignant lesion and, therefore, observational conduct can be appropriate<sup>2,4</sup>.

Malignant changes associated with fibroadenoma are rare, having a prevalence of 0.02 to 2.9% reported by the scientific literature, and an incidence of less than 1% by most of the studies<sup>1,2,3,4,6</sup>. When it occurs, the diagnosis is histopathological, typically after excision, since the clinical presentation is similar to that of fibroadenomas that occur without another alterations<sup>1,2,3,7</sup>. Attention should be paid to this possible diagnosis, especially in women of older age, unique lesion and poorly definition by ultrasound or physical examination<sup>4,6,7</sup>. Carcinoma in situ is the predominant type of malignancy that appears within a fibroadenoma<sup>4,5,6</sup>.

## CASE REPORT

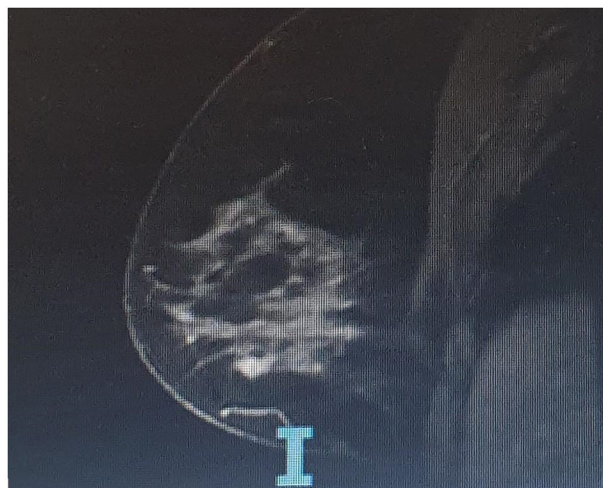
A 52-year-old, healthy, post-menopausal woman with no relevant risk factors for breast cancer. By screening exams, the mammogram showed a suspicious, solid, irregular nodule with indistinct margins in a super-medial quadrant of the left breast (BI-RADS 4), corresponding to breast ultrasound (also BI-RADS 4). On physical examination, eutrophic and symmetrical breasts, with no changes to dynamic or static inspection, without any abnormalities identified on palpation, but with high breast density, also evidenced by the described tests.

In this scenario view, for better investigation, it was opted for nuclear magnetic resonance of the breast. This confirmed spiculated, non circumscribed and nodular contrast-enhanced in the upper-medial quadrant of the left breast at 10 o'clock, 6cm away from the papilla, measuring 10x10x8mm, in correspondence to mammographic and ultrasound findings. As a new finding, an oval, circumscribed nodule located in the bottom-lateral quadrant of the right breast, at 7 o'clock, 4,3cm apart from the papilla, measuring 9x7x4mm (Figure 1).

Based on these findings, second-look breast ultrasound was performed, confirming the lesions. On the left, a solid, heterogeneous nodule, poorly defined in the super-medial quadrant and on the right, a dense nodule with well-defined contours and parallel to the skin in the inferior-lateral quadrant.

The patient underwent, then, to a core-biopsy guided by ultrasound bilaterally. According to the suspect, the histology of a lesion with typically malignant characteristics of the left breast showed grade I invasive carcinoma associated with carcinoma ductal in situ. Surprisingly, in the other hand, the biopsy of the nodule on the right breast, diagnosed by magnetic resonance and confirmed by the second look ultrasound (Figure 2), showed intra-ductal carcinoma included in the fibroadenoma.

**Figure 1.** Oval, circumscribed nodule located in the inferolateral quadrant of the right breast, primarily diagnosed on breast magnetic resonance imaging.



Source: Authors

**Figure 2.** Second look ultrasonography: oval, circumscribed right breast nodule located in the inferolateral quadrant, whose post-surgical diagnosis confirmed ductal carcinoma in situ inserted into fibroadenoma.



Source: Authors

Therefore, surgical propaedeutic followed up to setorectomy by stereotaxic marking of both breasts and sentinel lymph node biopsy on the left. Operative procedure was uneventful.

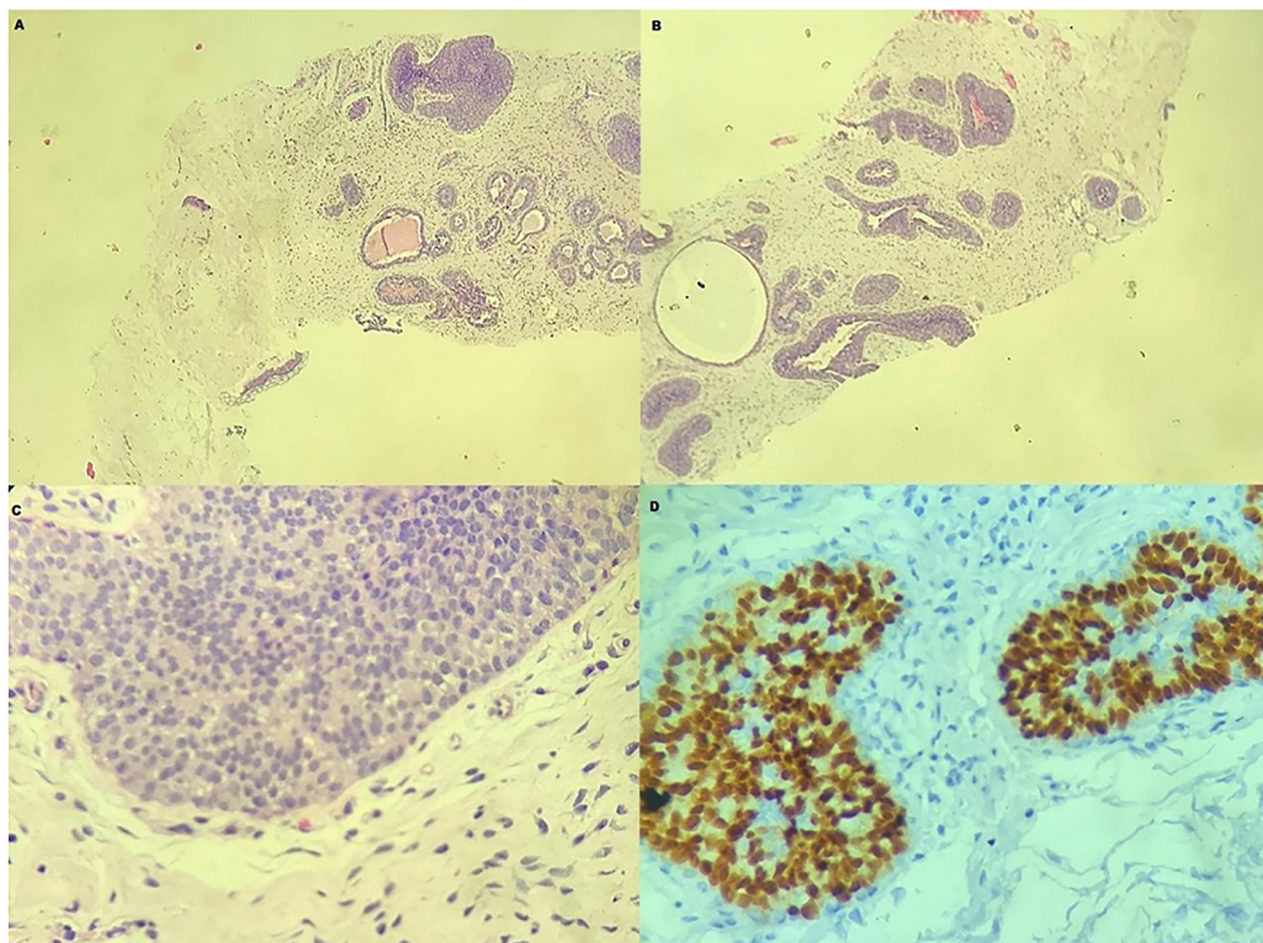
The anatomo-pathological confirmed the findings of core-biopsy. The left lesion was in fact a tubular carcinoma associated with cribriform and papillary carcinoma in situ, and there was four free sentinel lymph nodes.

The right lesion, which really matters in the present case report, was also consistent with the biopsy. A rare lesion of carcinoma ductal in-situ measuring 6mm was arising within fibroadenoma. It has intermediate grade and there was no compromised margins (Figure 3a, 3b, 3c and 3d).

## DISCUSSION

Although fibroadenomas are typically benign and not considered a risk for malignancy, other lesions can develop within them. The carcinoma included in fibroadenoma is rare and has incidence of less than 1%.

**Figure 3.** a) and b) intraductal carcinoma in situ of 9mm in the largest diameter involving fibroadenoma; c) greater increase showing ductal carcinoma in situ with a cribriform and solid pattern; d) positive estrogen receptor immunohistochemistry.



For fibroadenomas, the observational approach is the recommendation in the literature and the main differential diagnosis is phyllodes tumor. Nevertheless, the biopsy is justified if there is mainly prediction for malignant lesion, as uncertainly diagnostic on imaging exams, older age than 35 years old at the appearance of the lesion or bigger size than 2,5cm. Individualization of each case should also be taken into account, with attention to patients who present a single neo-nodule at an older age and with a positive family history for breast cancer.

The characteristics of fibroadenoma at ultrasound include hypoechoic lesions, with well-defined margins, greater axis parallel to the skin and absence of posterior acoustic shadow. Findings that may suggest malignancy are changes in shape or echogenicity and irregularities in the edges.

The second-look ultrasonography of the present case reported a rounded lesion, with lobulated margins, in a patient over 50 years old and with a nodule highly suggestive of a contralateral breast carcinoma, justifying due investigation by biopsy.

Even in view of the typically benign ultrasound definition for the right breast nodule, the fact of single lesion and the patient's age at diagnosis itself would be indicative of biopsy. The presence of cancer in the left breast further corroborates the need for histological analysis and diagnostic definition.

Intralesional carcinoma in the case of fibroadenoma is typically diagnosed after a surgical approach, since its clinical

and imaging presentation is generally similar to that of fibroadenomas that occur without other associated lesions.

The clinical case presented challenges the literature in this sense, since carcinoma in situ included in a fibroadenoma was diagnosed before surgery, through core-biopsy. Despite the typical ultrasound definition of benignity, the patient had other factors to consider biopsy, such as being older than 35 years and the presence of breast cancer in the contralateral breast.

Nevertheless, it is worth highlighting the occasional diagnosis of ductal carcinoma in situ associated with fibroadenoma. If the patient did not have cancer in the other breast, a personal or family history of breast cancer, the single lesion and the patient's age group at diagnosis would lead to biopsy. However, not with the intention of firming carcinoma, but to rule out this possibility.

The management of non-palpable lesions suggestive of benignity must be individualized. The patient's context in the case presented, for example, differs from that of a young patient, in the second decade of life, with multiple lesions on the breasts described as dense nodules with well-defined contours and parallel to the skin.

The decision between ultrasound follow-up, biopsy or surgical excision depends on the ultrasonographic characteristics but also on the patient's age, personal and family history and other risk factors for breast cancer, in addition to the size and stability of the lesion.

The total rates of detection of ductal carcinoma in situ increase with age and the common mammographic finding is grouped microcalcifications that were notably absent in previous mammograms. In the present case, the high breast density may have impaired clear visualization in this way.

The biological behaviour of carcinomas that occur in fibroadenomas in general is not different from carcinomas of the same histological type alone. Therefore, regarding assistance for carcinoma ductal in-situ arising within fibroadenoma, mastectomy associated with radiotherapy is mostly adopted. It is worth mentioning if patient life expectancy, comorbidities, age and size of the lesion allows it. It should be emphasized the proposal of due follow-up as already established in the literature for carcinoma in-situ.

For the present report there was an informed consent form signed by the patient. The review of critical literature was in the Pubmed and Scielo databases, with articles published in the last five years.

The present case report highlights a rare carcinoma in situ arising in a fibroadenoma. Owing the low incidence, there is poor scientific evidence regarding the diagnosis, treatment and prognosis of this condition. Therefore it is so important to present this case to the scientific community, to guide similar cases in the future.

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