



Our Experience in Treating Granulomatous Mastitis in a Tertiary Care Center in Kumaon Region of Uttarakhand

General Surgery

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ABSTRACT

The aim of the study was to present the author's experience with the various treatment methods of Idiopathic Granulomatous Mastitis (IGM) with special reference to use of Anti-TB drugs.

Methods: 19 patients diagnosed as IGM were put under different treatment methods based on the clinical presentation. This included observation, antibiotics, incision & drainage and Anti-TB drugs. The treatment process in each group examined and the results were analyzed respectively.

Results: In patients with breast lump < 2cm (n=3), simple observation followed by antibiotic treatment if the lump persisted (n=1) was sufficient. In lumps > 2cm, antibiotic treatment was successful in most of the cases (n=6). Only in four cases the lump was persistent and Anti TB drugs were started. Complete healing was achieved by surgical intervention followed by antibiotics in cases of discharging sinus. Patients with an abscess pocket (n=3), only one case resolved while two had to be put on Anti TB drugs.

Conclusion: The clinical course of IGM is complex and the outcome of each treatment type was variable. Surgery and antibiotics play an important role when the lesion is localized as an abscess pocket or mass forming lesion. Our study showed that Anti TB medication is another safe and effective systemic therapy that can be used as a compensatory treatment for IGM.

KEYWORDS:

Idiopathic Granulomatous Mastitis, Breast lumps

Introduction

Idiopathic granulomatous mastitis (IGM) is a rare, chronic inflammatory breast disease of unknown etiology. Its diagnosis becomes important both to the pathologist as well as to the surgeon as it can clinically and radiologically mimic breast carcinoma⁽¹⁾. It is usually a diagnosis of exclusion. The diagnosis of IGM is made only after other potential causes like granulomatous panniculitis, Wegner's granulomatosis, giant cell arteritis, rheumatoid nodule, tuberculosis, sarcoidosis, fungal infections and foreign body reaction to implants have been excluded⁽²⁾. Clinically the commonest presentation is as a breast lump although it may also be seen as nipple retraction, an inflammatory lesion with erosion of the skin or a sinus⁽³⁾. Since the clinical findings in IGM are not specific, pathological evaluation plays a critical role in the diagnosis. Although various explanations have been given, the exact etiology of IGM has yet not been elucidated. Though an autoimmune etiology had also been proposed due to its positive response to steroid therapy, but it failed to support the existence of immune mediated basis of IGM⁽⁴⁾. Mathelin et al⁽⁵⁾ and Ang et al⁽⁶⁾ have claimed that there is a relationship between cornyobacterium infection and IGM

The treatment of IGM still remains to be quite a challenge and varies depending on the presentation and personal experience of the treating surgeon. Though surgical excision and steroid therapy are the most widely used, the optimal treatment still remains rather debatable. In 1980, Dehetrough et al⁽⁷⁾ proposed the use of steroids for treating IGM. It proved to be efficacious but could not be used in the presence of abscess, fistulae or persistent wound infection⁽⁸⁾. Abkulut used methotrexate successfully in treating cases of IGM. He showed that it was effective in preventing complications, resolving the inflammation as well as reducing the side effects of corticosteroid therapy⁽⁹⁾. Despite treatment the recurrence rate remains 20% to 75% for IGM^(10,11) which makes it further difficult in choosing the method of treatment for patients diagnosed as IGM. In this study, we share our experience in treating cases of IGM with different modalities of treatment.

Material and method

19 female patients were included in the study from January 2013 to January 2016. They were diagnosed as IGM by performing fine needle aspiration cytology. Details of age, parity, period from last child birth, whether lactating and site of involvement were taken from the OPD forms. In all the patients the lesion was confirmed by doing a breast examination. An ultrasonography was restricted to patients presenting with breast lumps. Tuberculosis was ruled out by taking a detailed medical history, a chest X ray and by doing Ziehl Neelsen staining on the aspirated smears.

These patients were grouped into different categories depending on the initial treatment that was given to them which included observation, antibiotic treatment and incision & drainage and anti tubercular drugs. The criteria for selecting the method of treatment were as follows: Patients with mild symptoms or small lump were observed; patients with marked inflammation and tenderness were given antibiotics; patients who had abscess at the time of presentation underwent incision and drainage. Anti-TB drugs were given to patients who had painless single or multiple lesions with/without discharging sinus not responding to antibiotics.

The antibiotics given were Linezolid (600mg BD), Amoxycylav (625mg BD). These drugs were given for a period 2 weeks. Breast lumps which were lesser than 2 cm were kept under observation for two weeks with only an analgesic prescribed if the patient complained of pain or was a very anxious. For the patient with nipple discharge Minocyclin (100mg BD) was prescribed after a culture sensitivity report. Patients with abscess underwent an incision and drainage and were kept in follow up for 3-4 weeks.

The Anti-TB drugs prescribed were a four drug regime of Rifampicin, isoniazid, pyrazinamide and ethambutol for two months followed by two drugs, Rifampicin and isoniazid for four months after taking the patients consent.

Results

There were 666 breast aspirations done over a period of three years, out of which 2.8% (n=19) were reported as Idiopathic granulomatous mastitis. All patients were above 20 yrs of age, the youngest being 23 yrs. Maximum number of cases were between 20 to 30 yrs (n=10) whereas only one patient was in the age group of 51 to 60 yrs (fig1). Mean age in our study was 34 yrs, ranging from 23-55 yrs. Only three patients were post menopausal.

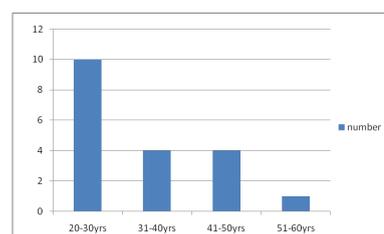


Fig 1: Distribution of cases according to the age.

All patients had history of breast feeding. Period of breast feeding varied from 9 months to 2 yrs. Maximum patients had last child birth \leq 5 yrs ago (n=11) (Table 1).

Last child birth	Number of patients
\leq 5 yrs	11
5-10 yrs	4
\geq 10 yrs	4

Table 1: Number of cases according to last child birth.

With regard to parity maximum number of cases was seen in para 2 and minimum were seen in para4 (figure 2).

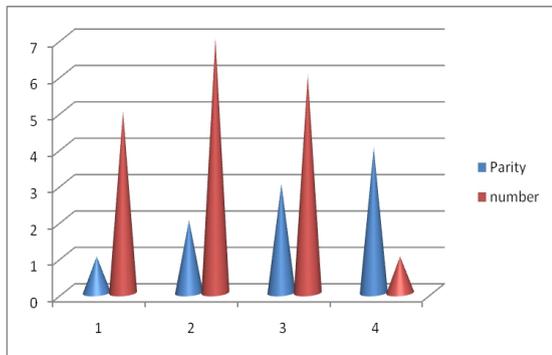


Fig 2: Number of cases with respect to parity

Maximum number of cases came with a painless breast lump (n=8) while only one case presented with nipple retraction and two with discharging sinus (Table 2). Size of the lump ranged from less than 2cm to 5cm in the largest dimension

Characteristic	Number of patient
Painless breast lump	8
Painful breast lump	5
Discharging Sinus	2
Nipple discharge	1
Abscess	3

Table 2: Distribution of the clinical presentation of patients.

On microscopy fourteen cases showed granulomas comprising of epithelioid histiocytes accompanied by lymphocytes and plasma cells with giant cells in the background. Rest of the cases did not show well formed granulomas but displayed numerous scattered epithelioid histiocytes and giant cells along with ductal epithelial cells and inflammatory cells comprising of neutrophils, lymphocytes and occasional eosinophil (Fig 3). Necrosis was not seen in any case. The giant cells had nuclei ranging from 5 to 20 arranged either irregularly or in a horse shoe shaped manner.

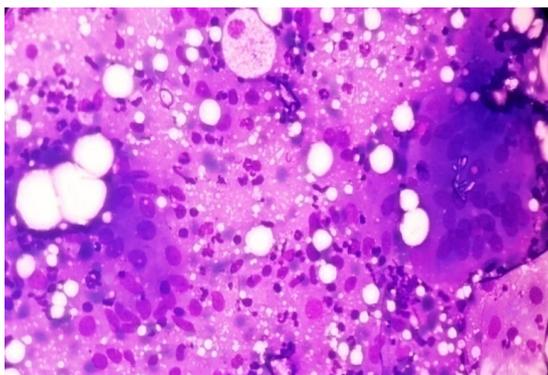


Fig 3: FNA smear showing multinucleated giant cells against an inflammatory background containing foamy macrophages and epithelioid histiocytes (H&E x 400X)

In six patients a biopsy was done and histological confirmation was made of granulomatous mastitis after doing a Ziehl Neelsen stain on the sections.



Fig 4: Multiple discharging sinuses in a 33 yr old female patient

The patients which were kept under observation were reviewed after two weeks. Out of the thirteen patients that presented with breast lump only three had a lump less than 2cm. In these, only in one patient the lump persisted. Antibiotic treatment was started and the patient responded. In the rest of the patients antibiotic treatment was started for 2 weeks. In four patients the lump persisted after two weeks, the patients were put on Anti-TB drugs. In both the cases of discharging sinus (Fig4) excision of the sinus tract followed by antibiotic treatment resulted in complete healing. The patients which presented with abscess underwent incision and drainage followed by antibiotics. One recovered while in two cases a pus pocket formed after a few days again. These were then put on Anti-TB drugs. In our study, the patients which were put on Anti-TB drugs showed complete resolution after completing their treatment without recurrence.

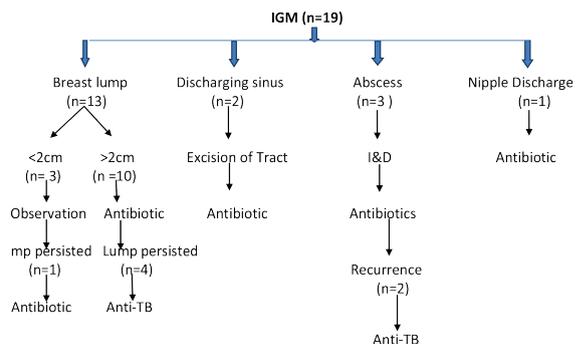


Fig 5: Process of treatment of granulomatous mastitis

Discussion

This uncommon pathogenic process was first described by Kessler and Wallooch⁽²⁾. Granulomatous mastitis proves a diagnostic challenge for the clinician as it closely mimics breast carcinoma both clinically and on radiology. Mammographic findings often describe it as “suspicious”⁽³⁾, leaving the surgeon perplexed whether to interpret it as a benign or malignant lesion. Therefore, pathological diagnosis is crucial to plan the further course of treatment for the patient. The disease resolves slowly and the course is often punctuated with abscess formation or discharging sinus. The very fact that it clinically mimics breast carcinoma itself makes it a worrisome identity for the surgeon as well as the patient. Added to this the choice of a single optimal treatment remains unclear.

The pathophysiology of IGM is still unknown. It virtually always affects parous women. This leads to the assumption that it is a cell mediated reaction to one or more substances in mammary secretion. Added to this, it's usually good response to steroids has strengthened its immune mediated etiology. In our study also all the 19 patients were parous and maximum cases had their last child birth less than five years ago.

The age at diagnosis is wide and ranges from 17-42 years, with a mean age of 33 years. In our study the mean age was 34 years. However we also had three patients who were post menopausal. Handa P has reported this disease in post menopausal asymptomatic women⁽¹³⁾. This disease has been described in literature as being associated with young women in reproductive age group and either occurs during or shortly

after lactation. In our study granulomatous mastitis was seen in patients who had breast fed even more than five years ago.

There is a higher rate of IGM in women from developing countries than developed countries as the largest series report came from developing countries⁽¹⁴⁾. This can lead to the assumption that there may be some kinds of unidentified pathogens associated with environmental pollution that may be related to IGM. There are reports that have shown a relationship between corneycyberium and IGM⁽¹⁵⁾.

C. Kroppenstedtii was the commonest pathogen isolated from cases of IGM. Commonly it is the lipophilic species of *Corneybacterium* genus that cause mastitis. The microbiological diagnosis can be challenging due to the fastidious growth requirements and prolonged incubation time. Therefore it is very likely that cases due to corneycyberium go unrecognized when isolated from breast samples. *Corneybacterium* survive in lipid filled vacuoles surrounded by a reactive neutrophilic granulomatous infiltrate rather than in inflamed tissue⁽¹⁶⁾. In this environment, adequate tissue concentrations for bactericidal activity can only be achieved by agents that are highly lipophilic and have a high volume of distribution, which includes rifampicin and clarithromycin⁽¹⁷⁾. Another possible reason for the failure of antibiotics in treating IGM cases could be attributed to the fact that due to the limitation of facilities, PCR could not be performed to rule out tuberculosis. Therefore there is a chance that cases diagnosed as IGM could have been of tubercular etiology and therefore responded to Anti TB drugs.

Granulomatous diseases can include infection (bacterial, fungal, parasitic) autoimmune inflammatory and foreign bodies. A granuloma is formed as a host inflammatory response to a poorly degradable agent by eliciting delayed type of hypersensitivity. It has been reported that Rifampicin has immunosuppressive effect when used in conventional doses⁽¹⁸⁾. This could be the reason for our patients responding to Rifampicin.

Though there are studies that have reported treating this identity with corticosteroids⁽¹⁹⁾, we hesitated using them on our patients because there is no consensus about the timing, duration and dose of the corticosteroid treatment⁽²⁰⁾. The success rate of initial treatment with corticosteroids has been reported as only 30.8%⁽²¹⁾. The disadvantages of steroid treatment include various outcomes, recurrence with discontinued use and potential side effects such as glucose intolerance or Cushing's syndrome with⁽²²⁾.

Conclusion

The primary goal in any patient diagnosed as IGM is to exclude malignancy and to choose an appropriate treatment. Surgical intervention for the management of abscess and fistulae is necessary. Combining these procedures with antimicrobial therapy proved to be successful. With failure of treatment with the commonly used antimicrobials, it appears prudent to choose agents that are active against both *Corneybacterium* and have physiochemical properties that promote activity within lipid filled spaces. Preferred choice should include rifampicin which is also active in other granulomatous infections like mycobacteria. Keeping in view the limited quantum of work in our study and lack of specialized tests, further clinical studies regarding the choice and duration of antimicrobial therapy which can be used in conjunction with surgical procedures are required.

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