




# Case Report: Ductal Carcinoma in Situ Within A Granulomatous Mastitis

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## ABSTRACT

Granulomatous lobular mastitis is a rare chronic breast disease, firstly described by Kessler and Wolloch in 1972. In this article we present a 35-year-old patient with granulomatous lobular mastitis and in situ ductal carcinoma and discuss clinicopathological characteristics of the disease with literature data. A 35-year-old female patient admitted to the outpatient clinic with a complaint of swelling in right breast ongoing since March 2017. On the basis of physical examination and radiological examinations, antibiotic therapy was initiated considering the inflammatory breast disease and the patient was referred to our general surgery clinic because she did not benefit from treatment. On the recommendation of histopathological correlation, trucut biopsy was performed and reported as granulomatous mastitis. In the histopathological examination of the prepared sections, we found lobule-restricted, non-caseous granulomas and neoplastic epithelial cell proliferation in 4 different foci, the largest being 0.7x0.4 cm in diameter, limited to the ductal lobular system. The case was diagnosed as granulomatous lobular mastitis and in situ ductal carcinoma. This lesion, which clinically and radiologically can be confused with carcinoma, rarely coexists with breast carcinoma. Our case demonstrates the coexistence of granulomatous lobular mastitis and in situ ductal carcinoma.

**Keywords:** Chronic breast inflammation, ductal carcinoma in situ, granulomatous inflammation, granulomatous lobular mastitis

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## Introduction

Granulomatous lobular mastitis is a rare chronic breast disease, firstly described by Kessler and Wolloch in 1972 (1).

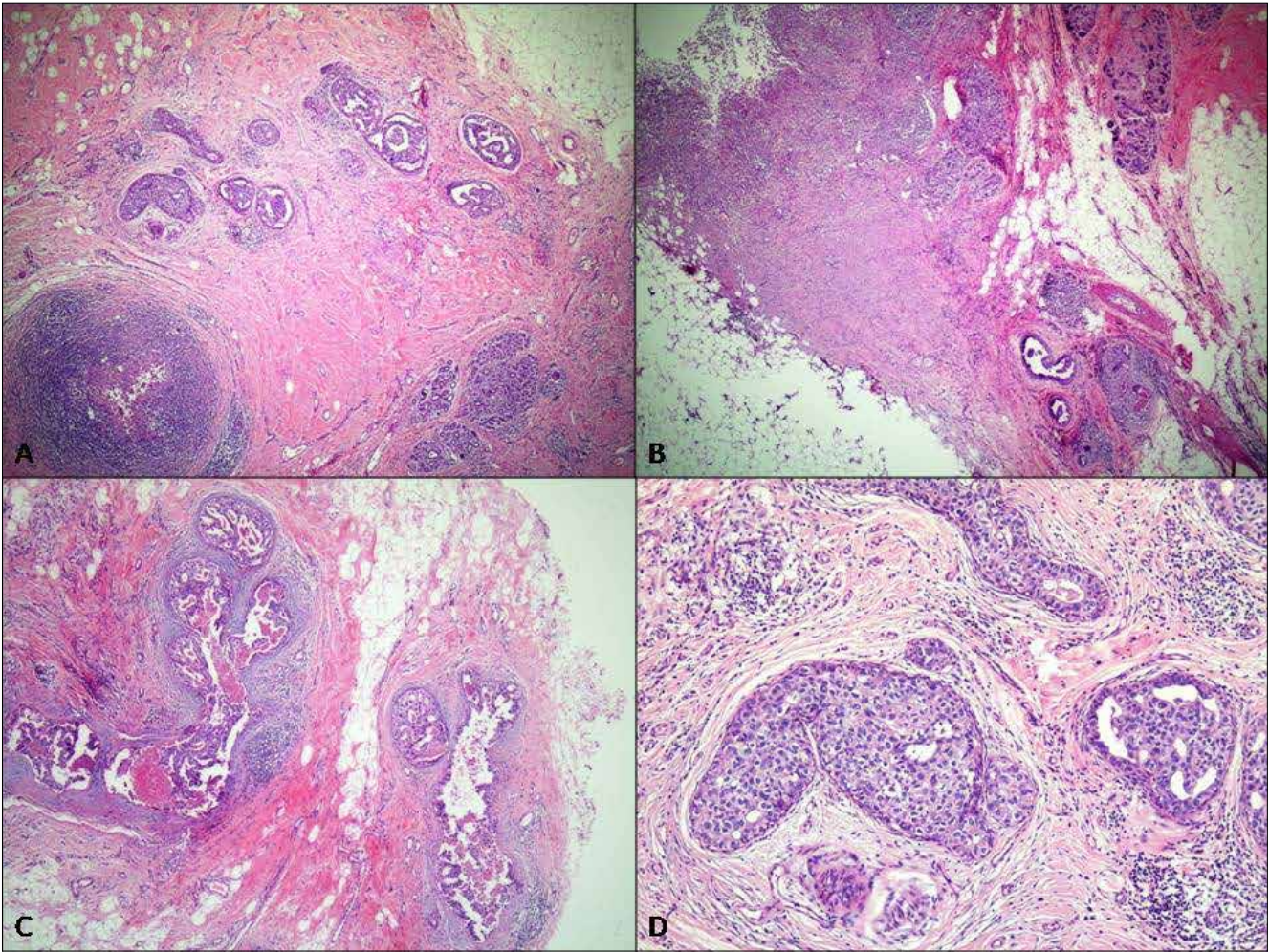
Alpha 1-antitripsin deficiency, oral contraceptive drugs, gestation and breastfeeding, hyperprolactinemia, smoking, autoimmunity, diabetes mellitus, local trauma and various microbiological agents are factors that are accused in etiology; however, the etiology of the disease is not clarified, which is characterized by non-caseous granulomas limited to the breast lobe (2, 3). The facts that in some cases erythema is accompanied by nodosum or arthritis, that cases benefit from steroids and immunosuppressive therapy and that immunohistochemical studies reveal T-lymphocyte predominance; causes the researchers to focus on autoimmune features (4).

The disease, which usually manifests as a mass lesion, mimics breast carcinoma clinically and radiologically. It may cause symptoms and findings like pain, dimpling of the breast's skin, inflammation of breast, irritation, orange-peel sign and growth in lymph nodes. In a case with these symptoms and findings, granulomatous lobular mastitis as well as other causes of carcinoma and granulomatous inflammation should be considered (5).

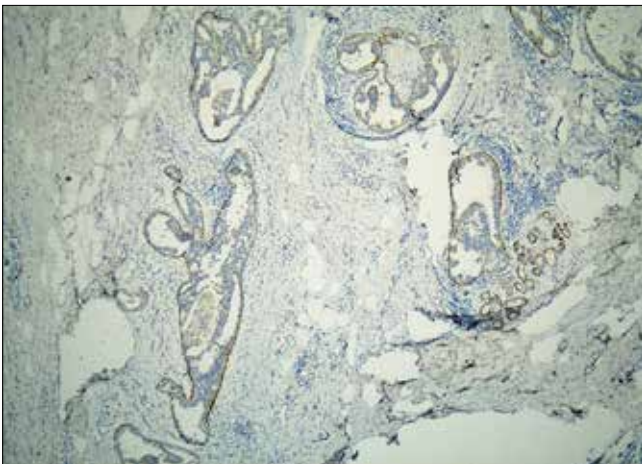
## Case Presentation

A 35-year-old female patient admitted to the outpatient clinic with a complaint of swelling in right breast ongoing since March 2017. The patient doesn't have a lactation history. On the basis of physical examination and radiological examinations, antibiotic therapy was initiated considering the inflammatory breast disease and the patient was referred to our general surgery clinic because she did not benefit from treatment.

In our hospital, the case was reevaluated, and ultrasonography showed heterogeneous, irregularly limited hypoechoic area, extending 3 cm outward from subareolar zone between 10 and 1 hour clockwise in the right breast; in the vicinity of this area near the nipple, a heavy content of liquid of 34x9 mm diameter was observed at 12 hours clockwise. On the recommendation of histopathological correlation, trucut biopsy was performed and reported as granulomatous mastitis; therefore steroid treatment was initiated with diagnosis of granulomatous



**Figure 1. a-d.** Breast tissue showing granuloma with histiocytes, Langhans' giant cells, plasma cells and lymphocytes (a, b). Monotonous round cell population with subtle increase in nucleus/cytoplasm, small monotonous round nuclei with smooth contours, diffuse fine chromatin, no/indistinct nucleoli (c, d)



**Figure 2.** CK 5/6 positivity in myoepithelial cells

lobular mastitis. As the case did not benefit from this treatment, the lesion was planned to be excised.

In our macroscopic evaluation of excision material sent to our pathology laboratory; there was no macroscopically pathological feature except for the gray-white discoloration areas with soft consistency which were partly noteworthy in the cross-sectional surfaces.

In the histopathological examination of the prepared sections, we found lobule-restricted, non-caseous granulomas involving lymphocytes, plasma cells, epithelioid histiocytes and multinuclear giant cells and neutrophil assemblages in the middle; and neoplastic epithelial cell proliferation in 4 different foci, the largest being 0.7x0.4 cm in diameter, limited to the ductal lobular system. Areas with epithelial cell proliferation were observed to be composed of uniformly cribriform patterned round cells with relatively increased nucleus-to-cytoplasm ratios, without nucleoli specificity (Figure 1). Immunohistochemical staining of CD10, CK 5/6 and p63 revealed that epithelial proliferation was restricted to the basement membrane (Figure 2).

In the histopathologic and immunohistochemical examinations, the case was diagnosed as granulomatous lobular mastitis and in situ ductal carcinoma (cribriform type). We could not get informed consent because there was no communication with the patient.

### Discussion and Conclusion

Granulomatous lobular mastitis is a rare non-neoplastic breast disease, and neither its etiology nor its incidence could be clearly determined. In a study conducted by Baslaim et al. (6) 1106 cases with benign breast disease were included in the study and 20 (1.8%) of these cases were detected as granulomatous lobular mastitis.

It almost always occurs in young fertile women and is often associated with pregnancy (7). Our case is a 35-year-old woman who is not related to pregnancy or lactation.

The most common clinical presentation is a unilateral mass that can involve any quadrant of the mammary gland (8). In our case, the reason for referral to the clinic is unilateral mass.

Diagnosis of granulomatous lobular mastitis is based on histopathological evaluation. Histopathological evaluation is characterized by the presence of neutrophil-bearing lobule-centric granulomas. Necrosis could occur in granulomas, except for caseous necrosis. Other causes (Wegener's granulomatosis, syphilis, corynebacterium infection, foreign body reaction, vasculitis, fungal and parasitic infections), especially tuberculosis and sarcoidosis, which lead to the development of granulomatous mastitis, should also be considered for the differential diagnosis of granulomatous lobular mastitis. The differential diagnosis should be based on a multidisciplinary approach, considering clinical, radiological and histopathologic features. The presence of myoepithelial cells is not always easily appreciated on hematoxylin-eosin sections. Immunohistochemical studies such as panCK, Calponin, CD10, p63 can be used to evaluate epithelial and myoepithelial cells in cases with malignancy suspicion. Histochemical studies such as PAS, Gomori methenamine silver (GMS) and acid fast could be used to detect microorganism. The Gomori methenamine silver and PAS stains are the preferred methods for demonstrating fungi while acid fast stains are preferred methods for demonstrating mycobacterium. (7, 9).

This lesion, which clinically and radiologically can be confused with carcinoma, rarely coexists with breast carcinoma. In the literature, four cases reported as chronic granulomatous mastitis have been associated with coexistence of breast carcinoma and granulomatous lobular mastitis (10-12). Our case demonstrates the coexistence of granulomatous lobular mastitis and in situ ductal carcinoma.

The basis of the association of granulomatous lobular mastitis and breast carcinoma is thought to be steroid and immunosuppressive agents used in treatment with chronic inflammation; but the pathogenesis has not yet been elucidated. The role of inflammation in the development of various cancers has been known for many years. Observing leukocyte infiltration in neoplastic tissues, Rudolph Virchow first brought inflammation and cancer to the agenda (13). Today, approximately 25% of all cancers, especially colon, esophagus, stomach and liver, are thought to be associated with chronic inflammation, chronic infection, or both in the pathogenesis. However, the link between inflammation and breast cancer development is still unclear (14, 15).

The association of granulomatous lobular mastitis and in carcinoma is rarely reported. Many factors such as chronic inflammation and steroid treatment are responsible, but more research on the subject should be done.

**Informed Consent:** Written informed consent was obtained from patient who participated in this study.

**Peer-review:** Externally peer-reviewed.

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**Conflict of Interest:** The authors have no conflicts of interest to declare.

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