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Microbial Assessment And Antibioqram Of Perianal Abscess.

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ABSTRACT

Perianal abscess is the most common anorectal disease seen more commonly in men than women. Microbial assessment helps in starting the antibiotic therapy and preventing recurrence and complications. The study was a prospective study which included 100 patients with perianal abscess admitted in a tertiary care hospital. Aerobic culture was done on the pus obtained from the abscess. The study group comprised of 100 patients with perianal abscess with a mean age of 38.82 ± 13.98 years. Out of 100 cases, 131 organisms isolated. Polymicrobial etiology were found in 31 cases. The most common pathogen isolated among Gram-negative organisms were *E.coli* followed by *Klebsiella* spp, among Gram-positive *Staphylococcus aureus* followed by *Enterococcus* were the common organisms. Gram-negative organisms were highly susceptible to carbapenems, third generation quinolones and aminoglycosides. Gram positive organisms were highly sensitive to Vancomycin followed by Linezolid and Tetracycline. Enteric pathogens were the predominant pathogens isolated from the perianal abscess.

Keywords: Abscess, perianal, antibiotics, fistula, anorectal.

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INTRODUCTION

Perianal abscess is a common infection in the anorectal region, accounting over 60% of the anorectal abscesses [1]. Abscess and fistula are considered as one entity as they have close association in their etiology, anatomy, pathophysiology, treatment, complications and morbidity [2,3]. Perianal abscesses are due to obstruction of anal glands with subsequent retrograde bacterial overgrowth and abscess formation [4-6].

Abscess and fistula are chronic manifestation of anorectal infection [2]. Perianal abscess is mainly presented with severe pain, swelling, tenderness, constipation leading to systemic infection and life-threatening sepsis, in patients who are immunocompromised or with an underlying malignancy [7-10].

Incidence of perianal abscess is two to three times more common in men than women [4,5,11]. The increased incidence in men may be related to excessive stimulation or increased local androgen conversion in anal glands or due to androgen-estrogen imbalance [4,12].

Perianal abscess cannot be managed alone by antibiotic therapy, as the abscess wall contains only occluded and necrotic blood vessels through which the antibiotics will not penetrate the abscess cavity [2]. The mainstay of perianal abscess is incision and drainage with debridement of necrotic and devitalized tissue and search for any fistula tract [2,3,13]. Antibiotics are considered for patients with extensive cellulitis, soft tissue destruction, immunosuppression, diabetes, prosthetic devices, previous bacterial endocarditis or signs of systemic infection [2,4,14,15].

The aim of this study was to analyze the common aerobic bacteria associated with perianal abscess and their sensitivity pattern.

MATERIALS AND METHODS

This study was a prospective study carried out on 100 cases at a tertiary care hospital during the period June 2015 to January 2018.

The abscess or the pus swabs taken at the time of incision and drainage were sent to the Microbiology laboratory for aerobic culture. The samples were subjected to Gram stain and aerobic culture. The samples were inoculated on 5% sheep blood agar and MacConkey agar and incubated at 37°C for 24-48hrs. The growth was subjected to Gram staining and biochemical tests for identification of the organism. After identifying the isolates, antibiotic susceptibility was done according to Kirby Bauer disc diffusion method.

RESULTS

The study group comprised of 100 cases of perianal abscess with a mean age of 38.82 ± 13.98 years (6 to 70 yrs). The cases were more between the age groups of 20-50 yrs [74%]. There were 76 males and 24 females with male to female ratio 3.1:1.

Pathogens isolated from the perianal abscess are shown in the Table-1. Out of 100 cases, 131 organisms were isolated, out of which 100 isolates were Gram negative bacteria (76.6%) and 31 isolates were Gram positive bacteria (23.6%). *E.coli* (48%) was the most common organism isolated followed by *Klebsiella* spp (44%). Among Gram positive isolates, *Staphylococcus aureus* (20%) were more common followed by *Enterococcus* spp (9%). Polymicrobial infection was found in 31% of cases, in which *E.coli* and *Klebsiella* spp (18%) were the most commonly found. (Table-2)

Table 1: Distribution of organisms isolated

Organisms	Number	Percentage
<i>E.coli</i>	47	35.8
<i>Klebsiella spp</i>	44	33.5
<i>Staphylococcus aureus</i>	20	15.26
<i>Enterococcus spp</i>	9	6.87
<i>Pseudomonas spp</i>	3	2.29
<i>Enterobacter spp</i>	3	2.29
<i>Proteus spp</i>	2	1.5
<i>Streptococcus spp</i>	2	1.5
<i>Acinetobacter spp</i>	1	0.76

Distribution of isolates

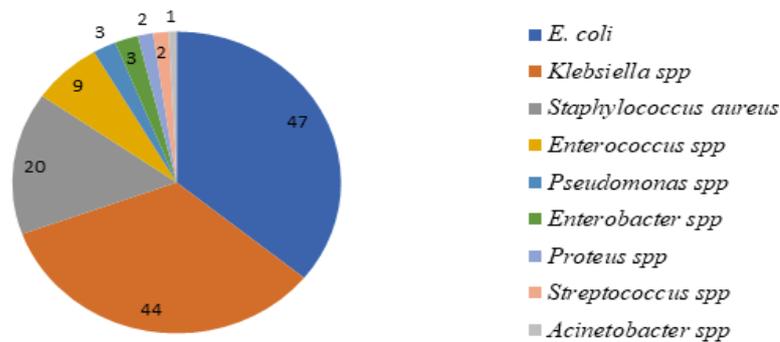


Table 2: Distribution of organisms with polymicrobial etiology

Organisms	Number	Percentage
<i>E.coli+Klebsiella</i>	16	51.6
<i>E.coli+Enterococcus</i>	4	12.9
<i>Klebsiella+Enterococcus</i>	3	9.6
<i>E.coli+Enterobacter</i>	2	6.45
<i>E.coli+Proteus</i>	2	6.45
<i>E.coli+Pseudomonas</i>	1	3.22
<i>Klebsiella+Pseudomonas</i>	1	3.22
<i>Klebsiella+Staphylococcus aureus</i>	1	3.22
<i>E.coli+Acinetobacter</i>	1	3.22

Distribution of infections with polymicrobial etiology

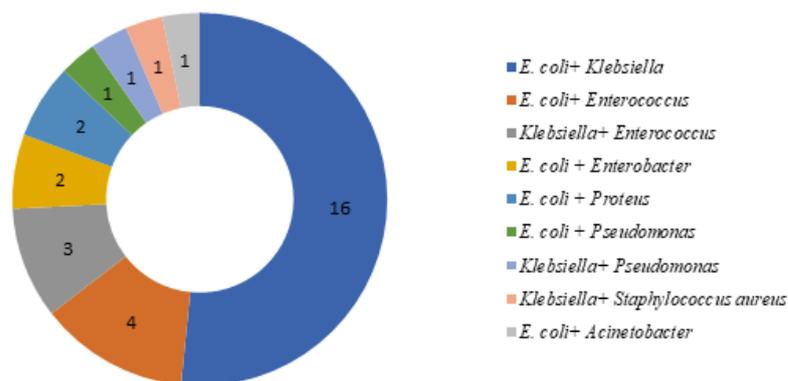


Table 3: Sensitivity pattern of Gram-negative organisms isolated

Antibiotics	Number	Percentage
Ampicillin	17	17
Amoxyclav	9	9
Cefuroxime	46	46
Cefoperazone	52	52
Cefepime	62	62
Piperacillin- tazobactam	82	82
Ceftriaxone-tazobactam	36	36
Amikacin	92	92
Gentamycin	91	91
Netilmicin	45	45
Tobramycin	40	40
Ciprofloxacin	53	53
Levofloxacin	93	93
Cotrimoxazole	50	50
Imipenem	94	94
Meropenem	87	87

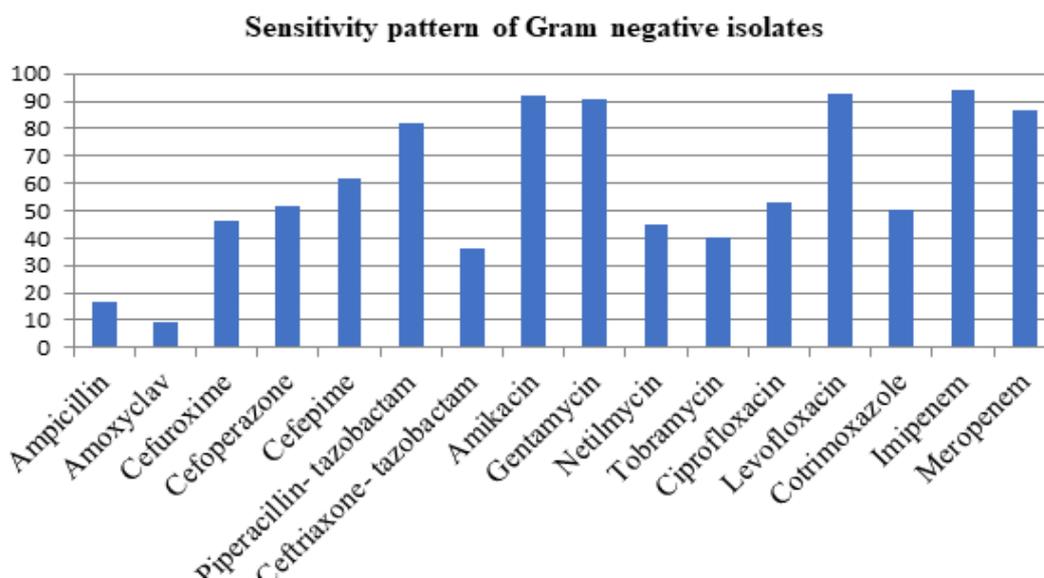
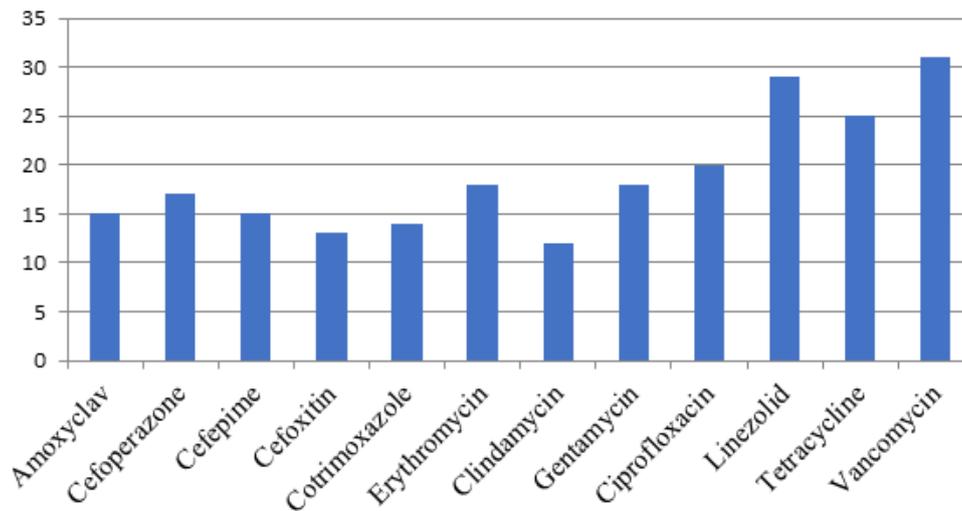


Table 4: Sensitivity pattern of Gram-positive organisms isolated

Antibiotics	Number	Percentage
Amoxyclav	15	48.38
Cefoperazone	17	54.8
Cefepime	15	48.38
Cefoxitin	13	41.9
Cotrimoxazole	14	45.1
Erythromycin	18	58
Clindamycin	12	38.7
Gentamycin	18	58
Ciprofloxacin	20	64.5
Linezolid	29	93.5
Tetracycline	25	80.6
Vancomycin	31	100

Sensitivity pattern of Gram positive isolates



The isolates showed best sensitivity for Carbapenems followed by third generation of Quinolones, aminoglycosides, piperacillin-tazobactam and fourth generation Cephalosporins.

DISCUSSION

Perianal abscess is one of the debilitating conditions that results in pain, fever and systemic infection that can lead to life threatening sepsis. It can be complicated by recurrent abscess and fistula formation.

The maximum number of cases in our study were seen in the age of 21-40yrs [3]. There was male preponderance in the study with a ratio of 3.1:1. Studies showed that incidence is twice or thrice as high in men and can reach up to 83.9% [11,4,1].

The study revealed that *E.coli* (35.8%) as the predominant pathogen followed by *Klebsiella* spp (33.5%). This is similar to other studies where *E.coli* and *Klebsiella* spp were found as the most common pathogen [15,11,4,6].

Some studies showed that pus culture from perianal abscess yields mixed culture. The present study shows about 31% of polymicrobial etiology, of which *E.coli* with *Klebsiella* spp (53%) was the most common. Many other studies also showed polymicrobial infection ranging from 16% to 76% [13,15,5].

It is important to know the microbiology of perianal abscess for the correct management [15]. The mainstay of therapy for perianal abscess is surgical drainage by making an incision with debridement of necrotic and devitalized tissue [13,9,2,1]. Drainage is important for the action of antimicrobial agents. The abscess capsule, the low pH and the presence of binding proteins or inactivating enzymes like beta lactamase will be detrimental to the effectiveness of antimicrobial agents [9,4].

The study also revealed that the pathogens were highly sensitive to Carbapenems (94%) followed by second generation quinolones(93%), aminoglycosides (92%), fourth generation Cephalosporins (62%) and third generation Cephalosporins (52%) among gram negative bacilli. The gram-positive organism were highly sensitive for Vancomycin (100%) followed by Linezolid (99%) and Cephalosporins (58%). Early antibiotic therapy is recommended to prevent spread of an existing abscess and patients with diabetes, morbid obesity, immune deficiency, in cardiac prosthesis users or in case of extensive cellulites [13,4,14]. Some studies showed that there was reduced incidence of fistula and recurrence of perianal abscess formation due to use of antibiotics [3,1,8].



CONCLUSION

Perianal abscess is one of the common anorectal abscess which is more common in males. Our study showed that enteric organisms were isolated more in the perianal abscess. Microbiological assessment helps to administer the antibiotics and to prevent the further complications.

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