CHRONIC BREAST INFECTIONS: CHALLENGING CONDITION TO DIAGNOSE AND TREAT; AN OVERVIEW OF 70 CASES

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ABSTRACT

Objective: To share our experience of clinical features and management strategies for treatment of chronic breast infections.
Study Design: Case series.
Place and Duration of Study: Combined Military Hospital Rawalpindi, from Feb 2016 to Feb 2018.
Methodology: We prospectively enrolled patients with diagnosis of chronic breast infections over a period of two years. All patients with infections (less than one month old) were excluded from the study. We studied the demographic characteristics like age, clinical presentation, histopathological features, treatment given and response to the treatment.
Results: A total of 70 patients were enrolled in the study. Patients age was between 21-75 years with mean age of 42 ± 5 years. Most common clinical presentation was lump and in duration with abscess in 23 (33%) cases, mass with discharging sinuses in 16 (23%) cases, while 7 (10%) cases had recurrent abscess. Diagnosis was made on core biopsy in 21 cases and in remaining cases with incision and drainage. Histopathology confirmed diagnosis of Idiopathic Granulomatous mastitis in 30 (43%) cases, acute on chronic mastitis in 27 (38%) and chronic granulomatous mastitis in 13 (18%) cases. Out of all cases 29 (41%) showed response to antibacterial treatment while 27 (38%) cases responded to anti tuberculous treatment. Spontaneous resolution occurred in 11 (16%) cases while 3 (4%) cases responded to antifungal treatment.
Conclusion: Chronic breast infections are a challenging condition to diagnose and treat for breast surgeons and can present with diverse range of clinical features.

Keywords: Anti tuberculous treatment, Chronic breast infection, Demographic characteristics, Idiopathic granulomatous mastitis.

INTRODUCTION

Incidence of non-lactational abscesses and chronic breast infections is on the rise, presenting a challenge both or the treating physicians and simultaneously leading to a significant stress and morbidity of the patients[1]. Granulomatous mastitis is an uncommon yet very important chronic condition of the breast. It poses significant challenges for diagnosis and treatment[2]. It is often difficult to differentiate various chronic breast infections clinically such as Idiopathic granulomatous mastitis, chronic granulomatous mastitis, breast tuberculosis and fungal infections.

Chronic breast infections may be due to bacteria, tuberculosis, autoimmune conditions like sarcoidosis, wegner's Granulomatosis, fungal infections[3]. Idiopathic Granulomatous mastitis was first introduced in 1972 by Kessler and Wolloch[4]. Idiopathic granulomatous mastitis (IGM) is considered to be a non-neoplastic, chronic inflammatory lesion of the breast which mimics carcinoma both clinically as well as radiologically[5,6].

IGM affects mostly parous women of child-bearing age, but has been reported in the age range of 11-80 years[7]. Exact aetiology of idiopathic granulomatous mastitis remains unclear. Usually there are no cultures on isolation. Clinical presentation may range from skin erythema, induration, drainage sinuse, mass with nipple retraction[8]. It becomes difficult to differentiate clinically breast tuberculosis, IGM and breast cancer when the presentation is mass with nipple retraction. Therefore histopathology and tissues cultures are used for differentiation[9]. Failure of recognition of various factors which may result in granulomatous reaction in the breast (tuberculosis, certain parasitic and fungal infections, Wegener's granulomatosis, giantcell arthritis, polyartheritis nodosum, sarcoidosis, foreign body reaction, etc.) will support the diagnosis of IGM. The aetiology of IGM remains unclear. Various factors, including hormonal imbalance, autoimmunity, unknown microbiological agents, smoking and α1-antitrypsin deficiency have been suggested to play a role in disease aetiology. There is still controversy regarding the treatment of various chronic breast infections and debate is still going on. Treatment options range from medical management with antibiotics, steroid therapy, antituberculous and immunosuppressive management depending upon the proposed aetiology of the condition. Various surgical options include

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abscess drainage and limited or wide surgical excision, however none of the treatment strategy is considered as standardised treatment so far, and hence studies are required to share experience of various breast surgery units in handling these challenging conditions.

The objective of this study was to share personal experience regarding challenges faced in diagnosis and management of different chronic breast infections ranging from clinical presentation to the various treatment options utilised and the final outcome as a result of treatment.

METHODOLOGY

This study was a case series conducted at Breast surgery department of Combined Military Hospital Rawalpindi, from Feburary 2016 to Feburary 2018. A total of 70 patients with breast infections reported in this period. Written informed consent was obtained from all patients and approval was obtained from Institutional review board of CMH Rawalpindi. Patients with acute or recent infections (less than one month old) were excluded from the study. Various clinical parameters like age and clinical presentation was documented. Diagnosis was confirmed with the help of histopathology and tissue culture. Treatment was initiated on the basis of clinical presentation and later on tailored if needed based on tissue microbiology and final histopathological diagnosis. Clinical response to the treatment and final outcome was noted. Data was analysed using descriptive statistics with SPSS-20.

RESULTS

A total of 70 cases of chronic breast infection were included in the study. All were females with age ranging between 21-75 years and an average age of 42 ± 5 years. Most common clinical presentation was breast lump with abscess formation in 23 (33% cases), followed by mass with discharging sinuses in 16 (23%) cases, mass with erythema in 13 (19%) cases (figure-1, 2 & 3). Out of all cases 11 (15%) patients presented with lump only while 7 (10%) cases had recurrent abscess.

Diagnosis was confirmed on core biopsy in 21 (30%) cases while in remaining 49 (70%) cases it was confirmed on incision and drainage & tissue biopsy. Of all cases 38 (54%) were culture negative while 29 (41%) were positive for bacterial culture and 3 (4%) were positive for fungal culture. None of the cultures yielded growth of AFB. Histopathology of all cases was done. Most common diagnosis was idiopathic granulomatous mastitis (IGM) 30 (43%), followed by acute on chronic mastitis in 27 (39%) and chronic granulomatous mastitis in 13 (18%). Treatment was initiated based on histopathological and tissue culture results. In cases where tissues cultures were negative for bacteria, fungal & AFB cultures but patients were symptomatic experiencing agonising pain and had discharging sinuses, empirical ATT was given after councelling of the patient. Anti tuberculous treatment (ATT) was successful in 27 (39%) cases. By the end of 4th month of ATT there was 95% resolution of symptoms, only 2 cases were non responders and ATT was stopped after 3 month. It was a difficult decision whether to start empirical ATT based on clinical picture mimicking breast TB but with negative cultures for AFB, however after detailed discussion with the patients about limited treatment options patients agreed to receive treatment and also showed willingness to be part of study. 11 (16%) patient had spontaneous resolution after average period of 10-15 months while 3 (4%) responded to antifungal treatment (table).

Figure-1: Chronic mastitis: recurrent abscess.

Figure-2: IGM: Recurrent sinus formation (complete clinical response with ATT).

Figure-3: Recurrent chronic granulomatous mastitis.

DISCUSSION

Chronic infections of the breast are poses considerable challenge both in diagnosis as well as treat-

ment. Inflammatory diseases of breast large spectrum of diseases which range from chronic recurrent infections to autoimmune diseases. Various causes of chronic breast infections include bacteria like corynebactrium, tuberculosis and other mycobacteria, fungi or parasites. Cultures are often difficult due to prolong incubation period[10]. In developing countries like Pakistan where tuberculsosis is common a picture of granulomatous inflammatory change can suggest tuberculosis. Diagnosis of tuberculosis is confirmed on the basis of histopathological evidence of caseation, tubercles or granulomas[11].

Table: Clinical features and treatment strategies.

Clinical Presentation	n (%)
Mass with abscess	23 (33)
Mass with sinus	16 (23)
Mass with erythema	13 (19)
Mass only	11 (15)
Recurrent abscess formation	7 (10)
Diagnosis	
Core biopsy	21 (30)
Incision and drainage	49 (70)
Histopathology	
Idiopathic granulomatous mastitis	30 (43)
Acute on chronic mastitis	27 (39)
Chronic granulomatous mastitis	13 (18)
Tissue Culture	
Bacterial culture positive	29 (41)
Fungal culture positive	3 (4)
AFB culture positive	-
Tissue culture negative	38 (54)
Treatment	
Antibacterial treatment	29 (41)
Antituberculous treatment	27 (39)
Spontaneous resolution	11 (16)
Antifungal treatment	3 (4)

Most common histological variety in our study was Idiopathic chronic granulomatous mastitis (IGM) where no bacteria were isolated and cultures were also negative for fungus, followed by chronic severe mastitis & granulomatous mastitis. Majority of the cultures in our study 30 (42%) were negative for bacteria, PCR for TB and AFB cultures were also negative.

Clinical presentation is variable ranging from firm to hard mass, with or without nipple retraction, acute on chronic abscess formation, non healing sinuses, axillary lymphadenopathy and in certain cases mass may mimic carcinoma breast[12]. In our study most common presentation was lump with breast formation. Dobinson *et al*, studied species of corynebacterium which has importance in the proposed pathogenesis of granulomatous mastitis. There were two cases of coyrnebacterium in our study population while Taylor *et al*, demonstrated granulomatous disease in 27 of 34 patients with inflammatory mastitis and concomitant Corynebacterium infection[13]. Shorter course of antimicrobial therapy may not be sufficient to treat species of corynebacterium, it may require longer time period as for tuberculosis[14].

Treatment is often difficult and challenging especially in cases where bacterial & fungal cultures are negative. Amongst chronic breast infections IGM is considered as a diagnosis of exclusion, when histopathology doesn't show granulomas, and cultures are also negative for bacteria and tuberculosis. IGM is a challenging situation to treat as treatment options are very limited and not very specific. There is still considerable controversy over definitive treatment of GM.

Treatment options include medical management with antibiotics steroid therapy and immunosuppressive agents, as well as more invasive approaches such as surgical excision and abscess drainage. Pandey *et al*, and Salehi *et al*, in their separate studies have mentioned corticosteroid therapy to be an effective means of GM resolution with a smaller chance of recurrence[15,16]. While in our study majority responded to empirical ATT. There are others who still support surgical excision as primary treatment with the use of steroids tolimit the size of the lesion.

A recent study of 24 patients in New York found that medical management was most effective, with an 80% response rate to prednisone and methotrexate, anda comparable recurrence rate of 50% to previous reports[17]. Patients who had shown positive bacterial & fungal cultures were treated according to results of the culture. Since tuberculosis is still not un common in Pakistan therefore patients with diagnosis of chronic granulomatous mastitis were treated with short course of Antituberculous treatment, most of these patients had fistula formation, erythema and abscess formation in inflammatory masses. Out of 27 cases treated with ATT, 24 cases showed complete response, where as one patient had partial response. Only two cases were non responders, later on these cases also underwent spontaneous resolution in 9-14 months. Spontaneous resolution occurred in 11 cases, mean time for resolution was 4-14 months.

Tuberculous mastitis is another rare phenomenon, which poses significant challenges in diagnosis and is difficult to differentiate it from IGM and breast cancer clinically. Although none of our study cases was positive for AFB cultures or PCR, but patients

with chronic granulomatous mastitis and few cases of IGM who had significant clinical resemblance with tuberculosis of breast were given ATT and they showed response after 3rd month of ATT.

Role of surgery is limited to abscess drainage, open biopsy, and excision biopsy in some cases where there is non resolving mass and suspicion on malignancy is higher. Our 49 patients underwent incision drainage and open biopsy.

Chronic breast infection has a reported recurrence rate between 16-50%[18]. In our study recurrence rate was 10%. In study by Erozgen *et al*, on chronic breast average age of woman presenting with chronic breast infections were in their fourth decade[19]. In our study mean age was 42 ± 5 years. Optimal treatment of chronic breast infections remains unclear. Literature has described treatment antibiotics, steroids, abscess drainage, wide surgical resection, and even mastectomy in few cases[20,21]. In certain cases successful treatment with prednisolone, methotrexate and azathioprine have also been reported. In our study 39% cases responded to anti tuberculous therapy which was started empirically and even 16% cases had spontaneous resolution.

CONCLUSION

Our study has highlighted an important fact that chronic that breast infections are a challenging condition to diagnose and no standard treatment is so far available can be tailored according to various clinical and pathological characteristics of the disease. Moreover empirical ATT in case of chronic breast infections has favourable outcome, however more studies are required to establish this fact.

LIMITATION OF STUDY

This study has few limitations. This was a descriptive study and only include people reporting to a specific setup only which may not be true representative of the populations and hence conclusion and observation drawn from this study needs further research to formulate guidelines regarding management of chronic breast infections.

CONFLICT OF INTREST

This study has no conflict of interest to be declared by any author

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