



**IMPACT OF COVID 19 PANDEMIC ON PERINEAL INFECTIONS AND ITS
MANAGEMENT- PROSPECTIVE STUDY**

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ABSTRACT

The world is churning through an unprecedented time during this pandemic of COVID-19. All aspects of daily life are impacted with far-reaching implications, especially in most aspects of healthcare with the percolation of the COVID-19 infections. All discipline of medical specialties are also experiencing change of gear in the day to day care. Practice of surgery across the globe experiencing a standstill especially for the elective surgeries as of now. It is become evident and mandatory to look for new algorithm and protocol to carry for the plenty of pending patients who need surgical care. As in addition we need to fight against this highly infectious disease we have to bring new protocols and practices in place. Due to this delay in seeking care, the admitted patients with various perianal infective aetiologies are having advanced disease and hence the out come is become worst with more so need of hospital stay. In this study 25 cases presented in our surgical casualties with advanced perianal infections were studied for the type of presentation, treatment offered, outcome, duration of stay etc along with the demographic profile and comorbidities. Perianal abscess, ischiorectal fossa abscess, periurethral abscess and Fournier's gangrene were included. Out of 25 patients there were 8 cases of Fournier's gangrene, 9 cases of ischiorectal abscess, 6 perineal abscess and 2 periurethral abscess. In spite of adequate protocol based management protocol, 18 patients recovered, 5 cases expired and 2 patients had delayed recovery with morbidity. As the delay in seeking surgical opinion is the cause for the increased mortality, we recommend all cases must be given awareness on these conditions and motivate the people to get earlier reporting and get appropriate surgical care.

KEYWORDS: COVID 19, Coronavirus, Practice of surgery.

BACKGROUND

Wuhan in Hubei, China created a epicentre for the propagation of novel corona virus (COVID19), from December 2019.^[1] Since then the devastating spread of this viral infection percolated in to nuke and corners across the globe and as on this date the infection has infected nearly 2 crore people and resulting in death of 7.2 lakhs people.^[2] After the spread of this disease to many parts of the worlds on March 11th 2020, the WHO have announced this disease as a Global pandemic. Extensive analysis of the this Pandemic from the successful countries which have flattened the curve tells us, aggressive testing, effective tracing of the source contact and prudent isolation is the way for containing this disease.^[3]

It is also noted people are afraid of contracting the disease if they visit the common places like hospitals, hence preferred to stay home even if they have early symptoms of surgical diseases. The resultant poverty and

also lack of transportations are also playing the role in preventing people to seek early surgical care.

Health care workers serving in the front line are having high risk of exposure and contracting infections, as reported from both china^[4] and Italy.^[5] In India also the mortality among the doctors are reported to be in the range of 8.6% against the national mortality of 2.6%. Although surgeons are not frontline health workers, several series of infections emerged from operating theatres in China.^[5] This resulted in alternate telemedicine tools for clinical examination and it always couldn't produce accurate diagnosis.

Due to these multiple reasons the number of people reporting in hospitals for surgical interventions were reduced. But as the result of disease progression, many of them presented in relatively advanced disease.

INTRODUCTION

Perineal infections have a varied range of presentation, like perineal abscess, peri-urethral abscess, ischio-rectal abscess. The most common cause of perineal infection is an infected nonspecific crypto glandular structures at the base of the anal crypts and are located at the level of the dentate line. There are six to eight such glands, extending down into the internal sphincter and up to the intersphincteric groove. When these glands are obstructed they lead to stasis, overgrowth of bacteria resulting in abscesses.^[8]

From the intersphincteric space it may remain isolated or may spread within the inter-sphincteric space or may spread medially into the anal canal or laterally to form an ischio-rectal abscess. Patients usually present as tender swelling in the perineal region, pain and fever. The treatment of choice is incision and drainage of the abscess done under anesthesia and vigorous debridement of the abscess cavity. When the abscess is surgically or spontaneously drained, due to persistence of the septic foci and/or epithelialization of the tract will occur resulting in chronic fistula-in-ano.^{[9][10]}

This study also includes Fournier gangrene. Fournier gangrene is a necrotizing infection of the male genitalia and perineum which is similar to other fasciitis and soft tissue infections. It is a poly-microbial infection. Jean Alfred Fournier (1832–1914), was first described this condition. It presented without any definite etiological factor, progressing to fulminating infection in the superficial tissues of scrotum and penis.^[11] Patients usually present with pain, fever, scrotal swelling and tenderness. Both perineal infections and Fournier gangrene presentation ranges from slight fever to widespread septicemia. Both presents as a Surgical emergency and needs urgent wound debridement and abscess drainage with IV antibiotic administration. Now the definition of Fournier's gangrene include all the necrotizing infections of the genitalia, irrespective of the sex.

It is postulated due to COVID pandemic the presentation of these diseases are delayed and hence the outcome are also grim.

Aim of the study

The purpose of this study to analyse the effect of COVID-19 Pandemic in the presentation, diagnosis and management and its effect on the outcome of the perineal infections.

METHODS

This is prospective study done in a series of patients who underwent treatment for perineal infections between march 2020 and July 2020 in the department of General surgery, Tirunelveli medical college and hospital. 25 cases were studied in the time period and its treatment outcome was monitored and studied.

Study design

Prospective analytical study was conducted on patients operated for acute perineal infections like perianal abscess, ischio-rectal fossa abscess, periurethral abscess, Fournier's gangrene etc from March 2020 to July 2020.

The sociodemographic variables like age and gender and BMI were noted.

The ethical consent was obtained from the institutional ethical committee and the hospital case seats were used for the data collection.

Statistical analysis was performed using SPSS 20. Univariate analysis results are calculated with a mean and SD or percentage. Statistical significance was considered when $P < .05$.

In all patients appropriate antibiotics started and optimization of general condition carried out followed by adequate Incision drainage, debridement and proper dressings.

The treatment images of two patients are enclosed in Figure 1

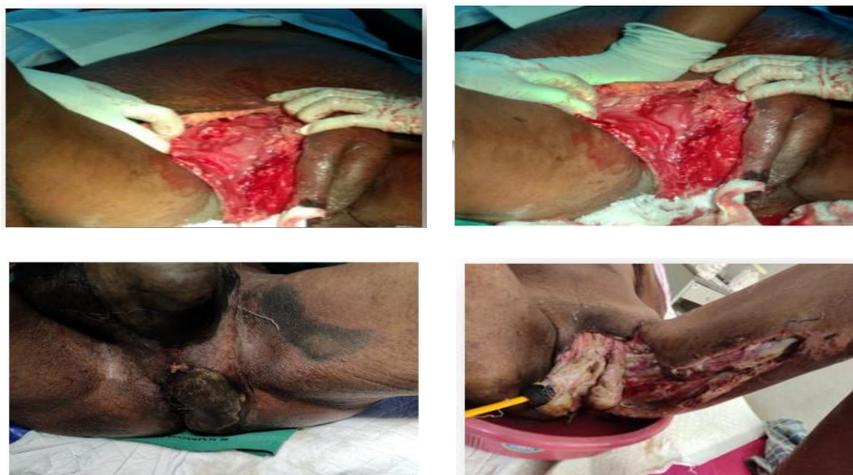


Figure 1: Debridement procedures in Table.

1. Location of perineal infection

On presentations the type and site of lesions are noted and grouped in to 4 groups

- Fournier Gangrene
- Perianal abscess
- Periurethral abscess
- Ischiorectal fossa

Number of cases in each group were noted and tabulated in Table 1 and Figure 2.

Tab1: Site of infection.

| Sn | Site of lesion | Number | Percentage % |
|-------|----------------------|--------|--------------|
| 1 | Fournier's gangrene | 8 | 32 |
| 2 | Ischiorectal abscess | 9 | 36 |
| 3 | Perianal abscess | 6 | 24 |
| 4 | Periurethral | 2 | 8 |
| Total | | 25 | 100 |

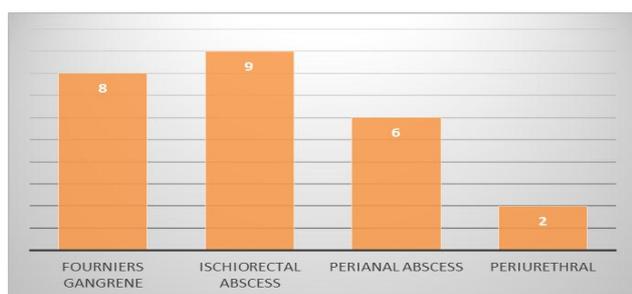
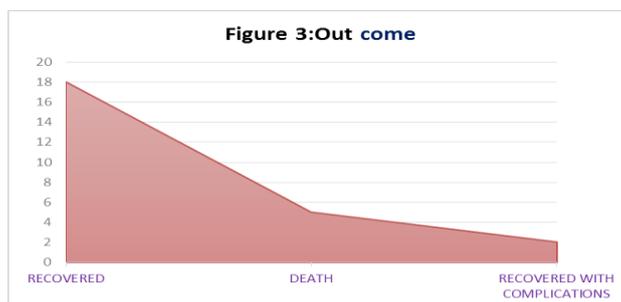


Figure 2: Site of infection.

Table 3: Outcome of perineal infection.

| Sn | Outcome | Number | Percentage % |
|----|------------------------------|--------|--------------|
| 1 | Recovered | 18 | 72 |
| 2 | Death | 5 | 20 |
| 3 | Recovered with complications | 2 | 8 |
| | | 25 | 100 |



4. Associate comorbid conditions

The majority of patients presented were Diabetics and on uncontrolled treatment. 8 patients had hypertension and

2. Size of the perineal infection

The size of the abscess and the area involved were assessed by clinical and USG and as per the size they are classified in to three size as less than 3 cm, 3-6 cm, more than 6 cm. Number of cases in each group were tabulated and presented in table 2.

Table 2: Size of the perineal infection.

| Sn | Size of lesion | Number | Percentage |
|----|-----------------|--------|------------|
| 1 | Less than 3 cms | 5 | 20 |
| 2 | 3-6cms | 14 | 56 |
| 3 | More than 6 cms | 6 | 24 |

3. Outcome of the disease

All cases presented were subjected to protocol-based investigation and after due explanation and consent appropriate incision drainage and debridement procedures were done for all patients. Adequate measures to upkeep the general conditions were ensured. In contrary to the usual disease pattern as these patients were presented with advanced diseases and with co morbidities the 5 cases succumbed to disease in spite of appropriate care and 2 cases recovers with complications. The remaining 18 patients have recovered well. The data are tabulate din Table 3 and Figure 3.

another 5 patients had various comorbidities including chronic liver disease and chronic kidney disease. Data collected are tabulated in table 4.

Table 4: Associated comorbid conditions.

| Sn | Comorbidities | Number | Percentage |
|----|----------------------|--------|------------|
| 1. | Diabetes mellitus | 16 | 64 |
| 2. | Hypertension | 8 | 32 |
| 3. | Other co morbidities | 5 | 20 |
| 4. | No co morbidities | 7 | 28 |

5. Duration of hospital stay

The total duration of hospital stays varied with the disease, and associated comorbidities. Seven Patients had

less than 5 days, 12 patients had 5-7 days and 5 patients were admitted more than 7 days. The data is tabulated in table 5.

Table 5: Duration of hospital stay.

| Sn | Duration of stay | Number | Percentage |
|-------|------------------|--------|------------|
| 1 | Less than 5 days | 7 | 28 |
| 2 | 5-7 days | 12 | 48 |
| 3 | More than 7 days | 6 | 24 |
| Total | | 25 | 100 |

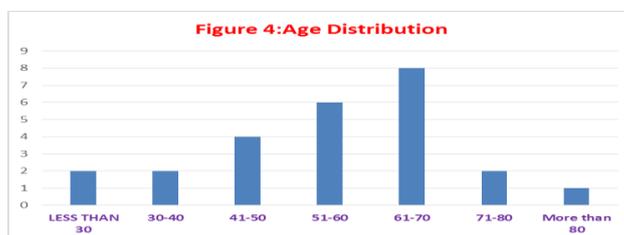
6. Sociodemographic factors

In our study males were more than female in the ratio of 18:7. And the mean age

57, Median 59, Mode 65, SD 15.2943. The data are tabulated in Table 6 and figure 3.

Table 6: Age distribution.

| Sn | Age | Number | Mean | Mode | Median | Standard deviation |
|----|--------------|--------|------|------|--------|--------------------|
| 1 | Less than 30 | 2 | 57 | 59 | 65 | 15.2942 |
| 2 | 30-40 | 2 | | | | |
| 3 | 41-50 | 4 | | | | |
| 4 | 51-60 | 6 | | | | |
| 5 | 61-70 | 8 | | | | |
| 6 | 71-80 | 2 | | | | |
| 7 | More than 80 | 1 | | | | |



7. Reasons for the late arrival to the hospitals

Out of the 25 cases 20 cases have presented in the casualty with advanced disease, associated features of septic shock and uncontrolled comorbidities like Diabetes, Hypertension and chronic kidney disease. The researcher had elicited detailed history for the cause of late presentation and they are analysed and grid together in to five groups and tabulated in Table 7 and figure 4.

Table 7: Reason grid for late arrival.

| Reasons Grid | Number |
|--|--------|
| OPD in local hospital not functioning | 12 |
| Lack of transportation facilities | 14 |
| Fear of contracting COVID infection | 10 |
| No money | 3 |
| Not knowing the associated comorbidities | 5 |



Figure 5: Reason Grid for late arrival.

8. Causative organism

In all the cases the pus was sent for culture and sensitive study. 5 cases had mixed infections. The commonest organism was found to be Escherichia coli seen in 10 patients and followed by staphylococcus in 7 patients. However we couldn't make out any significant change in the outcome based on the microorganism study. The data are tabulated in Table 8.

Table 8: Causative organism profile.

| Microorganism | Number (%) |
|-----------------------|------------|
| Streptococcus spp | 2 (8) |
| Staphylococcus aureus | 7 (28) |
| Enterococcus species | 4 (16) |
| Escherichia coli | 10 (40) |
| Klebsiella | 3 (12) |
| Proteus | 2 (8) |
| Bacteroids | 2 (8) |
| Others | 2 (8) |

DISCUSSION

The cases observed and studied in this series are common presentation in the surgical out patient and emergency care. Most often they respond to treatment and mortality and morbidity are very less. However, as most of the patients are presented with advanced disease,

septic shock and associated comorbidities the respond to surgical care was not effective. We analyzed the main reason for the late arrival as the non-availability of elective surgical OPD in the local hospitals, lack of transportation facility, fear of contracting the COVID infection, monetary reasons, sense of insecurity and unaware of the associate comorbid conditions. Non availability of the transportation facility was cited as the main reason by 14 patients (70%). Comparing with the people presented on time and late as 80% percent of the patient presented it was statistically significant (p: 0002).

In our study Male were presented more and mean age of presentation was 57. David F. Sigamon *et al* in their study reported 40 years is the mean age at presentation, and adult males: females ratio is 2:1.^[12]

The perianal space surrounds the anus is filled with the fat of the buttock. When the fluid collection sets in, it will penetrate along the path of least resistance, into the intersphincteric space, supralelevator space or ischioirectal space^{[13][14]} That may be the reason for presentation 9 patients with the ischioirectal space abscess in our study. On enquiry they all said they had persisting pain and fever for more than 4 days and only when it became intolerable they presented in the hospital.

Meng Hsuan *et al* in their study from Taiwan reported in 3506 patients retrospective study on Perianal diseases, Perianal abscess (n=37, 86.0%) was the most common type of abscess whereas ischioirectal abscess (n=3, 7.0%), intersphincteric abscess (n=2, 4.7%) and supralelevator abscess (n=1, 2.3%) Seventeen patients (39.5%) had an anal fistula the first time they were diagnosed with anal abscess.^[15]

The reported risk factors of anal abscess include diabetes mellitus (DM), obesity, alcohol use, recent smoking, high daily salt intake, sedentary lifestyle, straining at defecation and psychosocial stress.^[16] As 18 patients in our study had associated comorbidities it also added to the mortality and morbidity in the post treatment period.

Chien -kuo -Liu *et al* have reported The most common pathogen causing perianal abscess in non-DM patients was *Escherichia coli* (67.1%), and the most common pathogen isolated in DM patients was *K pneumonia*.^[17] In our study also the most common organism involved is *Escherichia coli*.

People are more often stay in home and being in sitting posture for more than usual period resulting in increased incidence of infective diseases around perianal region. In addition the prevailing lock down and resulting difficulty to approach health care institution leads to delay in reporting and getting adequate care for their benign diseases.

CONCLUSION

The prevalence of perineal infections in general are underestimated as most patients do not seek medical attention. This situation has only been exaggerated by the fear of COVID-19 pandemic leading to delayed presentation and increasing morbidity and mortality. The health care administrators shall ensure the fear of COVID is not affecting people from getting free access to adequate health care.

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