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Original Article

A Study on Outcome of Wide Local Excision in Chronic Granulomatous Mastitis

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Abstract

Background: *Granulomatous mastitis can be divided into idiopathic granulomatous mastitis and granulomatous mastitis occurring as a rare secondary complication of a great variety of other conditions such as tuberculosis and other infections, sarcoidosis and granulomatosis with polyangitis. Idiopathic granulomatous mastitis (IGM) is an uncommon benign chronic inflammatory disease which can clinically and radiographically mimic abscess or breast cancer. Definitive diagnosis was made by histopathology and exclusion of an identifying etiology. Optimal treatment has not been yet established.* ***Objectives:*** *The aim of this study was to report and describe the clinical signs, radiological findings, managements, clinical course, and clinical outcomes after treatment of IGM.* ***Materials and Methods:*** *We conducted a descriptive cross-sectional study on 28 patients with chronic GM in Enam Medical College & Hospital collected in 1 year. The patient characteristics, clinical presentations, radiological findings, microbiological workups, tissue pathology, treatment modalities, outcomes were analyzed. We evaluated only the response of wide local excision and assess the recurrence up to 2 years after surgery on the treatment modalities to find out the proper treatments for chronic GM patient.* ***Results:*** *Twenty eight patients were diagnosed as chronic granulomatous mastitis. FNAC was conducted before excision. Twenty seven patients had chronic granulomatous mastitis and one patient had tuberculosis on histopathology. In the first setting, 28 patients were treated by surgery. Thirteen patients out of 28 had open wound after performing an excision in which healing by secondary intention was done. Ten patients had undergone primary closure and no complications.* ***Conclusion:*** *Chronic GM is an uncommon benign disease which is hardly distinguished from malignancy. There is not a significant difference among treatment modalities in term of time-to-healing and recurrence of disease. The result shows that surgery is outperformed by the shortest healing time. However, the surgical treatment must be chosen with careful due to high rate of wound complications. Multimodality treatment is recommended as the proper treatments for chronic GM patient.*

Key words*: Wide local excision; Idiopathic granulomatous mastitis; Granulomatous lobular mastitis*

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Introduction

Granulomatous mastitis is a rare chronic benign inflammatory disease of the breast first described in 1972.[1] It presents with varied local presentations.[2] Although easily confused with tuberculosis or malignancy, diagnosis is confirmed only on histopathological examination.[3] The etiology of idiopathic granulomatous mastitis (IGM) is unknown; however, some authors have speculated that the cause may be an autoimmune process, undetected microorganisms, use of oral contraceptives, or a reaction to childbirth.[4] IGM is characterized pathologically by the presence of chronic granulomatous lobulitis in the absence of an obvious etiology.[5]

An optimal treatment is not established. Medical therapy, wide local excision, and abscess drainage are currently the favored treatment options for IGM.[6] Incidence of IGM is increasing; surgeons and pathologists are commonly not aware of IGM.[6-8] It is often misdiagnosed by the primary care physician. It leads to diagnostic confusion and invariably morbidity to the patient. Surgical excision, antibiotics, incision drainage, and use of steroids are the only treatment options available with no specific guidelines.[1,9,10] Wide local excision with or without steroid therapy is the most commonly recommended treatment.[1,10,11]

The aim of this study was to analyze the clinical presentations, imaging findings, clinical course, and management of the patients who were treated for IGM.

Materials and Methods

This descriptive cross-sectional study was performed on 28 patients with chronic GM. Study population was collected by non-probability sampling technique. This study was conducted in the department of Surgery in Enam Medical College & Hospital (EMCH) in between January 2017 to December 2017 based on clinical, radiological and pathological findings, operative information and recurrence. Ethical Committee clearance was obtained.

Detailed history regarding presenting symptoms, history of lactation, and use of contraceptives, follow-up information, and recurrence were recorded from clinical records. All patients underwent clinical breast examination. Ultrasonography of breast and FNAC were performed in all patients. Histopathological diagnosis was obtained from incisional or wide local excisional biopsies. Wide local excision was performed. After drainage of abscess, incisional biopsy was taken from the abscess cavity. Inflammatory reaction with granulomas which were composed of epithelioid histiocytes, Langhans giant cells accompanied by lymphocytes, plasma cells, and occasional eosinophils centered on lobules were seen on histopathology examination. One case was diagnosed with tuberculosis.

In case of abscess, Ziehl–Neelsen staining was done for tuberculosis. Cultures for aerobic and anerobic bacteria were also obtained. Physical examination in every month and USG were performed three monthly until resolution of lesions was confirmed.

Data were collected by using predesigned questionnaire and data analysis was done manually.

Results

Twenty eight patients who were diagnosed with chronic GM histopathologically and had complete outcome data were evaluated and included in this study. Painful or painless firm and ill-defined mass were the symptoms in all the patients. One patient was diagnosed with TB after histopathology of excised sample. Though FNAC before surgery it was granulomatous mastitis. All other patients were diagnosed as chronic GM. All patients had children and had a history of breast feeding.

Table I shows the distribution of patients based on different age groups. The mean age of the patients was 27 years. Table II shows the sides of the breast with lesions. Location of lesion in the breast is mentioned in table III and most of the lesions were present in upper outer location.

Table I: Distribution of the patients according to age group

Age groups	No.	Percentage
15–25	8	28.57
26–35	15	53.57
36–45	4	14.29
46–55	1	3.57

Table II: Sides of breast having lesions

Side	Number	Percentage
Right	12	43
Left	16	57
Bilateral	Nil	0

Table III: Location of lesions in the breast

Locations	Number	Percentage
Periareolar	6	21.43
Upper outer	9	32.14
Upper inner	4	14.29
Lower outer	3	10.71
Lower inner	2	7.14
Upper mid	4	14.28
Diffuse	0	0

Table IV shows the different types of symptoms. Every patient had different type of symptoms like painful swelling, ulcerative skin lesion, abscess etc. Table V shows the number of patients based on age of last child. In nearly 36% cases age of the last child was less than 3 years.

Table IV: Different types of symptoms

Symptoms	Number	Percentage
Painful palpable mass	11	39.29
Painful swelling	6	21.43
Ulcerative skin lesion	1	3.57
Sinus formation	3	10.71
Abscess formation	5	17.86
Nipple retraction	2	7.14

Table V: Distribution of patients according to age groups of last child

Age (years)	Number	Percentage
2–3	10	35.71
4–5	12	42.85
6–7	5	17.85
8–9	1	3.57

Near about 44% patients were done by WLE operation, 36% patients by WLE with primary closure and 20% patients by WLE with secondary closure (Table VI). Only two patients (7.14%) needed recurrent operation for recurrence (Table VII). Treatment with wide local excision was successfully performed in 12 patients. Overall nine patients had no wound-related complications.

Table VI: Distribution of patients by operation type

Operation type	Number	Percentage
WLE followed by healing by secondary intention	12	44
WLE with primary closure	10	36
WLE with secondary closure	6	20

Table VII: Recurrence in different types of operations

Operation type	Number	Percentage
WLE followed by healing by secondary intention	1	3.57
WLE with primary closure	1	3.57
WLE with secondary closure	0	0

Discussion

IGM is an exceedingly rare disease with nonspecific clinical findings, mostly seen in females in their reproductive age.[6] In our study, maximum patients were in their reproductive age and all patients were parous. Many agents, such as local irritants, oral contraceptive pills, viruses, parasitic infections,

hyperprolactinemia, diabetes mellitus, smoking, alpha 1 antitrypsin deficiency, and autoimmunity have been proposed to explain the etiology of IGM; but these have never been proven.[6,12-16] It is a diagnosis of exclusion made after malignancy and other known granulomatous diseases such as mycobacterial infections and sarcoidosis have been ruled out.[17]

Studies have shown that IGM is associated with a history of childbirth and breastfeeding within the previous five years[16,18] which is consistent with our patients' history. IGM presents most commonly with a painful, firm, tender, ill-defined mass in the breast and unilateral[1,16] which is also similar to our study.

The lesions may be located in any quadrant of the breast.[16] In consequence of granulomatous inflammation, IGM can cause skin thickness, sinus and abscess formation, axillary lymphadenopathy, and nipple retraction, which may be clinically mistaken for breast carcinoma.[1,6,16] In our study, all patients were admitted with mass or accompanied skin changes. The lesions were located in any location; however, there were the tendency of periareolar and upper outer quadrant involvement in 53.56%.

Bilateral involvement is reported very rarely.[11,14,16] There was no patient in our series with bilateral and diffuse involvement. All masses were firm and ill-defined with or without axillary lymphadenopathy. However, all of these enlarged nodes were established to be reactive and without any suspicion for malignancy on ultrasound. The information obtained from ultrasound and mammography is nonspecific, and hence the lack of specificity to diagnose IGM or to exclude breast carcinoma. The most common mammographic appearance of the lesion is an asymmetrically increased density.

Ultrasound findings include a mass-like appearance, tubular/nodular hypoechoic structures, and focal decreased parenchymal echogenicity with acoustic shadowing.[19]

In other studies, parenchymal heterogeneity and areas of mixed echo pattern have been reported.[15] In our study, the most common ultrasound findings were parenchymal heterogeneity, irregular hypoechoic mass, and abscess formation. In our opinion, while physical examination indicates a locally advanced breast carcinoma, the appearance of parenchymal heterogeneity and abscess formation on ultrasound, especially with enlarged reactive axillary lymph nodes, suggest the presence of an inflammatory granulomatous process. However, these findings are nonspecific and do not exclude carcinoma. Therefore, histological confirmation is mandatory to rule out malignancy.

An ill-defined mass, asymmetrically increased density without parenchymal distortion, or microcalcification are the most common findings on mammography.[15,20] Dursan et al[21] reported that round, smooth-contoured mass-like lesion with rim enhancement, or segmental non-mass- like lesion on MRI is the most common features of the disease.However, MRI does not play a role in the differential diagnosis between other inflammatory and granulomatous diseases and IGM.[1,16,20]

There is still no accepted management strategy for IGM. Oral corticosteroids and surgery have both been used as treatment options. Limited excision alone has little benefit because there is a strong tendency of recurrence. Although initial excision of breast tissue ensures negative margins for inflammatory granulomatous tissue, it may have unfavorable cosmetic results. Oral corticosteroids have most often been used in recurrent cases in previous studies.[13,14,21] The recurrence rate has been reported to be 16–50% in the literature.[21,22] In our study we did not use any steroids and in our follow up period, IGM is seen to recur in 2 patients (7.14%). One was treated with wide local excision and the another by medical treatment.

In conclusion, though granulomatous mastitis is a rare disease but it is not uncommon in our country. It is a rare inflammatory condition of the breast, which may clinically mimic malignancy and may be misdiagnosed as carcinoma.

In high index of suspicion, pre-operative conclusive diagnosis should be made in order to prevent recurrences (possibly with core needle biopsy). Clearly, effective feedback in the context of a multi-disciplinary team is vital in these challenging cases where the patient's history, as is so often the case in medicine, provides the key to the correct diagnosis. In order to obtain a standardized surgical management of the disease, high volume studies are required.

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