Bacteriology and Antibiotic sensitivity of Breast Abscess

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ABSTRACT

Background: Breast abscess remains to be a common condition in nursing mothers and uncommon in non-nursing mothers. Causative organisms are usually pyogenic bacteria. Drainage of abscess is the mainstay of treatment and antibiotics are given according to culture report.

Objective: To determine the frequency of common bacteria amongst patients with breast abscess and their sensitivities to different antibiotics.

Material and Methods: This Cross sectional study was carried out at Department of Surgery, Khyber Teaching Hospital Peshawar from 1st January to 31st December 2017. A total of 177 patients with breast abscess were studied. Drainage of the abscess was done and the collection was sent for culture and sensitivity. Frequency of common bacteria and their sensitivity to different antibiotics was determined.

Results: The mean age of patient was 30 years with SD ± 1.58. 70.1% women were lactating while 29.9%women were non-lactating. 10.73% of patients had Methicillin resistant Staphylococcus Aureus (MRSA), 50.28% patients had Methicillin sensitive staphylococcus Aureus (MSSA), 24.29% and 10.16% of patients had Streptococci and Pseudomonas respectively, while no growth was found in 4.51% of patients.

Conclusion: Our study concluded that the most common bacteria among patients with breast abscess were Methicillin sensitive staphylococcus Aureus followed by streptococci.

Key Words: *common bacteria, antibiotic sensitivity, breast abscess*

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INTRODUCTION

Breast abscess is the common complication of mastitis especially when the treatment is either inadequate or delayed.[1] This condition poses significant stress to women.[2] Whether the abscess is puerperal or non-puerperal; traditional treatment has been incision and drainage.[3,4]

Puerperal breast abscess is a common problem in lactating women,[5] while non-puerperal abscess is a rare entity.[6] Breast Abscess is a significant problem as far as recurrence and microbiological spectrum is concerned.[1]

Staphylococcus aureus (SA) is the predominant pathogen in postpartum breast abscess. Several previous studies highlighted risk factors associated with the development of breast abscess and concluded low parity, young maternal age and obesity to be predictive of postpartum development of breast abscess.[7]

The treatment of breast abscesses is drainage and administration of systemic antibiotics. To increase the efficacy rate of treating acute bacterial mastitis and breast abscess, knowledge about the type of pathogens responsible for breast abscesses and their resistance patterns to various antibiotics may help the surgeon to choose the correct empirical treatment.[8]

The present study is designed to determine the frequency of common bacteria and their antibiotic sensitivity among patients presenting with breast abscess. Breast abscess is not uncommon in our population and owing to considerable use of antibiotics in our population and subjected development of resistance; it is the need of the day to determine its bacteriology as well. This study will highlight the current trend of bacteriology and antibiotic sensitivity patterns as mentioned above. The bacterial patterns vary around the globe and changes with time. The results of this study will be shared with other health professionals to make them aware of the current and local trends of bacteriology in breast abscess so that future research strategies may be drawn.

MATERIAL AND METHODS

This Descriptive study was done at Department of Surgery; Khyber Teaching Hospital Peshawar from 1st January to 31st December 2017. Total duration of study was 1 year. The study was conducted after approval from the hospital ethical and research committee. A total of 177 patients were studied. The purpose and benefits of the study were explained to the patients and a written informed consent was obtained. All women having

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age between 18-60 years with breast abscess (lactating & non-lactating) were included in this study.

All patients were worked up with detailed history, clinical examination and ultrasound breast. A specimen of pus from the breast abscess was sent for culture to detect the pathogenic bacteria and to test for sensitivity against commonly used antibiotics like amikacin, ceftriaxone, amoxicillin, ciprofloxacin and co-trimaxazole.

Patient biodata including name, age and address were recorded in a pre-designed proforma. Strict exclusion criteria was followed to control confounders and bias in the study results. All the laboratory investigations were done under supervision of an expert pathologist having minimum of five years of experience.

Data collected was analysed in SSPS version 20.0. Mean + SD was calculated for quantitative variables like age. Percentage and frequencies were computed for categorical variables like lactation status, common bacteria (Streptococci, staphylococcus aureus (MRSA and MSSA) and pseudomonas). Results were presented in the form of tables and graphs.

RESULTS

Total 177 patients were observed. Mean age was 30 years with SD ± 1.58. Patient's distribution according to various group ages has been given in table No 1.

Out of 177 patients 124(70.1%) patients were lactating while 53(29.9%) patients were non-lactating.

Among 177 patients 89(50.28%) had Methicillin sensitive staphylococcus Aureus (MSSA), 19(10.73%) had Methicillin resistant staphylococcus Aureus (MRSA), 43(24.29%) patients had Streptococci ,18(10.16%) patients had Pseudomonas and no growth was found in 8(4.51%) patients (Table No 2)
Antibiotic sensitivity of common bacteria is given in table no 3.

TABLE NO 1. AGE WISE DISTRIBUTION (n=177)

AGE	FREQUENCY	PERCENTAGE
≤ 20 years	33	18.64%
21-30 years	80	45.2%
31-40 years	44	24.86%
41-50 years	14	7.9%
>50 years	6	3.39%
Total	177	100%

Mean age=30 ± 5 years

TABLE NO.2 FREQUENCY OF COMMON BACTERIA (percentage wise)

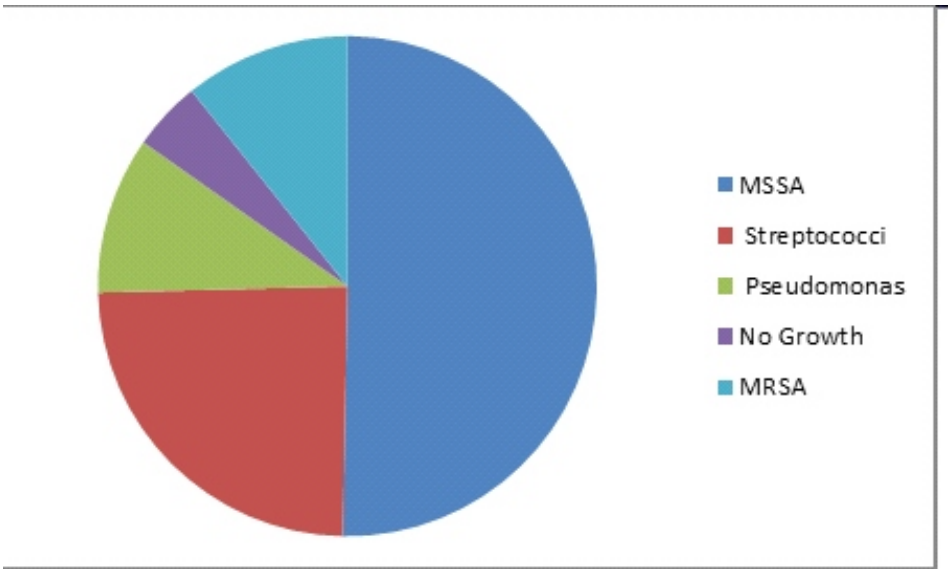


TABLE NO 3. ANTIBIOTIC SENSITIVITY OF COMMON BACTERIA (n=177)

ANTIBIOTIC	MRSA (n=19)	MSSA (n=89)	Streptococci (n=43)	Pseudomonas (n=18)	No Growth (n=8)
Amikacin	S=14 R=5	S=85 R=4	S=40 R=3	S=17 R=1	
Ceftriaxone	S=15 R=4	S=82 R=7	S=39 R=4	S=16 R=2	
Amoxicillin	S=13 R=6	S=80 R=9	S=38 R=5	S=15 R=3	
Ciprofloxacin	S=16 R=3	S=83 R=6	S=40 R=3	S=17 R=1	
Cotrimaxazole	S=13 R=6	S=80 R=9	S=37 R=6	S=15 R=3	

DISCUSSION

Breast abscesses are generally classified into lactating and non-lactating. In lactating women, acute puerperal mastitis is usually the first step that indicates the onset of breast abscess in 2.5% to 33% of cases.[9] The Lactational abscess develops within the first 12 weeks of delivery or during weaning period and is associated with considerable morbidity.[10]

The etiology of breast abscess is milk stasis due to the obstruction of lactiferous ducts followed by infection.[11] Non-lactation abscess occurs predominantly in the peri-menopausal age group, [12] and coexisting malignant tumor may be present in non-lactating breast abscesses.[13,14]

In a study, it was concluded that antibiotics chosen for the treatment of breast abscess should be effective against both aerobes and anaerobes, but species distributions and their susceptibility to antibiotics are changing all over the world. In that study, 73% patients yielded bacterial growth. There were more Gram-positive pathogens (52%) than anaerobes (28%) and Gram-negative pathogens (19%). The predominant organisms were methicillin-susceptible Staphylococcus aureus (32%), methicillin-resistant Staphylococcus Aureus MRSA (10%), Bacteroides spp. (14%), anaerobic streptococci (12%) and Pseudomonas aeruginosa (8%).[16] In general breast abscess presents with acute pain, redness, swelling, fever, malaise, tenderness in the affected area of ??the breast and enlarged axillary lymph nodes. The conventional treatment of breast abscess has been surgical incision and drainage under general anaesthesia. 15

In a study observed by Leborgne F et al in which mean age was 28 years with SD ± 1.27. Seventy five percent women were lactating while 25% women were non-lactating. Sixty two percent women had staphylococcus aureus(12% women had MRSA, 50% women had MSSA), 25% women had streptococci and 10% women had pseudomonas.[17]

Similar findings were observed in another study conducted by Brook L et al in which 73% percent women had staphylococcus aureus, 15% women had MRSA, 58% women had MSSA, 22% women had streptococci and 12% women had pseudomonas.[18]

While in our study mean age was 30 years with SD ± 1.58. 70.1% women were lactating while 29.9%women were non-lactating.10.73% had Methicillin resistant staphylococcus aureus (MRSA), 50.28% patients had Methicillin sensitive staphylococcus aureus (MSSA), 24.29% patients had streptococci 10.16% patients had pseudomonas and in 4.51% patients there was no growth was found . These results are comparable to other studied mentioned already.

CONCLUSION

Appropriate antibiotics are of the utmost importance in treating abscess. Non-lactating breast infections are a rare clinical entity.

Our study concludes that the common bacteria among patients with breast abscess were staphylococcus aureus (MSSA) followed by streptococci .

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