



## XANTHOGRANULOMATOUS MASTITIS MASQUERADING AS CARCINOMA BREAST

### General Surgery

<b>Dr. Pariti Parikh</b>	Resident Department Of General Surgery, Bharati Vidyapeeth Deemed To Be University Medical College, Pune.
<b>Dr. Ravindran Kharat</b>	Professor Department Of General Surgery, Bharati Vidyapeeth Deemed To Be University Medical College, Pune.
<b>Dr. Paresh Vhora</b>	Assistant Professor Department Of General Surgery, Bharati Vidyapeeth Deemed To Be University Medical College, Pune.
<b>Dr. Ankith Pemmasani</b>	Senior Resident Department Of General Surgery, Bharati Vidyapeeth Deemed To Be University Medical College, Pune.
<b>Dr. Anushka Agrawal</b>	Resident Department Of General Surgery, Bharati Vidyapeeth Deemed To Be University Medical College, Pune.

### ABSTRACT

Xanthogranulomatous Mastitis (XGM) is a rare chronic inflammatory condition of the breast that can present as a palpable lump that can easily mimic breast conditions such as fibroadenoma or malignancy both clinically and radiologically. We present one case of a 55-year-old female who presented with a firm lump in the right breast, initially suspected to be neoplastic based on imaging, however, biopsy revealed the true diagnosis. She was treated with wide local excision of the right breast lump. This case underscores the importance of histopathological diagnosis in cases of clinically confusing breast lumps.

### KEYWORDS

Xanthogranulomatous mastitis, carcinoma breast, breast biopsy

#### INTRODUCTION:

Xanthogranulomatous Mastitis (XGM) is an exceptionally rare chronic inflammatory condition of the breast, first described in 1972<sup>1</sup>. XGM is recognized as a form of chronic inflammation, a pathological process marked by the presence of lipid-laden macrophages (foamy histiocytes), multinucleated giant cells, and a host of inflammatory cells, including lymphocytes and plasma cells.

Going et al<sup>2</sup> have recommended the term granulomatous lobular mastitis to separate this lesion from the granulomatous form of periductal mastitis.<sup>2</sup> Its occurrence in the breast is rare and remains poorly understood.

XGM predominantly affects middle-aged women especially in premenopausal women. The precise etiology is uncertain, with several theories suggesting an interplay between bacterial infection, ductal obstruction, fat necrosis, and an abnormal immune response. Despite its benign nature, XGM can be easily confused with malignant breast tumors both clinically and radiologically, making histopathological examination essential for definitive diagnosis.<sup>3</sup> We report one such clinically confusing case of xanthogranulomatous mastitis with duct ectasia.

#### Case Report:

55-year-old female, no known comorbidities, presented to Surgery OPD with history of a lump in right breast since 6 months which was gradually progressive in size, associated with mild dull aching pain since 2 months. She had been operated for abdominal hysterectomy almost 12 years ago for abnormal uterine bleeding. On examination, a 3x2 cm solitary firm lump was palpable in upper outer quadrant of right breast with irregular surface and ill-defined edges, mobile, free from underlying muscle; nipple retraction was also noted. No palpable axillary lymphadenopathy was found.

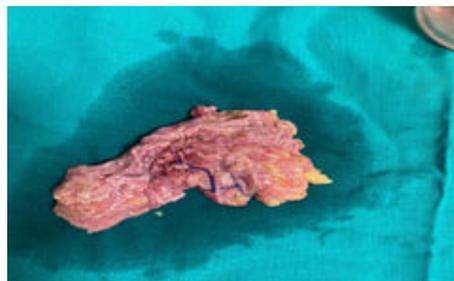
Initial ultrasonography of the breast was suggestive of ill-defined heterogenous lesions at 11 o'clock likely forming abscesses. A course of antibiotics was given but patient did not have resolution of symptoms hence Mammography was done which was reported as an ill-defined isodense lesion in upper quadrant of right breast with obscure margins- BI-RADS-4 with small bilateral lymphadenopathy.

Based on this mammography report and suspicion of neoplastic etiology, a trucut biopsy was formed which was reported as Duct ectasia with xanthogranulomatous mastitis.



**Figure 1 And 2:** Bilateral Mammography suggestive of Right breast lesion (BIRADS-4)

Patient was then taken up for elective Wide Local Excision of right breast lump for definitive histopathological diagnosis. Intraoperatively, 7x4 cm lump was excised from right outer upper and lower quadrants with adhesions to nipple areolar complex.



**Figure 3:** 7x4 cm lump excised from right breast

Microscopy showed breast ducts and acini. Ducts lined by cuboidal epithelium, at places showed apocrine change, few were cystically dilated and filled with secretions. There was mixed inflammatory infiltrate around these ducts. The stroma showed many abscesses and an occasional xanthogranuloma composed of collection of foamy macrophages, foreign body giant cells and congested blood vessels. Histopathological diagnosis was given as Acute suppurative inflammation with xanthogranulomatous mastitis.

Patient was discharged on Post operative day 1 and has complete resolution of symptoms post-surgery.

#### DISCUSSION:

The exact pathogenesis of XGM is still unknown. Theories propose

that XGM may arise from a persistent inflammatory response secondary to infection or trauma. A commonly cited hypothesis is that ductal obstruction or chronic inflammation leads to the release of lipid material into the surrounding breast tissue, inciting a granulomatous response. This immune-mediated reaction is believed to involve macrophages engulfing lipid debris, ultimately forming xanthogranulomas, which are histologically characterized by the presence of foamy histiocytes, foreign body giant cells, and cholesterol clefts.<sup>4</sup> Possible contributing factors include bacterial infections, trauma, previous surgery, and radiation therapy, all of which can disrupt the breast tissue and promote the formation of granulomatous lesions.<sup>5</sup>

XGM typically presents as a firm, palpable breast mass, which can be unilateral or bilateral, though most cases involve a single breast. Pain, erythema, and swelling are common, with some patients reporting nipple discharge or retraction.<sup>4</sup> The clinical and radiological features of XGM often mimic those of malignancy, particularly inflammatory breast carcinoma, which complicates the diagnostic process. Mammography and ultrasound may reveal a poorly defined mass, and in some instances, skin thickening and increased vascularity on Doppler imaging, further mimicking breast cancer.<sup>4,6</sup>

Definitive diagnosis of XGM relies on histopathological evaluation, typically following a core needle biopsy or excisional biopsy.<sup>7</sup> In some cases, immunohistochemical staining is performed to rule out malignancy or other granulomatous diseases. Given that XGM can resemble inflammatory breast cancer both clinically and radiologically, imaging alone is insufficient to differentiate between the two. For example, Banerjee et al. (2017)<sup>6</sup> highlight a case where a patient presenting with a rapidly enlarging breast mass was initially thought to have malignancy based on mammographic findings. However, biopsy and subsequent histopathological evaluation confirmed XGM, emphasizing the importance of tissue sampling for diagnosis.

A recent study by Koo and Jung<sup>4</sup> also provides valuable insight into the clinicopathological features of Xanthogranulomatous Mastitis (XGM). Their study emphasizes the overlap between XGM and malignant conditions such as invasive ductal carcinoma (IDC) and ductal carcinoma in situ (DCIS). The authors highlight the need for accurate histopathological diagnosis to avoid mistaking XGM for malignancy, a common issue given the non-specific clinical and radiological presentation of the disease. The study also suggests that ductal obstruction and rupture, along with foamy histiocyte aggregates, could be the primary drivers of XGM. Additionally, immunohistochemical staining, particularly CD68 and cytokeratin, is recommended for distinguishing XGM from conditions such as granular cell tumors and lipid-rich carcinomas.

There is no consensus on the optimal treatment strategy for XGM, as management often depends on the extent of the disease and whether infection is suspected. Broad-spectrum antibiotics may be prescribed empirically, especially if there is evidence of a concurrent bacterial infection. In instances where abscess formation occurs, drainage may be necessary in addition to antibiotics.

Surgical excision is the most common therapeutic approach, particularly when a diagnosis of malignancy cannot be excluded based on imaging and biopsy. Complete excision of the mass is typically curative, although incomplete resection may lead to recurrence. Corticosteroids and methotrexate have been used as well and some cases have responded well, though this approach is not widely practiced due to the limited evidence base supporting its efficacy.<sup>8</sup>

Long-term follow-up is recommended to monitor for recurrence, though XGM itself does not carry the risk of malignant transformation.<sup>4</sup> Despite the clinical and radiological resemblance to breast carcinoma, XGM is a benign condition with an excellent overall prognosis.

#### CONCLUSION:

This case report highlights xanthogranulomatous mastitis as a clinical mimicker of carcinoma breast and other benign entities such as fibroadenoma and emphasizes on importance of high clinical suspicion and histopathological diagnosis of a breast lump to prevent misdiagnosis and avoidable mastectomies.

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