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A Retrospective Study of Idiopathic Granulomatous Mastitis Treatment and Outcomes

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INTRODUCTION

Granulomatous mastitis (GM) is a rare, poorly characterized inflammatory disease with a broad differential diagnosis that includes both benign and malignant conditions such as infectious mastitis, sarcoidosis, and inflammatory breast cancer.[1,2,3] The etiology of most cases is idiopathic (IGM).[1] In this retrospective study, we present our experience of 31 patients with IGM, underscoring management and treatment outcomes.

The study was approved by the institution review board of Massachusetts General Hospital. We selected patients with suspected GM referred to our rheumatology-dermatology clinic (where these patients are seen at our institution) between 2012 and 2020 using ICD10 code N61.2 in Epic electronic medical record and clinic schedules. The patients were seen by either a dermatologist with a rheumatologist or dermatologist alone depending on scheduling availability. Treatment and clinical outcomes were extracted from chart reviews. Recommended workup and treatment regimens were similar between specialists and patients were given a diagnosis of IGM once other causes of mastitis were ruled out. Initial treatment, defined as the regimen implemented at the first visit, and initial response were evaluated within 3 months of therapy. Subsequent treatments were those introduced after the first 3 months and subsequent response was assessed 6 or more months after the initial visit. We defined treatment response as partial if there was improvement in clinical characteristics (such as erythema and swelling) or complete if all symptoms resolved. No response refers to no improvement in clinical symptoms. Clinical response and treatment outcomes are summarized in Tables 1 and 2.

TABLE 1.

Summary of Clinical Response		
	Initial Response (3 months)	Final Response (6 months or more)
No response	4 Prednisone (1) Prednisone + methotrexate (1) Prednisone + mycophenolate mofetil (1) Prednisone + doxycycline (1)	0
Partial response	19 Prednisone and methotrexate (7) Prednisone (8) Prednisone and doxycycline (3) I&D and doxycycline (1)	6 Methotrexate and prednisone (2) Mycophenolate mofetil and prednisone (1) Prednisone (2) Mycophenolate mofetil (1)
Complete response	1 No treatment (1)	13 Methotrexate (4) Methotrexate + prednisone (1) Mycophenolate Mofetil (4) Prednisone and doxycycline (1) Prednisone (1) Mastectomy (1) No treatment (1)
Not treated or no follow-up data available	7	10

NR, PR, CR – no response, partial response, complete response

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TABLE 2.

Patient Treatment and Outcome Information				
Patient No	**Initial Treatment**	**Initial Response**	**Subsequent**	**Final Response (6 months or more)**
1	Declined treatment	CR	N/A	Resolved w/o treatment after stopping fluoxetine
2	Methotrexate and prednisone	PR	Mycophenolate Mofetil	CR
3	Prednisone (w/taper) + Doxycycline	PR	Mycophenolate Mofetil	CR
4	Prednisone/Mycophenolate Mofetil	NR	Not treated	CR (resolved after stopping sertraline)
5	Prednisone (w/taper)	NR	Not treated	CR (resolved after stopping sertraline)
6	Prednisone (w/ taper) and methotrexate	PR	Methotrexate	CR
7	Prednisone (w/taper)	PR	Intralesional triamcinolone	PR
8	Prednisone (w/taper)	PR	Treatment declined, wanted to conceive	Not seen
9	Declined (recurrent disease)	N/A	none	No follow-up
10	None (was s/p I&D)	N/A	None	No follow-up
11	Prednisone (w/taper)	NR	Prednisone w/taper + Doxycycline	PR
12	Prednisone (w/ taper) ILK + Doxycycline	NR	Aspiration/I&D Prednisone + Methotrexate	PR
13	Treatment deferred (mild disease)	N/A	N/A	N/A
14	None	N/A	Prednisone (w/taper)	CR
15	None	N/A	Declined treatment	N/A
16	Prednisone (w /taper)	PR	N/A	Not seen
17	None (declined)	N/A	N/A	N/A
18	Prednisone (w/taper)	PR	Methotrexate	CR
19	Prednisone (w/taper) and Methotrexate	PR	Bilateral mastectomy per her request	CR
20	Several I&Ds + Prednisone (w/ taper)	PR	Methotrexate then mycophenolate mofetil	CR
21	Prednisone (w/ taper) and methotrexate	NR	Prednisone and methotrexate	PR
22	Prednisone + doxycycline	PR	None (desiring pregnancy in the near future)	N/A
23	Prednisone (w/taper)	PR	Prednisone (w/ taper)	PR
24	Prednisone (w/taper)	PR	Subcutaneous MTX + Prednisone taper Linezolid (given by ID physician)	CR
25	Prednisone (w/taper) and methotrexate	PR	Mycophenolate mofetil	PR
26	Prednisone (w/ taper) + doxycycline	PR	Prednisone + ILK	PR
27	None (mild disease)	N/A	N/A	Not seen
28	I&D and doxycycline	PR	Declined	N/A
29	Prednisone (w/ taper) and methotrexate	PR	MTX SQ	CR
30	Prednisone taper	PR	Prednisone (w/ taper) and methotrexate	N/A
31	Prednisone (w/ taper) and methotrexate	PR	MTX	CR

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Thirty-one patients were diagnosed with IGM. All had previously failed oral antibiotic therapies. Seven patients declined initial treatment, subsequent treatment, or did not follow-up. Nineteen experienced symptomatic improvement after 3 months on regimens that commonly included combination prednisone taper (starting at 40-60mg per day) and a disease modifying agent (DMA) such as methotrexate or mycophenolate mofetil (when methotrexate was contraindicated due to abnormal liver tests or alcohol use; Table 1). Notably, 61.5% achieved complete response after 6 months of therapy with a DMA. Methotrexate (oral or subcutaneous) dosing was initiated at 15 mg per week, increasing up to 25 mg weekly and mycophenolate mofetil was initiated at 500 mg once or twice daily with increased titration up to 1.5 g twice daily based on response. Though prednisone monotherapy often prompted partial response, most patients experienced flaring during taper, subsequently requiring a DMA for disease control. Due to significant morbidity, one patient underwent bilateral mastectomy.

In accordance with prior reports,[4,5] our patients achieved best outcomes using a combination of corticosteroid taper and DMA. A significant number of our patients had reservations regarding use of methotrexate due to side effect concerns or desire to conceive in the immediate future and some preferred a trial of doxycycline for anti-inflammatory effects. Our study is limited by the small sample size and the lack of validated outcome measures for IGM. Without standard therapeutic protocols for IGM,[3-5] additional research is warranted to delineate therapeutic regimens that address the clinical spectrum of disease.

DISCLOSURES

The authors have no conflicts of interest to declare.

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