

**Vacuum-assisted Biopsy and Steroid Therapy for Granulomatous Lobular
Mastitis: Report of Three Cases**

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Abstract

We report the cases of three patients with granulomatous lobular mastitis (GLM), who were treated successfully with low-dose steroid therapy. Furthermore, the findings of our review of 271 patients reported in the literature suggest that steroid therapy is the treatment of choice for GLM.

Key words: Granulomatous lobular mastitis

Vacuum-assisted biopsy

Steroid therapy

Introduction

Granulomatous lobular mastitis (GLM) is a chronic inflammatory disease of the breast with the natural history of a self-limiting condition. However, the disease is occasionally confused with malignancy, with reports of mastectomy or chemotherapy being performed.¹⁻⁷ Therefore, thorough tissue examination is a prerequisite for the differential diagnosis of GLM.⁸ Ultrasonography (US) guided vacuum-assisted biopsy, Mammotome breast biopsy system, (Ethicon Endo-Surgery, [Johnson & Johnson], Cincinnati, OH, USA), a relatively non-invasive and safe procedure, has become popular in the last decade.^{9, 10} There is still no consensus on the optimal treatment for GLM, although wide excision of the breast mass seems to be the procedure of choice. We treated GLM successfully in three women and present this report to explore the treatment strategies, based on our review of reported patients.

Case Reports

Case 1

A 38-year-old woman presented with a tender lump in her left breast. The patient had two children. Physical examination revealed a firm, ill-defined mass, 5cm in size, in the left breast. Ultrasonography showed a hypoechoic ill-defined mass, whereas magnetic resonance imaging (MRI) showed well-enhanced diffuse nodules with early enhancement, implying malignant disease. Vacuum-assisted biopsy revealed marked inflammatory infiltrate centering on lobules in the breast (Fig. 1a). The lesion consisted of lymphocytes, plasma cells, neutrophils, eosinophils, and epithelioid histiocytes with frequent granuloma formation. The severely affected lesion developed in a diffuse confluent fashion and the involved epithelial components were entirely destroyed. Gram and Grocott staining for organisms was negative. These findings were consistent with a diagnosis of idiopathic GLM. The patient was treated with aspiration and drainage of an abscess, as well as corticosteroid (prednisone 5-2.5 mg/day) for 4 months. No recurrence has been observed

Case 2

A 35-year-old woman presented with a left breast mass. She had one child and suffered from Graves' disease, but her thyroid function was regulated with oral medication. Physical examination revealed a firm, ill-defined mass, 6cm in size, in the left breast. Specimens obtained from vacuum-assisted biopsy showed granulomatous lobulitis histologically (Fig. 1b). An abscess was drained repeatedly when the patient suffered breast pain, but the breast lesion did not disappear. Steroid therapy (5-2.5 mg/day) was started 8 months after the initial appearance of symptoms, and 2 months later the breast mass had shrunk dramatically and the medication was discontinued. No recurrence has been observed for 30 months.

Case 3

A 25-year-old woman presented with a painful right breast mass. There was no history of fever or nipple discharge. She had one child. Physical examination revealed a firm, ill-defined mass, 7 cm in size, in the right breast. Ultrasonography showed a hypoechoic mass and abscess formation. The diagnosis of GLM was based on the findings of a vacuum-assisted biopsy (Fig. 1c). Despite repeated drainage of an abscess (aspiration or mini-incision), the symptoms had not resolved after 2 months. No organisms were isolated from the abscess fluid. Oral prednisone, 5 mg/day, was given for 3 weeks and the dose was increased to 10 mg/day when no reduction in the breast mass was observed. The breast symptoms had markedly improved within 6 weeks, and the steroid dose was gradually reduced. No further recurrence has been observed in the 5 months since steroid therapy was discontinued.

None of the three women have any breast deformity.

Discussion

Our search of the English medical literature found reference to 271 patients diagnosed with GLM.^{1-8, 11-51} These patients ranged in age from 11 to 80 years (mean, 35 years) and 96% (174/181) were multiparous women. The cause of GLM is unknown, but it could be related to age and pregnancy. Establishing a correct diagnosis is not easy, and it is especially difficult to distinguish GLM from malignancy. In fact, 51% (101/196) of the reported pretreatment diagnoses were malignant, and the final diagnosis was made by histological examinations. On the other hand, fine-needle aspiration cytology was done for 14 patients, revealing suspicious and malignant cytology in four and three patients, respectively, resulting in radical mastectomy or chemotherapy in seven patients.¹⁻⁷ Histological examination is considered essential for the accurate diagnosis of GLM. We now perform US-guided vacuum-assisted biopsy to identify the lobular distribution pattern because specimens can be collected easily and abundantly. Vacuum-assisted biopsy has excellent sensitivity and specificity for the diagnosis of

breast diseases.^{9, 10}

The optimal therapy for this condition remains unclear. Wide excision of the breast mass has been performed traditionally, the justification for this being that it achieves an accurate diagnosis by sufficient tissue examination. As shown in Table 1, 248 patients were available for evaluation of treatment strategy. Excision or wide excision was performed in 172 patients, steroid therapy in 31 patients including ours, and drainage in 25 patients. Total mastectomy was performed in six patients. We investigated the clinical outcome of patients treated with surgery, corticosteroid, and drainage and were able to review of the outcome of surgical treatment in 144. Thirty-four patients suffered recurrence after surgical treatment [23.6%], and 10 experienced complications (Table 2.). Meanwhile, recurrent disease was observed after steroid therapy in eight patients (25.8%), but all of these patients were cured thereafter by repeated steroid treatment.^{23, 38, 48} Thus, an excellent outcome without surgical intervention was achieved in 29 (93.5%) patients.

A summary of the 31 patients who received steroid therapy is presented in Table 3. From 1980 to 2000, most patients received steroid therapy at an initial dose of 60 mg/day, which was gradually reduced for 2 to 11 months. We treated all of our three patients successfully with a low dose of steroids without any toxicity, although all required abscess drainage to alleviate the breast symptoms. Wilson et al. recently reported a therapeutic paradigm based on an analysis of reported cases (n=116). They stated that for patients with localized disease and mild symptoms, observation or local excision is warranted. Although recurrence sometimes developed after steroid therapy, we propose that steroid therapy is effective, because patients responded well to another courses of steroids.

In conclusion, vacuum-assisted biopsy is useful way to avoid unnecessary treatment. Based on the findings of the present detailed investigation, we propose that steroid therapy should be the treatment of choice for GLM.

Table1. Treatments for granulomatous lobular mastitis.

	Number of cases (n=248)
excision or wide excision	172
corticosteroids	31
drainage only	25
mastectomy	6
others	14 ^a

^a Seven of these patients underwent excision and steroid therapy.

Table 2. Outcome of primary excision and steroid therapy for granulomaous lobular mastitis.

Clinical outcome	Number of patients
Excision (n=144)	
Cure	100
Recurrence	34
Wound infection	7
Persistent inflammation	3
Steroid therapy (n=31) ^a	
Cure	21
Recurrence	8
Reduction	2 ^b
Drainage (n=25)	
No change	6
Persistent inflammation	5
Recurrence	4
Deformity	1
Unknown	9

^a Including our three patients.

^b Two patients underwent breast surgery.

Table 3. Thirty-one patients treated with corticosteroid therapy

No.	Year	Age Mass size		Steroid therapy		final outcome
		size (cm)		dose (mg) *	period	
1	1980 (15)	27	9	60	4M [#]	cure
2	1992 (23)	41	5	60	13M	recurrence
3		36	-	60	6M	cure
4	1994 (24)	36	10	60	2M	reduction
5	1995 (27)	43	6.5	37.5	3W ^{\$}	cure
6	1996 (8)	34	8	60	11M	cure
7	2000 (36)	-	-	-	3M	cure
8		-	-	-	3M	cure
9	2000 (37)	25	2	60	5M	recurrence
10	2001 (39)	25	12	10	3.5M	cure
11	2001 (40)	37	-	32	-	reduction
12	2003 (46)	46	5	30	2W	cure
13-18	2003 (47)			60		cure
19-24	2003 (47)			60		recurrence
25	2004 (49)	-	-	-	-	cure
26		-	-	-	-	cure
27		-	-	-	-	cure
28		-	-	-	-	cure
29	present case	38	5	5	4M	cure
30		35	6	5	2M	cure
31		25	7	10	5M	cure

*initial dose of prednisone

[#]month

^{\$}week

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Figure legends

Fig 1. Histology of mammotome biopsy specimens. (a) Low power view highlights obvious lobular configuration of granulomatous inflammatory lesions (case 1). (b) Granulomatous lobulitis with multinucleated giant cells and atrophic terminal ducts (case 2). (c) Nodular granulomatous lesions were noted (case 3).

