ORIGINAL ARTICLE

The excision of fistula and single major duct in the treatment of chronic subareolar mastitis

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Abstract

Objective: The aim of the present study was to evaluate treatment results in patients with chronic subareolar mastitis characterized by episodes of mastitis, abscess formation, a subareolar mass, chronic fistulae, and retraction of the nipple.

Design: Retrospective study

Setting&Duration: The patients were evaluated between May 2005 and January 2009 in Ankara Training and Research Hospital, Ankara .

Methodology: Ten patients (mean age, 43.9 years) with subareolar mastitis were included in the study. Breast ultrasonography was performed pre-operatively on all patients, and culture material of the affected tissue was obtained by fine needle aspiration biopsy. Oral ciprofloxacine treatment (500 mg twice daily) was administered for 7 days pre-operatively and 7 days post-operatively. Excision of the the fistula tract and single major duct excision technique was performed on six patients under general anesthesia, and on four patients under local anesthesia. The patients were followed for a mean period of 16.5 months.

Results: The most common complaint was discharge from a localized breast skin fistula (60%) and mastalgia (50%). Fistula openings were found adjacent to the aereola in eight patients. Culture growth was identified in 9 of 10 patients. Staphylococcus epidermidis culture growth was observed in seven patients, Peptostreptococcus culture growth in two patients, and a culture growth of both microorganisms in two patients. Histopathologic diagnosis were reported as periductal mastitis. No recurrences were identified in any of the patients.

Conclusion: Excision of the the fistula tract and single major duct excision procedure appears to be a suitable method in the treatment of chronic subareolar mastitis, with a low recurrence rate and satisfactory cosmetic results.

Key Words: Chronic mastitis, duct excision, mastalgia

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Introduction

Subareolar breast abscesses are complex pathologic conditions, the pathogenesis of which is not understood. Subareolar breast abscesses are characterized by repeated episodes of mastitis and abscess formation, a subareolar mass, chronic fistulae, retraction of the nipple, and nipple discharge.[1] Ductal ectasia, periductal inflammation, fibrosis, and squamous metaplasia form the basis of this disease. A subareolar breast abscess is a chronic disease with exacerbations. The patients affected by subareolar breast abscesses are mainly premenopausal females. Females with chronic subareolar breast mastitis are more prone to the risk of breast cancer compared to the general population.[2]

Methodology

Ten patients who underwent surgical operation with a diagnosis of chronic subareolar mastitis at the 2nd and 5th General Surgery Departments between May 2005 and January 2009 were included in this retrospective study.

The patients were females between the ages of 28 and 54 years. Cultures from fistula discharg-

es and samples for antibiogram were obtained from patients with fistula openings on the breast skin. In addition, the discharge was aspirated by fine needle from the inflamed breast mass in two patients with no fistulas, and sent to the microbiology laboratory for culture under aerobic and anaerobic conditions. Fine needle biopsy was performed in five of the patients considering the probability of malignancy due to the hard and fixed nature of the mass. Mammography, one of the imaging techniques, was not performed due to the presence of inflammation and also because it would be painful. Routine ultrasonography was performed. The antibiotic that was reported to be sensitive in the antibiogram was administered orally for a total of 2 weeks (7 days pre-operatively and 7 days post-operatively).

As a surgical technique, excision of the the fistula tract and single major duct excision of the affected breast quadrant were performed on six patients under general anesthesia, and on four patients under local anesthesia. We prefer radial incisions to acces both affected major duct and fistula tract. The single major duct system related the fistula tract was totally excised. The patients were followed for 6-42 months. The mean follow-up period was 16.5 months.

Results

The mean age of this study group was 43.9 years. The most common reasons for admission were discharge from a localized breast skin fistula opening (80%) in 8 patients, and mastalgia (50%) in 5 patients. More than one surgical procedure was performed on five of the patients due to a history of breast abscesses. Fistula openings were found during examination adjacent to the areola in 8 of the 10 patients. In addition there were hard mass formations in 3 patients whohad fistula openings. No signs of fistula formation were identified in the other two patients, apart from a hard, painful mass formation. Treatment by abscess drainage was performed at an external center, three times in one of the five patients who underwent surgical operation, and twice in one of the patients. It was observed that inflammation and fistula discharge were reduced following pre-operative antibiotic treatment. In the ultrasonography reports of the patients, irregular changes in the ductal structures and granular structures that mimic mass formation were identified.

Culture growth of the samples was identified in 9 of the 10 patients. There was Staphylococcus epidermidis culture growth in seven patients, Peptostreptococcus culture growth in two patients, and a culture growth of both microorganisms in two patients.

Findings consistent with periductal mastitis were identified in four of the five patients in whom pre-operative fine needle aspiration biopsy was performed. On the other hand, the cytology result was consistent with a negative smear in one patient. No recurrences were identified in any of the patients. The histopathologic results of all patients were consistent with periductal mastitis.

Discussion

Patients with subareolar mastitis are predominantly premenopausal. In the literature, the mean age of the patiens were altering 33 to 41 years.[1,3,4,5] In the present study, the patients were between 28 and 54 years of age, and the mean age was 43.9 years. This average age appears slightly higher, but this difference may be a result from the limited number of patients in this study.

In the present study the most common cause of presentation was mammary duct fistulae, (80%) while mastalgia was the second presenting symptom (50%). Similarly Ammari reported that mastalgia and pus discharge from nipple were the most frequent symptoms, in addition to mammary duct fistula was found in 43% of the 35 patients.[3] The typical history of the patients involves recurrent episodes of abscesses. The history of the disease may extend for months or even years. Most of the patients would have taken more than one antibiotic treatment during this period. Chronic fistula openings are typically observed around the areola.[1] Dixon's study established that 70% of the patients had a past history of previous periductal mastitis.[6] The presence of a history of drainage of the abscess in

50% of the our cases was similar with this result. In the present study, treatment with incision and drainage had been performed on five patients at another center, this procedure was performed on two of these cases more than one time.

Majority of the authers have been reported strong association of cigarette smoking with subareolar mastitis.[6,7] Al-Khaffaf reported that 60% of the patients were smokers at the time of presentation. Dixon's large study group included a significant excess of smokers.[6,8] Dixon claimed that periductal mastitis and duct ectasia were different conditions with different aetiologie. It was his argument that periductal mastitis affected women at a younger age than duct ectasia and there was a significant excess of smokers in patients with clinically diagnosed periductal mastitis compared with duct ectasia (89% versus 28%). Unfortunately, in the present study we couldn't say about the cigarette smoking habbits of our patients because of the shortage of the records.

Many studies emphasized that chronic subareolar mastitis is related to bacterial infection.[3,8] In a study involving 29 patients, the most common aerobic organism cultured was coagulase-negative staphylococci (60%); the most frequent species was Staphylococcus epidermidis, at a rate of 30%. Among the anaerobic microorganisms, the most frequent organism was peptostreptococci, at a rate of 47%; Peptostreptococcus magnus was the most common subgroup, followed by Propionibacteria and bacteroides.[9] In the present study, there was culture growth of S. epidermidis and peptostreptococci in 9 of the 10 patients. The antibiotic medication that is to be selected in the management of subareolar breast abscesses should be effective on aerobic and anaerobic microorganisms, especially S. epidermidis and peptostreptococci. [9]

One of the most important difficulties encountered during the treatment of chronic subareolar mastitis is recurrence. Reccurence rates according to the authors for major duct resection were reported 0-48 % in short follow-up periods; 55% of the patients were free of recurrent infections at 1 year and 40% at 7 years postoperatively.[1] Hanavadi stressed that postoperative infection remains a major factor and needs to be addressed to reduce the risk of recurrence.[4] Bundred reported that excision of the fistula of periductal mastitis and primery closure without antibiotic cover resulted high percentage of the reccurance, but no reccurance was observed in another group under antibiotic cover with a penicillin and metranidazole.[10] This result is compatible with the present study where there were no reccurence in patients under antibiotic cover.

It should be noted that some cancers mimic subareolar breast abscesses. In a study involving 277 patients, a significant increase in cancer development was identified within the 12 months following treatment.[2] In the suspected cases who had mass formation we performed fine needle cytology for distinguish the malignancy. No findings of breast cancer were reported from the case group in the present study during 16.5 months of follow-up.

One of the treatments of subareolar breast abscesses is surgical excision of the major duct system of the breast. This operation was first designed by Adair and described by Hadfield and Urban.[11] This surgical technique affects whole major duct system, and may results nipple anaesthesia or areola necrosis. To obviate these complications, some modifications were made. An excision of single major duct or an incision of only one-third of areolar circumference, and using no areolar flap techniques were performed.[11,12] It is the surgical procedure implemented in our clinic that excision of the fistula tract and single major duct excision of the affected breast quadrant. We prefer radial incisions to acces both affected major duct and fistula tract. This procedure appears to be a suitable method in the treatment of chronic subareolar mastitis, with a low recurrence rate, and produce better cosmetic results. In addition, antibiotic treatment administered pre-operatively following aspiration of the material from the infected tissue and the antibiotheraphy may increase the success after post-surgical excision. Furthermore, narrowing

of the infected area facilitates a more conservative surgical intervention. In a study conducted on 30 patients by Hadfield et al., no recurrence was reported during the 12-84 months follow-up period after surgical resection.[1] Hughes et al. also conducted a study involving 122 patients, and reported a recurrence rate of 16% during the 12-120 months follow-up period after surgical resection.[1] Almasat reported a new technique that fistula formation resulted from periductal mastitis could be treated by total excision of the ductal system and advancement flap of the areola-nipple complex.[5] Hanavadi recommended that simple breast fistulas should be treated by fistulectomy and total duct excision should be reserved for complex fistulas.[4]

In the present study, single duct excision involving the affected ducts was performed on all of the 10 patients. No recurrences were reported in any patient who were followed for 6-42 months during the post-operative period.

Conclusion

Conservative treatment is not successful, including the use of antibiotics and corticosteroids. Treatment of chronic subareolar mastitis by incision and drainage is not beneficial and causes a high recurrence rate. Excision of the fistula tract is not sufficient in deep subareolar mastitis. Resection of the whole major ducts entertains some cosmetic problems. Excision of the fistula tract and the single major duct procedure appears to be a suitable method in the treatment of chronic subareolar mastitis, with a low recurrence rate and satisfactory cosmetic results.

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