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Original Article

Idiopathic Granulomatous Mastitis - Diagnostic and Therapeutic Dilemma

S G Subramanyam[1], H Raja[2], R Gayatri[3], Bincy Zacharia[4]

[1]Professor, Department of Surgery, St. John's Medical College Hospital, Bengaluru, Karnataka, India, [2]Associate Professor, Department of Surgery, St. John's Medical College Hospital, Bengaluru, Karnataka, India, [3]Department of Pathology, St. John's Medical College Hospital, Bengaluru, Karnataka, India, [4]Post Graduate Resident, Department of Surgery, St. John's Medical College Hospital, Bengaluru, Karnataka, India

Abstract

Idiopathic Granulomatous Mastitis is a rare benign breast disease that has to be differentiated from tuberculosis and other benign diseases of the breast. The diagnosis is mainly through histopathology. Due to its rarity, treatment modalities have not yet been established. We present here a retrospective review of 25 patients of Idiopathic Granulomatous Mastitis. The cases were reviewed for their mode of presentation, diagnosis and treatment. Idiopathic Granulomatous Mastitis was diagnosed in 25 out of 1586 patients with benign breast disease. The age group was in the range of 17 – 60 years (mean age of 33 years). The most common mode of presentation was a lump in the breast – 23 patients (92%). FNAC was done in 21 patients and a diagnosis of Idiopathic Granulomatous Mastitis was made in 17 of them (81%). Expectant line of management was followed in 11 patients (44%). 14 patients (56%) were treated surgically or medically. The recurrence rate in medically treated patients was 50% and for the surgically treated patients was between 25 – 50%. We conclude that FNAC could be used to diagnose Idiopathic Granulomatous Mastitis and expectant line of management should be the treatment of choice for uncomplicated disease and in those who are compliant to follow up.

Key words: Idiopathic granulomatous mastitis, Tubercular mastitis, Histopathology, Treatment

from carcinoma of the breast[1-4] and tuberculosis of the breast[5-7] and other benign breast diseases. The diagnosis is arrived through histological means.[5-8] Due to its rarity, treatment modalities have not yet been established and would rely on surgical, medical (corticosteroids and methotrexate), and expectant line of management.

In this report, we present here a series of 25 cases of IGM in a tertiary care hospital over a period of 3½ years and review the mode of presentation, histopathological reports, and the treatment modalities employed.

MATERIALS AND METHODS

In a retrospective study, the medical records and the histopathology files of patients diagnosed with IGM were retrieved at the St. John's Medical College Hospital, Bengaluru. The period of study was from January

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were checked for the diagnosis of IGM. These slides should have shown negative staining for Ziehl–Neelsen stain for the presence of acid-fast bacilli. The mode of investigations was reviewed as well as the modality of the treatment. Patients were followed up for recurrence and complications.

RESULTS

The histopathology files gave a diagnosis of benign breast diseases in 1586 patients. Of the 1586, the diagnosis of idiopathic granulomatous mastitis was made in 25 (1.57%) slides. The age group was in the range of 17–60 years (mean of 33 years) [Figure 1]. 23 patients (92%) presented with a lump in the breast which was the most common presentation. Of the 23 patients with the lump, 20 (87%) presented with a single lump and 21 (91.3%) presented with a lump/s in a single breast with no predilection for sides. 14 patients (56%) presented with complains of pain along with other symptoms and 2 patients (8%) with pain as the only symptom. 2 patients (8%) presented with recurrent abscesses [Figure 2]. Axillary nodes were palpable in 7 patients (28%). Other modes of presentation included nipple retraction in 3 patients (12%) and skin changes in 6 (24%). The skin change included erythema - 3 (50%),

Corresponding Author: Dr. H Raja, Department of Surgery, St. John's Medical College Hospital, Bengaluru, Karnataka, India.
E-mail: drhraja1@gmail.com

ulcer - 2 (33%), and peau d' orange in one patient. 11 of the 25 patients (44%) had breastfed their children. 2 patients (8%) had elevated serum prolactin levels. In the patients with elevated serum prolactin levels, one was known to have hyperprolactinemia for 10 years and she presented with recurrent abscess. In the other patients, hyperprolactinemia was detected after a diagnosis of IGM was made. She presented with a lump and nipple discharge.

Tracing the histopathology records, fine-needle aspiration cytology (FNAC) was done in 21 of 25 patients (84%). In two patients, FNAC was not done. IGM was diagnosed in 17 patients through FNAC (68%) [Figure 3]. Of the rest four FNACs, one each was diagnosed as giant cell response, non-proliferative disease, fibrocystic disease, and suppurative inflammation. In these four patients in whom FNAC were not done, the diagnosis of IGM mastitis through biopsy. Taking the two abscesses and the two ulcers, in which FNAC could not be done before biopsy; FNAC gave a diagnosis of IGM in 17 of 21 patients (81%).

In our study, 14 patients (56%) were treated either surgically or medically. Expectant line of management was followed in 11 patients (44%) [Figure 4]. Of the 14 patients treated, 10 (71.4%) were treated surgically and 4 (28.6%) were treated medically. Eight patients had undergone wide local excision of the lump with two patients had undergone incision and drainage. The four patients treated medically were treated with corticosteroids [Figure 5].

On follow-up, one of the two patients who had undergone incision and drainage had a recurrence of the abscess and had subsequently undergone debridement and curettage of the abscess wall. Of the 8 patients who had undergone wild local excision of the lumps, two had recurrence, who underwent subsequent excision. Two of the four patients who were treated with corticosteroids had recurrence.

DISCUSSION

There has been an increased reporting of IGM in recent times. The disease is more common in Asian and African women.[9-11] In one series from the USA, the prevalence was found to be 2.4/100,000 women in 20–40 years age group, and it was found to be 12 times higher in Hispanic women than the native white population.[9] Baslaim *et al.* reported the prevalence to be around 1.8% of histopathologically confirmed cases of benign breast diseases.[11] In our series, we found 25 cases (1.57%) of IGM from 1588 histopathologically confirmed cases of benign breast diseases. The disease most commonly occurs in the childbearing age group.[10,12] The etiology of the disease remains unknown. Various etiological causes have been postulated from allergic reaction to medications,[9] trauma,[13] autoimmune process,[14] subclinical tuberculosis, previous exposure to tubercular protein,[5,7] hyperprolactinemia,[15,16] alpha-1 antitrypsin deficiency,[8] oral contraceptive pills,[12] breastfeeding practices, and delayed access to health-care services.[9] The reported case series do not show any predilection to any one breast as in our series. Earlier it was thought that IGM does not affect the subareolar region, but of late cases have been reported where the disease affects the subareolar region.[2]

The disease has to be differentiated from tubercular mastitis.[5,7] Other less common conditions from which

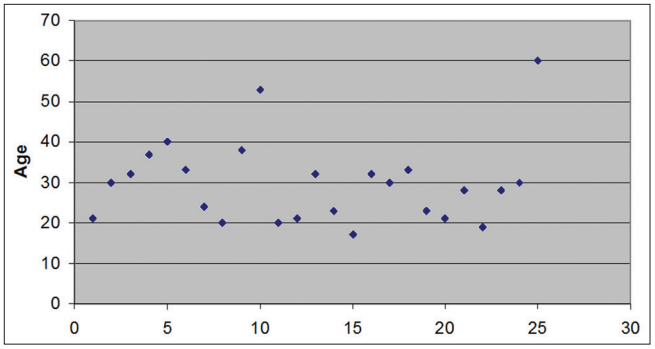

Figure 1: Age distribution of the patients diagnosed with idiopathic granulomatous mastitis

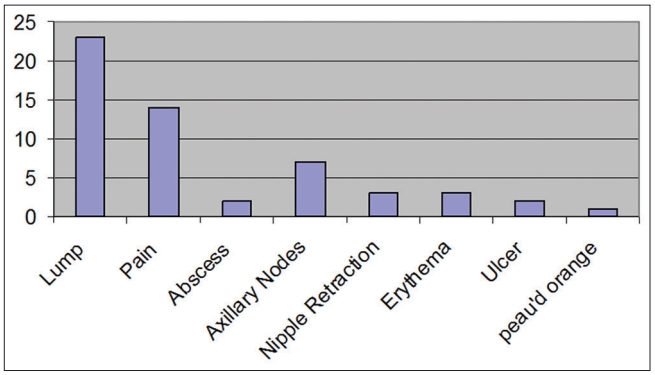

Figure 2: Chart showing the modes of presentation

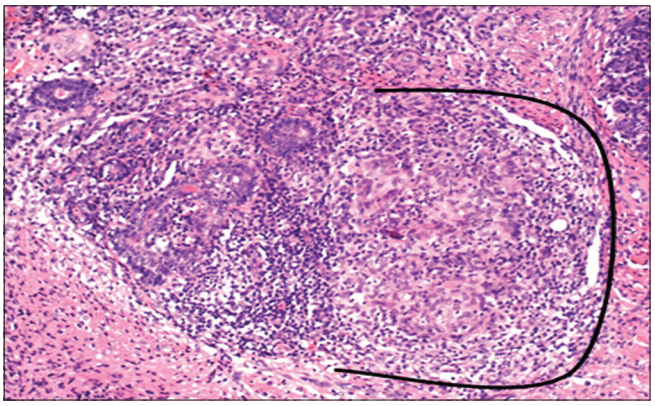

Figure 3: FNAC showing non-caseating granuloma with multinucleate giant cells and plasma cells

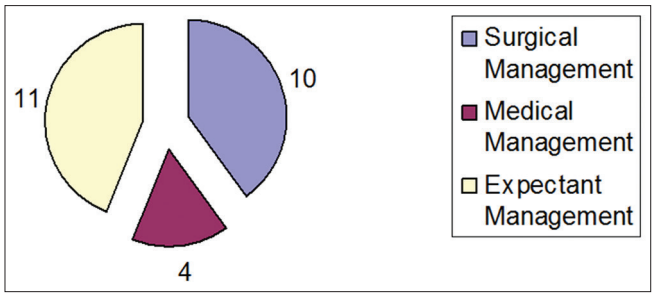

Figure 4: Treatment modalities adopted for the idiopathic granulomatous mastitis patients

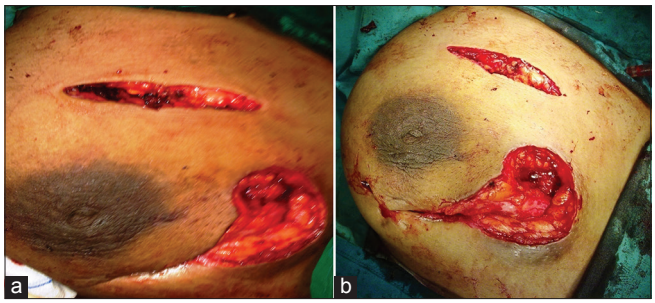

Figure 5: (a and b) Intraoperative images - drainage and excision for unilateral, multiple abscesses, and idiopathic granulomatous mastitis

it has to be differentiated are sarcoidosis,[8,17,18] Wagener's granulomatous mastitis,[19] blastomycosis, cryptococcosis, histoplasmosis, actinomycosis,[5,7] Corynebacterium infection,[20] giant cell arteritis, and foreign body reaction - which all shows granulomatous reaction.

The diagnosis is mainly arrived through histological means and a process of elimination. The slides have to be stained with hematoxylin and eosin, Ziehl–Neelsen stain, and other special stains for specific fungi and bacteria.[7,8]

The typical histological feature is the presence of a granuloma containing epithelioid histiocytes, plasma cells, lymphocytes, eosinophils, neutrophils, multinucleated giant cells, and very rarely necrosis.[5,21] In a study comparing IGM and tubercular mastitis, Lacambra *et al.* reported[5] that in IGM, the lesion occurred in older population; the lesions were smaller, showed more plasma cells and had less eosinophils, necrosis, and fibrosis. Further studies are warranted to validate the histological differences between IGM and tubercular mastitis based on histopathological features. Polymerase chain reaction (PCR) has a higher sensitivity than Ziehl–Neelsen staining and Bactec culture in diagnosing tuberculosis.[22-24] The diagnosis of IGM was arrived through FNAC in 17 of the 21 patients. FNAC seems to be a reasonable method to make a diagnosis of granulomatous mastitis.[25] However, there were four cases that were not picked up by FNAC but later confirmed through biopsy. Because PCR is more readily available now and reasonably priced, we recommend that PCR alone or in combination with other tests should be carried out in every patient that has a histological diagnosis of granulomatous mastitis until further studies validate the histopathological picture.

There has been a report of an association between IGM and prolactinoma.[15,16] In our study, we found two patients associated with hyperprolactinemia. Further studies would be required to investigate the presence of this association.

On examining histology slides, emphasis has to be laid on the presence or absence of vasculitis in differentiating from sarcoidosis and Wagener's granulomatosis. The presence of vasculitis should lead to serological tests for serum angiotensin-converting enzyme levels, antinuclear antibody levels, or any evidence of involvement such as lung and kidney.[18]

Radiology plays a less significant role in the diagnosis of IGM. Ultrasound, computed tomography (CT) scanning, mammography, or magnetic resonance imaging (MRI) do not seem to offer distinct diagnostic features for diagnosis of IGM.[2,3,26] In a series reported by Lee *et al.*,[2] asymmetric density with no distinct margin or mass effect or mass effect formed the most common finding in mammogram. Ultrasound most commonly showed irregular tubular hypoechoic lesions. CT scan showed heterogeneously echoing mass lesion while MRI showed masses with low intensity in T1W1-weighted images. Ultrasound offers a good method to follow-up lesions that have been diagnosed as IGM.[27]

No specific protocol has been established for the treatment of IGM. The disease takes an indolent course more often than not and would take 1–1½ years to settle.[10] The options available are expectant line of treatment, medical treatment with corticosteroids, to which methotrexate may be added; surgical management - which would include incision and drainage, wide excision, and mastectomy.

In our series, expectant line of management was followed in 11 patients (44%). These patients had smaller masses without any complications and all of them either remained static or their sizes decreased during the follow-up period of 1 year–18 months. 25% of those treated with excision had recurrence while 50% of those treated with corticosteroids had recurrence.

The surgical options available are wide local excision[4] and mastectomy.[28,29] If the disease is extensive, mastectomy could be offered and reconstruction gives good result if no residual disease is left behind.[29] Corticosteroids were first advocated as a treatment modality by DeHertogh *et al.,* in 1980.[30] Corticosteroids

have shown varying success rate whether used alone or in conjunction with other modalities.[22,27,31] While deciding to use corticosteroids, tubercular mastitis has to be ruled out[7] and the patient has to be monitored for complications of corticosteroids.[32] Methotrexate could also be used if response to corticosteroids is not satisfactory.[33,34] More often than not in uncomplicated cases, expectant line of management forms the best line of management.[10,17] The pragmatic approach would be to use different modalities of treatment depending on the severity of the disease.[35-37]

In our view, if the mass is small and the disease is not progressing, we can follow an expectant line of management. Abscess formation would require an incision and drainage. Since we found lower recurrence rates in the surgical arm, we would prefer wide excision as the next option. Due to the rarity of the disease, randomized controlled trials may not be possible to establish treatment protocols in the near future.

In our series, two cases presented with recurrent abscesses. The diagnosis of IGM was made after we sent the abscess wall for histopathological examination. Breast abscess is one of the most common manifestations of benign breast diseases in Asian countries. Hence, it would be prudent to send the wall of the abscesses for histological examination at least in recurrent cases, so as not to miss the diagnosis of granulomatous mastitis.

CONCLUSION

IGM is a rare disease of the breast. It has to be differentiated from tubercular mastitis and other granulomatous mastitis. The disease can be treated in an expectant manner if there are no complications. Further studies would be required to establish treatment modalities. In cases of recurrent abscesses of the breast, we recommend biopsy of the abscess wall to diagnose this condition.

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