

CLINICAL VIGNETTE

Granulomatous Lobular Mastitis

Anh Kieu, M.D.

Case Report

The patient is a 40-year-old Japanese-American woman who presented with a several-day history of right breast pain. She is gravida 1, para 1 and delivered her child 2 years prior. She had finished breastfeeding 8 months ago. There was no prior history of mastitis during breastfeeding and no prior history of breast disease. She had a history of irregular periods and had been on oral contraceptives (OCPs) until discontinuing 4 years ago.

On her examination, she had diffuse skin redness extending across the lateral mid breast to medial mid breast area. The patient's symptoms completely resolved after 4 to 5 days with a course of cephalexin. She had a mammogram that was negative for malignancy.

Four months later, she re-presented with a several-day history of left breast pain. She also felt a lump below the nipple. On examination, there was induration, skin redness in the lower quadrant and a large palpable mass in the 5 to 7 o'clock region. Diagnostic mammogram and ultrasound showed multiple intact ectatic ducts at site of mass, possible early granulomatous lobular mastitis. She was referred to a breast surgeon.

On follow-up examination with the breast clinic, she had bilateral dense breast tissue. There was a palpable large nodule in her left breast from 5 to 7 o'clock measuring 8.5 cm in the medial lateral direction by 6.5 cm at the superior inferior direction. There were no other palpable abnormalities in either breast. Axillae and supraclavicular areas did not show any palpable adenopathies. Her symptoms had responded to Keflex. She was recommended by Radiology to undergo a follow-up ultrasound and mammogram 3 weeks after the initial ultrasound and mammogram.

Her follow-up imaging revealed a slight decrease in size of debris-filled duct on ultrasound at 7 o'clock, 3 cm from the nipple, anteriorly and a complicated cyst vs. debris-filled duct on ultrasound at 7 o'clock, posteriorly, 3 cm from the nipple, measuring 10 x 5 x 7 mm. Follow-up showed that the redness had decreased and due to the improvement, she did not require any biopsy at that time.

One month later, the patient presented for a third episode of mastitis in the left breast. Symptoms had started 2 days prior and was at the 6 o'clock location. There was a tender warm area below the nipple. There was no lump. The mastitis again responded to cephalexin within several days and there were no complications. She has remained free of recurrence for 5 months.

Discussion

Granulomatous lobular mastitis is a rare, benign breast disease that can clinically resemble breast carcinoma. The condition can also cause peau d'orange skin, ulceration and nipple inversion. The etiology is unknown. The diagnosis is a diagnosis of exclusion and other conditions such as tuberculosis mastitis, bacterial causes, fungal infection in immunocompromised patients, and parasitic infections must be ruled out. No autoimmune association has been found.¹

Review of literature reveals patients ranging in age from 17 to 48. They had presentation of the first case within months to 8 years of the most recent delivery and 1 out of 3 patients had been on OCPs. The mastitis was usually unilateral and was found in every quadrant of the breast except the subareolar region.² Nipple discharge and lymphadenopathy are not usually found.³ The most common presentation was a painful breast mass.⁴ There appears to be higher incidence in non-caucasians.⁵

In a retrospective study by Lee et al., mammography findings showed 63.7% of all lesions to be an irregular ill-defined mass, 27.3% of lesions to have diffusely increased density, and 9% to be an oval obscured mass. The majority of cases had heterogeneously dense parenchymal pattern. No lesions exhibited calcifications. 63.7% of lesions had associated parenchymal distortion, 63.7% had skin thickening, 54.5% had benign appearing axillary lymph node enlargement.⁶

On ultrasound, 58.3% of lesions showed irregular tubular hypoechoic lesions, 16.7% of lesions had lobulated hypoechoic masses with minimal parenchymal distortion, 16.7% had parenchymal distortion without mass lesions and 8.3% had oval circumscribed hypoechoic mass. Lesions also showed skin thickening and subcutaneous fat obliteration. Sizes ranged from 1 to 10 cm.⁶

In that study, only one patient underwent CT imaging which revealed a large heterogeneous enhancing mass with prominent skin thickening and minimal subcutaneous fat obliteration indicating that it was not an acute infection.⁶

MRI with measurement of time-signal intensity curves may help distinguish between benign and malignant inflammatory breast disorders.⁶

The best method to diagnose granulomatous lobular mastitis is by core biopsy. On biopsy, non-caseating granulomas are seen containing epithelioid macrophages, Langhans'-type giant cells, lymphocytes, plasma cells and eosinophils. The inflammation is predominantly in a lobular distribution and can have micro-abscesses and abscesses. Stains for fungus, mycobacteria, and aerobic and anaerobic bacteria are negative.^{1,7} No foreign body, birefringent material have been seen.³ Other granulomatous conditions to exclude that can have a similar clinical presentation include tuberculous mastitis, foreign body granuloma, fat necrosis, and sarcoid.³

Going et al. compared 9 cases of granulomatous mastitis and 10 cases of duct ectasia/periductal mastitis. The granulomatous lobular mastitis showed a lobular location versus in the DE/PM which was in the periductal region. The periductal mastitis group showed duct dilatation versus only 2 cases of granulomatous mastitis had duct dilatation. The age distribution was also distinct with the DE/PM group with mean age of 45 years versus the granulomatous lobular mastitis group having a mean age of 28 years.⁷

No definitive treatment regimen has been described for granulomatous lobular mastitis. Before 1980, treatment included surgical excision of the entire lesion. Complications included skin ulceration, abscesses, fistula, wound infections, and recurrence. Some patients relapse with chronic mastitis after excisional biopsies.

In 1980, DeHertogh et al. described a case of recurrent granulomatous mastitis treated by a short course of high-dose prednisone (60 mg per day). The patient's mastitis resolved within 3 weeks and remained free of recurrence.⁸ Other treatments have included use of methotrexate as a steroid sparing agent in patients who relapsed after tapering steroids.⁹ In a review of granulomatous mastitis by Al-Khaffaf et al., all of the patients in their study had spontaneous resolution of the condition, regardless of the treatment used (no treatment, antibiotics alone, surgery alone, antibiotics and steroids, antibiotics and surgery, steroids and surgery, antibiotics and steroids and surgery). The time for the condition to burn out took 6 to 12 months. The natural history of granulomatous lobular mastitis can be self-limiting and 50% of cases recover without complications.⁵

REFERENCES

1. **Verfaillie G, Breucq C, Sacre R, Bourgain C, Lamote J.** Granulomatous lobular mastitis: a rare chronic inflammatory disease of the breast which can mimic breast carcinoma. *Acta Chir Belg.* 2006 Mar-Apr;106(2):222-4. PubMed PMID:16761483.
2. **Imoto S, Kitaya T, Kodama T, Hasebe T, Mukai K.** Idiopathic granulomatous mastitis: case report and review of the literature. *Jpn J Clin Oncol.* 1997 Aug;27(4):274-7. Review. PubMed PMID: 9379518.
3. **Galea MH, Robertson JF, Ellis IO, Elston CW, Blamey RW.** Granulomatous lobular mastitis. *Aust N Z J Surg.* 1989 Jul;59(7):547-50. Review. PubMed PMID: 2665711.
4. **Akcan A, Akyildiz H, Deneme MA, Akgun H, Aritas Y.** Granulomatous lobular mastitis: a complex diagnostic and therapeutic problem. *World J Surg.* 2006 Aug;30(8):1403-9. PubMed PMID: 16847715.
5. **Al-Khaffaf B, Knox F, Bundred NJ.** Idiopathic granulomatous mastitis: a 25-year experience. *J Am Coll Surg.* 2008 Feb;206(2):269-73. Epub 2007 Oct 29. PubMed PMID: 18222379.
6. **Lee JH, Oh KK, Kim EK, Kwack KS, Jung WH, Lee HK.** Radiologic and clinical features of idiopathic granulomatous lobular mastitis mimicking advanced breast cancer. *Yonsei Med J.* 2006 Feb 28;47(1):78-84. PubMed PMID: 16502488; PubMed Central PMCID: PMC2687584.
7. **Going JJ, Anderson TJ, Wilkinson S, Chetty U.** Granulomatous lobular mastitis. *J Clin Pathol.* 1987 May;40(5):535-40. PubMed PMID: 3584506; PubMed Central PMCID:PMC1141020.
8. **DeHertogh DA, Rossof AH, Harris AA, Economou SG.** Prednisone management of granulomatous mastitis. *N Engl J Med.* 1980 Oct 2;303(14):799-800. PubMed PMID: 7191051.
9. **Schmajuk G, Genovese MC.** First report of idiopathic granulomatous mastitis treated with methotrexate monotherapy. *J Rheumatol.* 2009 Jul;36(7):1559-60. PubMed PMID: 19567642.

Submitted on April 13, 2010.