



## “A PROSPECTIVE OBSERVATIONAL STUDY OF PERIANAL ABSCESS”

### General Surgery

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### ABSTRACT

**Introduction:** Most perianal abscesses originate from an infected anal gland. Obstruction of these glands leads to stasis, bacterial overgrowth and ultimately abscess. Approximately 10% of perirectal abscesses are thought not to be due to infected anal glands. It is unclear why some patients completely heal and others have recurrent disease. **Aims And Objectives:** To study the common age group, gender and common risk factor associated. Identify common causative organism involved along with sensitive antibiotic treatment. **Material And Methods:** A prospective study was carried out in the department General Surgery from January 2020 to March 2022 at Seth G.S Medical College and KEM hospital Mumbai. **Results:** Maximum cases are seen in age group between 21 to 40 years of age. Most common symptoms that patient complained were Perianal swelling and pain. Diabetes' mellitus is most common Comorbidity among cases with Perianal abscess. Most organism are sensitive to piperacillin. Incidence of Perianal abscess is maximum among smokers than non-smokers. **Conclusions:** As the abscess resolves with proper drainage, antibiotics are never required. However, we encourage the selective use of antimicrobial agents on a case-by- case basis, especially because there is no evidence that uncomplicated perianal abscesses can be safely treated only with drainage.

### KEYWORDS

Perianal abscesses, Antibiotics, Diabetes Mellitus (DM)

#### INTRODUCTION

A perianal abscess is a collection of pus that develops as a result of infection of the cryptoglandular epithelium lining the anal canal or a skin infection in the acute phase.<sup>(1-5)</sup>

Anorectal abscesses are most commonly caused by perianal abscesses. Anorectal abscesses account for almost 60% of all reported cases.

Because most individuals with symptoms related to the anorectum do not seek medical attention, the prevalence of perianal abscesses in the general population is substantially higher than encountered in clinical practice.

Men are more likely than women to get perianal abscesses. Although perianal abscess is prevalent in healthy people, other risk factors such as diabetes, Crohn's disease, obesity, immunosuppression, and anal fissure are significantly linked.<sup>(1-8)</sup>

If left untreated, a perianal abscess can spread to neighbouring tissues (e.g., supralelevator space, ischioanal space) or progress to a systemic infection. To relieve pain and infections in the majority of patients, surgical drainage under Regional or General anesthesia is required. Following surgical drainage, 15-47 percent of these patients develop recurrent abscess and fistula in ano formation.<sup>(1-8)</sup>

The presence of gut-specific organisms in the pus of a perianal abscess suggests the presence of a fistula, and a thorough examination of the case is required. The gastrointestinal tract (GIT) flora predominates in perianal abscess, according to the results of bacteriologic investigations. Bacterioides spp., Peptostreptococcus spp., and Clostridium spp. Are the most commonly cultured anaerobic bacteria, while Bacterioides spp., Peptostreptococcus spp., and Clostridium spp. Are the most commonly cultured aerobic bacteria. Staphylococcus aureus, Enterobacteriaceae, Streptococcus spp., and Enterococcus spp. Are among the most commonly isolated aerobic and facultative bacteria.<sup>(6-9)</sup>

Surgical drainage is the cornerstone of perianal abscess treatment. Its sole purpose is to keep infection from spreading to nearby structures.

If perianal abscesses if left untreated can complicate and cause severe

sepsis or even death due to septic shock. The occurrence of perianal abscess in different sexes and age groups, as well as the consequences and risk factors related with it, are described in this study.

#### Aim & Objective

1. To identify the common organism grown in culture and the sensitive antibiotic group.
2. To study the common age and gender affected.
3. To study the common risk factor associated.

#### METHODS AND MATERIALS

- (A) Study Group. :** Patients admitted in department of general surgery at KEM Hospital.
- (B) Size Of The Study:** 121
- (C) Study Design:** Prospective observational study
- (D) Place Of Study:** Department of General Surgery, Seth G.S Medical College and KEM hospital Mumbai.
- (E) Duration Of Study:** 2 years (January 2020 – March 2022).

#### Methodology

Investigator did not do any intervention but only observed the intervention done and noted all relevant findings and outcomes in predesigned case record forms.

Clinical assessment was done at time of inclusion in the study. Detailed history was taken followed by complete examination as per protocol.

Basic routine investigations were done for all patients. Consent was obtained for inclusion under study. Pus was drained by Incision & Drainage and then sent for pus Culture & sensitivity and appropriate antibiotics started. Data collected was analysed statistically.

#### Inclusion Criteria:

- 1) Patients who is admitted and operated for acute swelling in the perianal region for the first time.
- 2) Age group more than 18yrs.
- 3) Patient giving consent to be included in study both male and female

#### Exclusion Criteria:

Recurrent perianal abscess pregnant patients.

**RESULTS**

The data of each patient was collected on a case record form specially designed for this study and which includes demographic details, clinical features, past medical history, clinical and Lab values which was analysed for statistical significance and correlation. Data was collected after surgery from interview and case files. Microbiological data was collected from culture sensitivity report which is routinely given to patients and available in case file.

**Table 1: Age Distribution**

	Frequency	Percent
Below 20	8	6.6
21 to 40	62	51.2
41 to 60	41	33.9
more than 60	10	8.3
Total	121	100.0

Maximum cases are seen in age group between 21 to 40 years of age. (Table 1)

**Table 2: Sex Distribution**

Sr.no	Sex	Frequency	Percent
1	Female	17	14.0
2	Male	104	86.0
3	Total	121	100.0

Maximum cases are seen among males. (Table 2)

**Table 3: Symptom Distribution**

Sr.No	Symptoms	Frequency	Percent
1	Swelling	121	100
2	Pain	121	100
3	Discharge	20	16.5
4	Fever	70	57.9

Most common symptoms that patient complained were Perianal swelling and pain. (Table 3)

**Table 4: Position Of Perianal Abscess**

Sr.No	Position of perianal abscess	Frequency	Percent
1	Anterior	21	17.4
2	Posterior	29	24
3	Right lateral	28	23.1
4	Left Lateral	41	33.9

Most Perianal abscess are known to occur in left lateral position. (Table 4)

**Table 5: Co-morbid Conditions**

Sr.No	Co-morbid Conditions	Frequency	Percent
1	DM	58	47.9
2	HTN	23	19
3	TB	19	15.7
4	HIV	7	5.8
5	Other	13	10.7

Diabetes' mellitus is most common Comorbidity among cases with Perianal abscess. Other Comorbid condition include hidradenitis suppurative, Crohn's disease, etc. (Table 5)

**Table 6: Organisms Isolated**

Sr.No	organisms Isolated	Frequency	Percent
1	Anaerobic Sp.	3	2.5
2	Bacteroides Fragilis	10	8.3
3	E Coli	22	18.2
4	Enterococcus	13	10.7
5	Kleibsella	49	40.5
6	MRSA	1	.8
7	MSSA	4	3.3
8	Proteus	2	1.7
9	Streptococcus	11	9.1
10	No Growth	6	5.0
	Total	121	100

Most common organism responsible to cause Perianal abscess is klebsiella and E. coli. (Table 6)

**Table 7: Sensitive Antibiotics**

Sr.No	organisms Isolated	Frequency	Percent
1	Ciprofloxacin	15	12.4
2	Piperacillin	79	65.3
3	Cefoperazone Sulbactam	55	45.5
4	Imipenem	46	38
5	Vancomycin	1	0.8
6	Amikacin	10	8.3
7	Ofloxacin	34	28.1
8	Ceftriaxone	23	19

Most organism are sensitive to piperacillin. (Table 7)

**Table 8: Smoking And Alcoholism**

Sr.No	Addiction	Frequency	Percent
1	Smoking	21	17.4
2	Alcoholism	19	15.7
3	Both	4	3.3

Incidence of Perianal abscess is maximum among smokers than non-smokers. (Table 8)

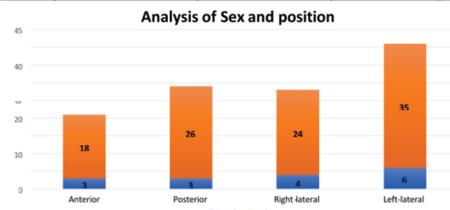
**Table 9: Analysis Of Age And Gender**

Age	Sex			p Value
	Female	Male	Total	
Below 20	1(5.9%)	7(6.7%)	8(6.6%)	Chi X <sup>2</sup> = 13.99 p value= 0.003
21 to 40	4(23.5%)	58(55.8%)	62(51.2%)	
41 to 60	7(41.2%)	34(32.7%)	41(33.9%)	
more than 60	5(29.4%)	5(4.8%)	10(8.3%)	
Total	17	104	121	

Perianal abscess seen commonly in males between 21 to 40 age group. Incidence of Perianal abscess is same in both sex after 60 years of age. (Table 9)

**10. Analysis Of Gender And Position**

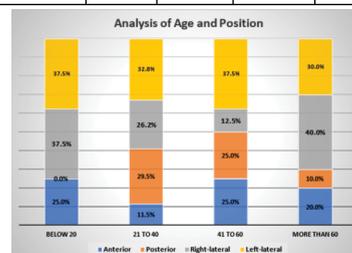
Position	Gender			p Value
	Female	Male	Total	
Anterior	3(18.8%)	18(17.5%)	21(17.6%)	Chi X <sup>2</sup> = 0.319 p value= 0.956
Posterior	3(18.8%)	26(25.2%)	29(24.4%)	
Right-lateral	4(25%)	24(23.3%)	28(23.5%)	
Left-lateral	6(37.5%)	35(34%)	41(34.5%)	
Total	16	103	119	



**Fig. 6.9:** Analysis Of Position Of Abscess With Gender.

**11. Analysis Of Age And Position**

Position	Age				Total	p Value
	Below 20	21 to 40	41 to 60	more than 60		
Anterior	2(25%)	7(11.5%)	10(25%)	2(20%)	21(17.6%)	Chi X <sup>2</sup> = 10.593 p value= 0.305
Posterior	0	18(29.5%)	10(25%)	1(10%)	29(24.4%)	
Right-lateral	3(37.5%)	16(26.2%)	5(12.5%)	4(40%)	28(23.5%)	
Left-lateral	3(37.5%)	20(32.8%)	15(37.5%)	3(30%)	41(34.5%)	
Total	8	61	40	10	119	



**Fig. 7.0:** analysis of age and position of Perianal abscess.**DISCUSSION**

- In this study 121 patients with perianal abscesses were studied. Out of 121 patients, 104 patients were male and 17 patients were female. This study is comparable with Mehmet Ulug et al<sup>(5)</sup> which showed comparatively males (86%) affected more than females (14%) as of this present study. The mean age of patients was 40.5+11.3 years in males and 35.8+13 years in females.
- In this study affected patients more commonly seen in age group of 21-40 years (61 cases ,51%) followed by 40 cases in age group of 41-60 years. Similar finding were seen in study done by Ramanujam et al<sup>(1)</sup>.
- In this study the male to female ratio is 6:1, similar finding shown in study done by Hill et al<sup>(3)</sup>.
- In this study the most common presenting feature was swelling as well as pain which was present in all patients (100%) followed by fever (57%) and discharge (17%). Similar finding shows in study done by Mehmet et al.<sup>(5)</sup>
- In this study majority of patients had abscesses in the lateral location with 23% of abscesses in the right lateral side and 33% of abscesses in the left lateral side, followed by 24% of abscesses in the posterior location and the least (17%) in the anterior relation of the anal canal. Similar finding were seen in study done by Ramanujam, Vasilevsky and Gordon et al.<sup>(1,13)</sup>
- Smoking and alcoholism was noted in 44 patients. 19 patients were alcoholics and 21 were smokers. Both alcoholism and smoking was noted in 4 patients. Incision and drainage of abscess was done in all patients and antimicrobial therapy was given to all.
- Out of 121 specimens, only 6 specimens show no bacterial growth. Aerobic bacteria only were isolated in 90% patients and anaerobic bacteria only in 10% patients. A total of anaerobic and aerobic isolates were recovered from 121 abscesses. The predominant isolates were Klebsiella (n = 49), E. Coli (n=22), Bacteroids fragilis (n=10), Enterococcus (n=13), Streptococcus (n=11), staphylococcus (n=5). Similar findings show in study done by Mehmet et al<sup>(7)</sup>.
- Most of the organisms were sensitive to piperacillin-tazobactam(65%), followed by Cefoperazone sulbactam (45%), ofloxacin (28%), Imipenem (46%), amikacin(8%) and ceftriaxone (19%).
- In this study an underlying condition was present in 92 patients out of 121 patients. Diabetes mellitus (48%) & hypertension (11%) were the most common conditions. Four patients had AIDS, another one patient had Crohn's disease and four patient had tuberculosis. Similar findings show in study done by Mehmet et al<sup>(7)</sup>.

**Summary And Conclusions**

In this prospective study of 121 cases conducted at the casualty of Tertiary Care Centre, from January 2020 to March 2022 following conclusions were made:

- The cryptoglandular theory of perianal abscess formation is now widely accepted. Most perianal abscesses result from infection that originates in the anal crypts and then extends into the anal glands in the intersphincteric plane. If it tracks downward into the intersphincteric plane, a perianal abscess forms. Therefore, recommend culture and re-examination for fistula only if gut-derived organisms have been cultured.
- In this study Klebsiella (40%) was the most common pathogen involved in Diabetes mellitus patients.
- In our study, DM patients were older and had more comorbidities than those without DM. DM is associated with comorbidities commonly seen in that population, such as hypertension, coronary artery disease, and stroke. A substantial percent (24.0%) of the diabetic patients had newly diagnosed diabetes.
- In our patients with perianal abscess, klebsiella was the predominant pathogen isolated in patients without DM as well as predominant pathogen in DM patients. Klebsiella isolates were highly sensitive to first-generation Cephalosporin in DM patients but less sensitive in non-DM patients. Overall, most of the Klebsiella isolates were sensitive to first-generation cephalosporin.
- Incident DM was diagnosed in 24.0% of the patients with perianal abscess. The only death that occurred involved a patient with diabetes and Klebsiella bacteremia, who died despite the administration of sensitive antibiotics. Correct and prompt diagnosis of Perianal abscess is paramount as it is generally amenable to surgery and appropriate antibiotics.

- This study suggests that a relatively large percentage of Perianal Abscess consist of aerobic organisms. In contrast to other investigators, we have not found anaerobic organisms to be the predominant isolates in this type of infections.
- As the abscess resolves with proper drainage, antibiotics are never required. However, we encourage the selective use of antimicrobial agents on a case-by-case basis, especially because there is no evidence that uncomplicated perianal abscesses can be safely treated only with drainage.
- On the other hand, we stated that drainage culture must be done, because resistance to antimicrobials and virulence of aerobic and anaerobic bacteria vary; knowledge of the specific types of bacteria recovered from Perianal abscess may have important clinical implications.

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- Up to date application and other online resources for Perianal abscess.
- All images from Netter's atlas of human anatomy , Netter's surgical anatomy.