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ORIGINAL ARTICLE

Clinicopathological study of granulomatous mastitis in Zagazig university hospitals

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ABSTRACT

Background: Granulomatous mastitis is a rare breast disorder first described by Kessler and wolloch in 1972, it mimics breast cancer and other inflammatory breast conditions for a great extent, and so careful clinical and radiological examination is required. Granulomatous mastitis is a pathological diagnosis needs expert pathologist. Treatment was exclusively surgical, now corticosteroids and other immunosuppressive drugs used as well prior to surgery.

Methods: This prospective follow-up study was conducted on 36 patients from November 2017 to Jun 2019, on patients diagnosed with granulomatous mastitis in Zagazig university hospitals, full clinical assessment and follow up for different treatment modalities in 6 months period (6 months cure rate).

Results: Most of our patients were in child bearing period**,** presented mostly with breast mass accompanied by axillary lymphadenopathy. U/s features were mostly irregular hypoechoic mass and axillary lymphadenopathy. BIRADS classification were mostly 3 and 4. Most of the patients received medical treatment which showed better results than surgical treatment.

Conclusion: Granulomatous mastitis may present by many different ways which may confuse the physician. It needs high rate of suspicion and careful assessment as it mimics many other benign and malignant breast conditions, medical treatment has better results as regard cure rate, recurrence and cosmetic outcomes.

Key Words: Granulomatous mastitis, BIRADS score, breast mass, breast cancer.

INTRODUCTION

Granulomatous mastitis is a rare breast disease, first described by Kessler and wolloch in 1972 as benign breast condition simulating carcinoma [1].

It mainly affects women in child bearing period with recent history of pregnancy and lactation. The term mammary duct associated inflammatory disease sequence includes group of breast entities which includes idiopathic granulomatous mastitis (IGM) periductal mastitis and mammary duct ectasia were the main pathological theory is transition of luminal secretions to breast stroma and local inflammatory process [2].

Granulomatous inflammation of the breast may be primary (idiopathic granulomatous mastitis), or secondary to systemic disease (T.B, sarcoidosis, wegner's granulomatosis….. etc.) [3].

Granulomatous mastitis is mostly presented by breast mass, other clinical presentations may include abscess formation,

axillary lymphadenopathy, local inflammation, peau d'orange, asymmetrical breast heaviness, ulcerations and sinus discharging pus. Clinical and radiological findings are varied and non-specific [4].

Most common u/s finding is irregular hypoechoic mass with tubular extension, additional ultra-sonographic features include circumscribed hypoechoic mass, parenchymal heterogeneity, skin thickening, axillary lymphadenopathy and fluid filled cysts [5].

Mammographic features also varied were as the most common finding is asymmetrical density. Other findings also include focal or global asymmetry, irregular focal mass, axillary lymphadenopathy and calcifications [6].

Granulomatous mastitis is a histopathological diagnosis, needs expert pathologist.

First to prove diagnosis and then to find a cause if found [7].

Treatment modality differs according to etiology either idiopathic or secondary to systemic disease like T.B [8].

For IGM, Treatment was exclusively surgical. Corticosteroids was first described as a treatment of IGM by dehertogh in 1981[9].

Now steroids are considered first line treatment for IGM alone or beside other immunosupressant drugs as methotrexate or azathioprine [2].

PATIENTS AND METHODS

This prospective follow-up was conducted on 36 patients diagnosed with granulomatous mastitis from November 2017 to Jun 2019 in Zagazig university hospitals. Patients underwent full clinical assessment, radiological assessment and pathological assessment either FNAC, core biopsy or even excisional biopsy. Treatment modalities include surgical, medical or combined medical and surgical. Surgical treatment was in the form of wide local excision (WLE), abscess drainage or even simple mastectomy. Medical treatment was corticosteroids, methotrexate or both. Also some other drugs were added individually according to each case such as antibiotics, antiprolactin or anti tuberculous drugs. Written informed consent was obtained from all participants and the study was approved by the research ethical committee of Faculty of Medicine, Zagazig University. The work has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

Follow up for 6 months (6 months cure rate) and data were recorded.

Statistical analysis:

All patients' data were collected checked and analyzed by using (SPSS version 20), data were expressed as a mean and number with (%), ;. Difference and association of qualitative variable by Chi square test (X^2). Differences between quantitative independent groups by t test. P value was set at <0.05 for significant results & <0.001 for high significant result.

RESULTS

Thirty six patients were included in the study, all of them were in child bearing period except one patient. Age ranges between 25-75 years (table 1), most of them between 35-45 years. 12 patients (33%) never lactated from affected site.

As regard past history of medical disease, 1 patient had diabetes mellitus, 1 hypertensive patient and 2 patients had poly cystic ovary disease, three patients had hyperprolactinemia and one patient with irritable bowel syndrome (IBS).

Here the most common presentation was breast mass which may be or may not complicated either by abscess formation (figure 1) or sinus discharging pus, also axillary adenopathy may be concomitant symptom (table 2).

Radiological assessment was done by U/S, mammography or both. (table 3) Most common U/s finding was irregular ill-defined hypoechoic breast mass in 21 cases and most common mammographic finding was asymmetric density in 15 cases. 30 (83.3%) cases were classified as BIRADS 3 or 4 (13 cases BIRADS 3 and 17 cases BIRADS 4).

FNAC was used for pathological diagnosis in 3 cases all were false negative. Core biopsy was done in 30 cases with accuracy 93.3%. Finally excisional biopsy was done in 13 cases all were conclusive for diagnosis.

Histopathology results were non-caseating granuloma with multi-nucleated giant cells (figure 2), lymphocytes consistent with idiopathic granulomatous mastitis (IGM), except one case breast sarcoidosis which was a female patient 75 years which suffered of large left breast lump and enlargement and diagnosed previously with chest sarcoidosis.

As regard treatment, 16patients received primary medical treatment, 8 patients received surgical treatment and the rest 12 patients received combined medical and surgical treatment (figure 3).

Twenty three cases received initial treatment with antibiotics as they were diagnosed provisionally as infective mastitis and they didn't show any improvement.

Sixteen cases received primary medical therapy in the form of prednisolone 20mg/d for three months then gradual taper with or without methotrexate 20 mg/week or methotrexate alone.

One case received methotrexate alone because she is diabetic.

One case received prophylactic anti tuberculous drugs (rifampicin+INH) for 6 months in addition to corticosteroids and methotrexate because she was tuberculin positive.

One case s received anti prolactin drugs, one case received it empirically with antibiotics but she didn't have prolactin level assay she didn't respond any way

The other 3 cases, 2 of them had galactorrhea and high prolactin level and they exhibited improvement, the last case was pregnant lady 33 years at time of presentation, she received antiprolactin (bromocriptine 2.5 mg/d) shortly after delivery with corticosteroids and advised to stop breast feeding because symptoms worsened during pregnancy and after delivery and she began to improve clinically and radiologically. All these cases showed improvement clinically or radiologically during 6 months follow-up

Eight cases had primary surgical treatment one case simple mastectomy and the other undergone wide local excision.

Four of WLE cases had recurrence either radiologically or clinically as recurrence of the pus discharge, abscess or mass itself and switched to medical treatment

Twelve cases underwent combined medical and surgical treatment. 10 of them showed satisfactory outcomes and regression. 2 of them didn't show satisfactory improvement results.

The best results were for medical treatment with steroids and methotrexate and this proves the auto-immune theory for disease pathogenesis (figure 5)

Also medical treatment spares unneeded mastectomies and bad cosmetic results which may be disastrous for the patient and makes many psychological problems (figure 4).

Surgical intervention may be needed in certain cases as resistance and failure of medical treatment and if there is large pus collection or sinuses and needs drainage.

Here we save the shape of women's breast and avoid unneeded mastectomies and achieve same results in spite of surgery.

Table (1) mean age of IGM patients.

	Age
Mean± SD	35.5±8.21
Median (Range)	35.0 (25-75)

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Table (2) clinical presentations among studied cases

	N	%
Abscess	16	44.4%
Mass	23	69.9%
Axillary lymphadenopathy	21	58.3%
Sinus discharging pus	9	25%

Table (3). Radiological findings among studied cases.

		N	%
Mammography	Not done	17	47.2
	Asymmetrical density	15	78.95
	Ill-defined mass	4	21.05
	Axillary lymphadenopathy	15	78.95
	Total	36	100.0
		N	**%**
US	Cystic lesions	3	8.3
	Diffuse inflammation	3	8.3
	Fibro adenoma	3	8.3
	Irregular Ill-defined mass	21	58.3
	Inflammatory cysts	3	8.3
	Mastitis	6	16.7
	Axillary lymphadenopathy	18	50.0
BIRADS	2	6	16.7
	3	17	47.2
	4	13	36.1
	Total	36	100.0

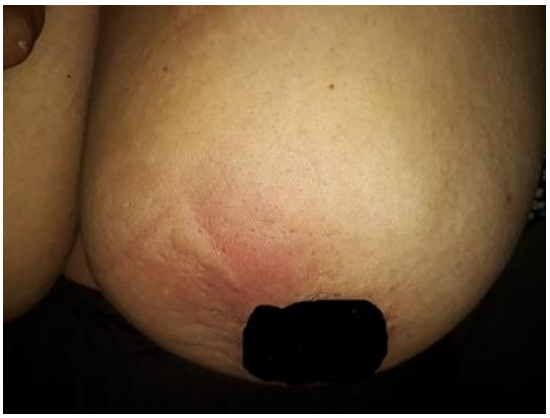

Fig. (1): IGM patient presented with chronic breast abscess formation, the lady underwent drainage and excisional biopsy which proved IGM, and she discovered pregnancy 1st trimester.

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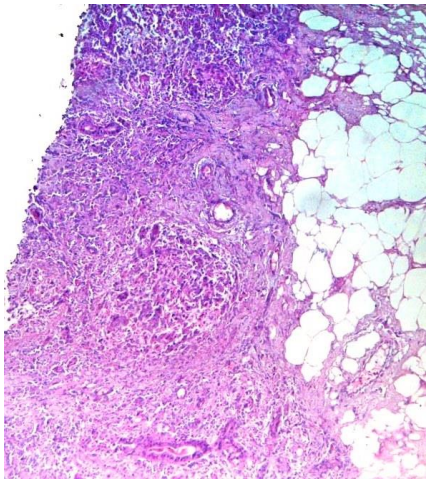

Fig. (2): photomicrograph of IGM patient (low power field) shows non-caseating granuloma and multi-nucleated giant cells.

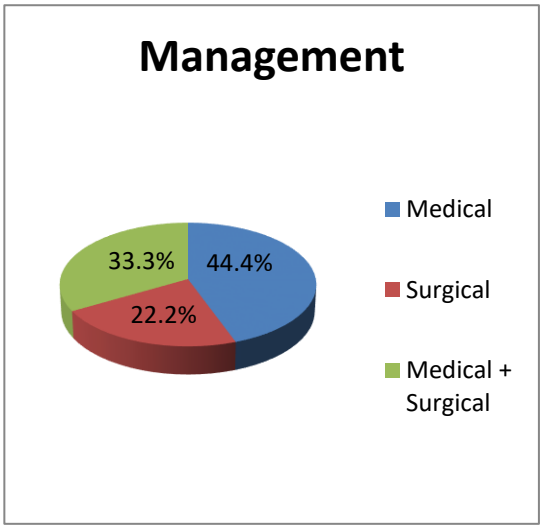

Fig. (3): treatment modalities for Granulomatous mastitis in studied group.

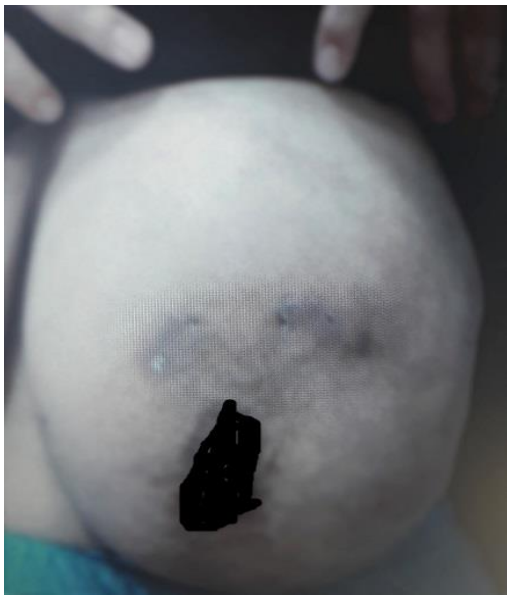

Fig. (4): multiple scars from repeated abscesses drainage.

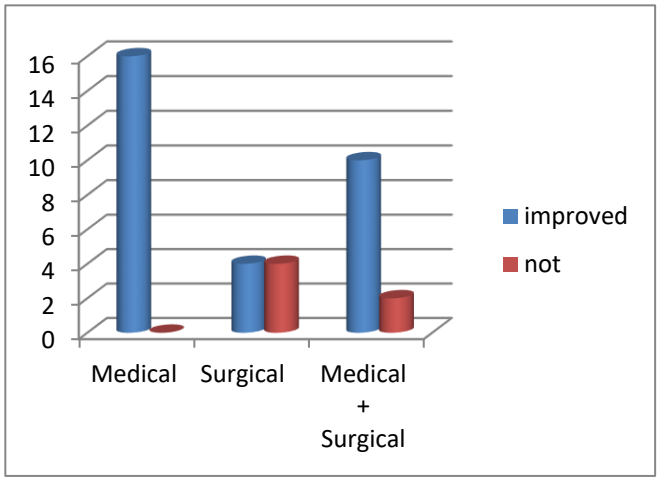

Fig. (5): response to each treatment modality.

DISCUSSION

Granulomatous mastitis is benign breast entity which may simulate breast cancer by many ways clinically and radiologically [10].

Surgeons, radiologists, pathologists must be aware when dealing with such disease to avoid over estimation, over treatment and finally unnecessary mastectomies, Histopathology is the corner stone for diagnosis of GM, it needs an expert pathologist [11].

Core biopsy is more accurate than FNAC for diagnosing IGM. Specimen should be differentiated from breast cancer and other etiologies of breast granulomas [12].

Treatment of IGM remains controversial with no established protocol for treatment up till now, because randomized clinical trials are lacking to determine the optimal treatment of IGM [13].

Corticosteroids have been shown to be an effective first-line therapy for patients with histopathologically proven symptomatic IGM [14].

Our work aimed to evaluate different methods of diagnosis and treatment of granulomatous mastitis.

The mean age of GM patients in our study is 35 (ranges from 25-75) years.

In our study 52.8% were pregnant in the last 5 years from disease presentation, 1 patient of them was pregnant at time of diagnosis.

In our study, all of the patients 100% had unilateral disease with 0% bilaterality.

Clinically most of the patients presented either with breast mass or abscess which my easily misdiagnosed as breast cancer or infective mastitis respectively. Also most of them had axillary lymphadenopathy either clinically or radiologically.

In our study the most common U/S finding was irregular ill-defined hypo echoic mass (50%) and the least common presentation was cystic lesions and diffuse inflammation (3.83%), while regarding mammographic findings the most common finding was asymmetrical density (78%). The least was ill defined mass (21%).

Most of our patients were classified radiologically as BIRADS 3 or 4, which also raises suspicion of malignancy.

3 patients underwent FNAC all of them were false negative. 30 patients underwent core biopsy which was conclusive in 28 patients (39.3%) and false negative in 2 patients (2.7%) who underwent excisional biopsy for diagnosis The majority of studied cases received medical treatment which gave better results as regard improvement of symptoms and size of the mass.

In our study. 16 patients (44.4%) received medical treatment, 8 patients (22.2%) received surgical treatment, and 12 patients (33.3%) received combined medical and

surgical treatment. Best results were for medical treatment.

Surgical treatment had higher recurrence rate, beside bad cosmetic results from repeated abscess drainage or excision of the mass or even mastectomy.

CONCLUSION

Based on our study we conclude that, Granulomatous mastitis may present by many different ways which may confuse the physician.

It also needs high level of suspicion. It mimics a lot of benign and malignant diseases in presentation

Core biopsy is better advised for histopathological diagnosis

Medical treatment showed better results than surgery and less recurrence rate

Also it spared bad cosmetic results of surgery

We recommend to not rush for surgery when dealing with granulomatous mastitis.

Patients were satisfied with medical treatment more than surgery.

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