Clinical presentation and treatment of granulomatous mastitis: A case series of 17 patients seen at Mayo Clinic

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BACKGROUND

Granulomatous mastitis (GM) is a rare chronic inflammatory breast condition with unknown etiology. There are no guidelines for the treatment of GM, and management of these patients can be very challenging. As such, awareness of this disease in its early stage and timely diagnosis are critical and can greatly improve patient outcomes and satisfaction.

This study sought to characterize the demographics, clinicopathological features, treatment response, and outcome of patients with biopsy-proven granulomatous mastitis treated at a single institution.

METHODS

We conducted a retrospective review of all GM patients at our institution from January 1, 2001 to December 31, 2021. Medical records containing the term “granulomatous mastitis”, “left granulomatous mastitis”, “right granulomatous mastitis”, “bilateral granulomatous mastitis” were pulled and patients with histologic evidence of noncaseating granulomas centered on lobules with or without associated microabscess were recorded. In total, 17 cases of GM were identified.

Baseline variables including age, obstetric history, gender, ethnicity, menopausal status, BMI, smoking/drinking history, history of birth control, hormonal replacement therapy, fertility treatment, and personal/family history of breast and ovarian cancer were recorded (Table 1). Laterality, presence of symptoms (eg erythema, pain, discharge), nipple involvement, and method of diagnosis was assessed (Table 2).

RESULTS

Seventeen patients had biopsy-confirmed diagnosis of GM. All but two patients were premenopausal. The median age of symptoms at diagnosis was 36 years (range 20-70 years). The racial demographic included nine Caucasian (52.9%), five Hispanic (29.4%), two Indian (11.8%), and 1 (5.88%) African American. The most common initial diagnosis was mastitis. Nine patients (52.9%) received a correct diagnosis of GM within a month, but in eight patients (47.1%), the diagnosis was delayed for at least 1 month after symptom onset, with the greatest delay to diagnosis being 19 months.

Patients primarily presented with pain (76.5%), breast enlargement (70.6%), erythema of the skin (41.2%), drainage (35.3%), nipple involvement (47.2%), and lymphadenopathy (29.4%). Corynebacteria species were identified in (50%) of the biopsy or tissue cultures. 88.2% of patients received antibiotic treatment, 35.3% received systemic steroid treatment, 29.4% received methotrexate, and 17.6% received Plaquenil. Most patients in our cohort achieved complete remission (76%).

Table 1. Demographic Characteristics of 17 Patients with GM

Characteristic	Value (a)
Age at diagnosis	36
Race	
African American	1 (5.88)
Caucasian	9 (52.9)
Hispanic	5 (29.4)
Indian	2 (11.8)
Menopause	
Pre	15 (88.2)
Post	2 (11.8)
BMI	
Healthy	4 (23.6)
Overweight	8 (47.1)
Obese	5 (29.4)
HRT	
Yes	2 (11.8)
No	15 (88.2)
HCB	
Yes	13 (76.5)
No	3 (17.6)
Unknown	1 (5.88)
Smoking	
Yes	3 (17.6)
No	14 (82.4)
Drinking	
Yes	6 (35.3)
No	11 (64.7)
Family History (breast/ovarian cancer)	
Yes	8 (47.1)
No	9 (52.9)
(a) Values express as Median and as No. (percentage).	

Table 2. Clinical Characteristics of 17 Patients with GM

Characterisitic	Value (a)
Site	
Left	9 (52.9)
Right	8 (47.1)
Bilateral	1
Symptoms	
Enlargement	12 (70.6)
Pain	13 (76.5)
Erythema	7 (41.2)
Palpable lump	2 (11.8)
Multifocal	3 (17.6)
Fever	1 (5.88)
Drainage	6 (35.3)
Swelling	2 (11.8)
Lymphadenopathy	5 (29.4)
None	2 (11.8)
Nipple involvement	
Yes	8 (47.1)
No	9 (52.9)
Diagnosis modalities	
MMG	5 (29.4)
US	5 (29.4)
MRI	5 (29.4)
Combined (US/MMG)	2 (11.8)
Corynebacterium growth seen on biopsy	
Yes	8 (47.1)
No	9 (52.9)
Total duration before diagnosis (mo)	4.8
Time from diagnosis to last follow-up (mo)	26.9
(a) Values express as No. (percentage).	

DISCUSSION

Similar to prior case series of GM, this study found that GM may be associated with certain clinical features, specifically female gender, younger age at diagnosis, unilateral breast mass, and breast pain (Martinez-Ramos et al., 2019). Nipple involvement was seen in 50% of patients and axillary lymphadenopathy was seen in approximately 30% of patients in this study, which is higher than in prior case series (Azizi et al., 2020). Diagnosis was significantly delayed in almost 50% of patients in this study, emphasizing the importance of including it in the initial differential of nonmalignant skin disease of the breast. Delayed diagnosis may result in disease progression, leading to prolonged course that is unresponsive to standard treatment.

CONCLUSION

Granulomatous mastitis is a rare, chronic, non-neoplastic disease of the breast that is difficult to distinguish from other inflammatory breast diseases. It is important for clinicians to be familiar with the variable clinical presentations of this entity and have a lower threshold for biopsy. This is a single center study, and larger prospective multi-center cohorts are needed to develop an evidence-directed approach to this challenging condition.

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Disclosures: none