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Original Research Article

Outcome of perineal wound following incision and drainage of perianal abscess

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ABSTRACT

Background: Perianal abscess is a benign but common clinical condition that may cause substantial discomfort to the suffering patients and carries significant burden on healthcare services. The aim of this study was to investigate the outcome of perineal wound following incision and drainage of perianal abscess.
Methods: This prospective observational study was conducted in Department of Surgery, Shaheed Suhrawardy Medical College Hospital, Sher-E-Bangla Nagar, Dhaka, Bangladesh from 01 July 2019 to 30 June 2020. All the patients who were admitted to surgery department for incision and drainage of perianal abscess during this study period fulfilling the inclusion criteria were enrolled in the study.
Results: A total number of 220 respondents were included in the current study. Anal pain and perianal swelling were the commonest symptoms (95.0%) of the study population. Majority of patients underwent incision and drainage (65%). *Escherichia coli* (n=25) was the commonest organism found in intra operative pus culture (25%). 11 (5%) patients had abscess recurrence and fecal incontinence. Besides, 20% patients (n=44) developed perianal fistula or sinus after 2 months of follow-up. Multivariate analysis showed diabetes mellitus (OR-2.17 955 CI: 2.11-2.23, p=0.001) poor anal hygiene (OR-1.36, 95% CI:1.31-1.42, p=0.001), absent Pre-operative pelvic MRI or EAS (OR-1.42, 95% CI: 1.38-1.51, p=0.001) and delayed presentation (OR-1.61, 95% CI:1.54-1.72, p=0.002) were independent predictors of recurrence of abscess and sinus/fistula formation.
Conclusion: Further, large scale multicentric study is needed that may help to find and to compare the outcome of surgery as well as to evaluate the generalizability and applicability of the findings of this study.

Keywords: Perianal abscess, Outcome, Incision and drainage

INTRODUCTION

Perianal abscess is a benign but common clinical condition that may cause substantial discomfort to the suffering patients and carries significant burden on healthcare services.[1] It is a common problem contributing significantly to the daily surgical workload. Perianal abscess develops when crypt glands (about 8-10 glands located at the dentate line in a circumferential manner) are blocked by inspissated debris that results in unabated bacterial overgrowth. Subsequently, acute-phase suppurative process ensues that expands towards the tissues of least resistance.[2]

A perianal abscess is a collection of pus under the skin around the anus. Infection can then spread via several different routes. The most common spread of infection is a downward extension to the perianal skin. Alternatively,

infection may spread alongside the rectum (ischiorectal), upwards above the muscles of the pelvic floor (supralevator), or between the muscles of the anal canal (inter-sphincteric). Extension across the midline of the body results in a horseshoe abscess. The standard treatment is to make a cruciate incision and drain the pus under anaesthesia.[3]

The most common etiology is considered to be glandular infection arising from the anal crypts. Ninety percent of all anorectal abscesses are caused by non-specific obstruction and subsequent infection of the glandular crypts of the rectum or anus. vents the infection spreading and relieves pain in the affected area.[4] The predisposing factors that lead to the development of perianal abscess include malignancy particularly colorectal cancer, trauma, diabetes mellitus, tuberculosis, leukemia, obesity, HIV and inflammatory bowel disease.[5]

The outcomes of perianal abscess treatment depend on the timing of the surgery. Patients with early diagnosis and treatment tend to have good outcomes, but those who have a delay in treatment usually have prolonged hospital course, need for repeated surgical treatments at higher risk of recurrence.[6]

There is a close relationship of abscess and fistula in etiology, anatomy, pathophysiology, therapy, complications and morbidity. One third of perianal abscesses may manifest a fistula-in-ano which increases the risk of abscess recurrence requiring repeat surgical drainage. Treating the fistula at the same time as incision and drainage of the abscess may reduce the likelihood of recurrent abscess and the need for repeat surgery. However, this could affect sphincter function in some patients who may not have later developed a fistula-in-ano. The incidence of fistula following an abscess incision and drainage was 26% and incidence of recurrent abscess was 37% which was mentioned in previous studies.[6,7] The anal canal should be searched properly at the time of drainage and probe the anal crypt gently looking for fistula. If a fistula is identified and is quite superficial, primary fistulotomy may be attempted using a loose seton of braided, non-absorbable suture that inserted into the fistula tract, tied loosely to act as a drain. This is termed a "primary" or "synchronous" fistulotomy which is curative and avoid the need for subsequent fistula surgery. On the other hand, about two thirds of perianal abscesses never progress to fistulas and that a primary fistulotomy with its possible complications is usually unnecessary and the patients who are ideal candidates for primary fistulotomy are also the easiest to treat with delayed fistulotomy with subsequent low morbidity.[8]

Aerobic and anaerobic organisms have been found to be responsible for these abscesses including *Bacteroides fragilis, Peptostreptococcus, Prevotella, Fusobacterium, Porphyromonas, Clostridium* species, *Staphylococcus aureus, Streptococcus*, and *Escherichia coli*. Once the collection forms, it can spread along the path of least resistance, which is typically into the inter-sphincteric space and other potential spaces.[9]

No recent study is done about the outcome of perineal wound following incision and drainage of perianal abscess in perspective of Bangladesh. Moreover, there are controversies regarding postoperative wound management following incision and drainage of perianal abscess. The current study will help to know about outcome of perineal wound following incision and drainage of perianal abscess.

METHODS

A prospective observational study was conducted during the period of two years starting from 01 July 2018 to 30 June 2020 at Department of Surgery, Shaheed Suhrawardy Medical College Hospital, Sher-E-Bangla Nagar, Dhaka, Bangladesh. All patients who were referred to surgery unit for incision and drainage of perianal abscess in Shaheed Suhrawardy Medical College Hospital during this study period fulfilling the inclusion criteria was included in the study. Non-random purposing sampling was used. An ethical clearance was obtained from institutional ethical committee to conduct the study.

Inclusion criteria

All patients who will be undergone incision and drainage of perianal abscess were included.

Exclusion criteria

Patients below 18 years of age, patients having recurrent perianal abscess and those who will refuse to take part in this study were excluded.

All the patients under went incision and drainage of the abscess. Following incision and drainage of perianal abscess wound will be packed with povidone iodine-soaked gauze for 24 hours or up to 1st bowel movement following surgery. All the patients will receive prophylactic antibiotic. All of them will take hip bath (with povidone iodine mixed with worm water) two times, daily and after every bowel movement until complete recovery. Patients were followed up after 2-week, one month and 2 months to identify any complications.

Data was collected through predesigned data collection sheet incorporating patient information and investigation reports. Data regarding patient's demographics like age, sex and co-morbid conditions was collected. Per-operative findings, location of abscess, and pus culture reports were recorded. Post-operative complications like perianal fistula formation, fecal incontinence and recurrence of abscess were also identified.

Statistical package for social science (SPSS) version 21 for windows was used to analyze the data. Associations among qualitative and quantitative variables of various

factors were studied by using Chi-square test and t-test respectively. Logistic regression analysis was performed to assess the independent relationship between the factors. Categorical variables were presented as frequencies and percentages, continuous variables as mean±standard deviation (SD). A p value <0.05 was considered to be significant.

RESULTS

This prospective observational study was carried out among 220 patients with perianal abscess who admitted into Department of Surgery, Shaheed Suhrawardy Medical College Hospital, Sher-E-Bangla Nagar, Dhaka, Bangladesh to investigate the outcome of perineal wound following incision and drainage of perianal abscess.

Out of 220 respondents, 45% of the patients were in the age group of 34-50 years of age with a mean of 41.15 ± 16.736 years. Majority (n=176) were males with a male female ratio of 4:1. Most of the respondents were service holders (35.5%). The greater portion of respondents (n=143) were from lower class while the rest (n=77) were from middle class family. Diabetes mellitus was the most prevalent co-morbidly of the study population (15.0%) followed by hypertension (10.0%) (Table 1). The greater portion of respondents (70%) did not while the rest Only 66 patients (30%) used wipes for anal cleansing after defecation.

Table 1: Demographic characteristics of the study population.

Variables	Frequency (%)
Age (mean± SD) (years)	41.15±16.736
Sex	
Male	176 (80.00)
Female	44 (20.00)
Comorbidity	
Diabetes mellitus	33 (15.00)
Hypertension	22 (10.0)
Chronic obstructive pulmonary disease	10 (4.5)
Others	22 (10.0)
Anal hygiene status	
Wipes used after defecation	154 (70.00)
No wipe use after defecation	66 (30.00)
Economic status	
Lower class	143 (65.00)
Middle class	77 (35.00)
History of smoking	
Yes	178 (81.00)
No	42 (19.00)

209 patients (95.0%) presented with perianal pain while 187 (85.0%) had tender lump and 77 (35%) had fever respectively. Most of the patients had an early presentation (4±2.16 days) while only 10% (n=22) patients had delayed presentation (9±1.24 days). 22 (10.0%) patients gave history of previous pelvic surgery. 1st and 2nd degree hemorrhoid were the most common proctoscopic findings. 11 (5%) internal opening of the abscess which was identified during per-operative proctoscopy (Table 2). Mean C-reactive protein (CRP) was 30±16.8 mg/l. Most of the patients had elevated leucocyte count (n=160) while 60 patients (27.27%) had normal leucocyte count (Table 2). None of the patients had per-operative pelvic magnetic resonance imaging (MRI) or endoanal ultrasound (EAS).

Table 2: Clinical features of the patients.

Clinical features	Frequency	Percent (%)
Pain	209	95.0
Tender lump	187	85.0
Fever	77	35.0
Proctoscopic findings		
Ulcer	11	5.0
Internal opening	11	5.0
First degree haemorrhoids	11	5.0
Second degree haemorrhoids	22	10.0
Duration of symptoms		
Early (1-7 days)	198	90.0
Late (>8 days)	22	10.0
Leucocyte count, 10^9/l		
>4–11	60	27.27
>11–15	140	63.36
>15	20	0.90
C-reactive protein, mg/l		
≤10	60	27.27
>10–50	125	56.82
> 50–100	10	45.45
>100	25	11.36

The greater portion of respondents (n=209) had incision and drainage, while the rest of the patients (5%) had incision and drainage with fistulotomy. *Escherichia coli* (45%) was the commonest organism found in pus culture followed by *Staphylococcus aureus* (15%) and *Klebsiella* (5%) (Table 3).

Table 3: Organisms of pus culture of study population.

Organism	Frequency (%)
Escherichia coli	99 (45.0)
Staphylococcus aureus	77 (35.0)
Klebsiella species	11 (5.0)
No growth	33 (15.0)

All of the respondents (100%) had healed wounds after the surgical drainage of perianal abscess within one month of surgery. But 44 (20%) patients developed perianal fistula in ano after 2 months of follow-up. Recurrence rate was 15% (n=33). Besides, 11 patients (5%) patients developed

fecal incontinence after 2 months of follow-up (Table 4). Univariate analysis shows male sex, diabetes mellitus, poor anal hygiene, delayed presentation, presence of internal opening, presence of *E. coli*, raised CRP and leucocyte count, low socioeconomic status, absent pelvic MRI or EAS and smoking were risk factors for recurrence of abscess and fistula formation following incision and drainage (I and D) of perianal fistula.

However, multivariate analysis showed diabetes mellitus (OR-2.17 955 CI: 2.11-2.23, p=0.001) poor anal hygiene (OR-1.36, 95% CI: 1.31-1.42, p=0.001), absent pre-operative pelvic MRI or EAS (OR-1.42, 95% CI: 1.38-1.51, p=0.001) and delayed presentation (OR-1.61, 95% CI: 1.54-1.72, p=0.002) were independent predictors of recurrence of abscess and sinus/fistula formation (Table 5).

Table 4: Outcome of patients after 2 months of follow-up.

Outcome after 2 months	Grade	Frequency (%)
Fecal incontinence	Absent	209 (95)
	Present	11 (5)
Recurrence of abscess	Absent	187(85)
	Present	33 (15)
Presence of sinus/fistula	Absent	176 (80)
	Present	44 (20)

Table 5: Risk factors of fistula/sinus formation and abscess recurrence.

Variables	Univariate analysis odds ratio (OR) (95% CI)	P value	Multivariate analysis Odds ratio (OR) (95% CI)	P value
Female sex	1.68 (1.56-1.74)	0.001	0.13 (0.08-1.17)	0.634
Poor anal hygiene	1.41 (1.32-1.58)	0.03	1.36 (1.31-1.42)	0.001
Delayed presentation	1.96 (1.88-2.18)	0.001	1.61 (1.54-1.72)	0.002
Presence of internal opening during operation	1.43 (1.36-1.58)	0.042	1.24 (1.16-1.38)	0.08
Infection with *Escherichia coli*	1.16 (1.02-1.26)	0.001	0.41 (0.30-0.47)	0.427
Raised CRP	1.14 (1.02-1.22)	0.001	0.54 (0.41-0.63)	0.124
Elevated WBC count	1.58 (1.44-1.62)	0.001	0.428 (0.416-0.432)	0.082
Absent pre-operative pelvic MRI or EAS	1.538 (1.528-1.542)	0.001	1.42 (1.38-1.51)	0.001
Low socioeconomic status	1.43 (1.32-1.53)	0.014	0.18 (1.13-1.24)	0.642
Smoking	1.28 (1.14-1.38)	0.002	0.474 (0.41-0.492)	0.245
Diabetes mellitus	1.34 (1.21-1.45	0.003	2.17 (2.11-2.23)	0.001

DISCUSSION

The current study was carried out among 220 patients with perianal abscess who got admitted into Department of Surgery, Shaheed Suhrawardy Medical College Hospital, Sher-E-Bangla Nagar, Dhaka, Bangladesh to investigate the outcome of perineal wound following incision and drainage of perianal abscess.

Out of 220 respondents, near about half (45%) of the patients were in the age group of 34-50 years of age. The age of the patients ranged from 16 years to 84 years with a mean of 41.15±16.736 years which correlates with the study conducted by Read et al and Hebjorn et al.[10,11] Among total 220 patients, majority (n=176, 80%) were male and the rest (n=44, 20%) were females, which corresponds with the findings of previous studies which showed that there were 159 (80%) men and 39 (20%) women.[12,13]

Though perianal abscess was more common in males, the majority of the patients with sinus or fistula were females (n=11, 25%) which was statistically significant in univariate analysis. However multivariate analysis failed to prove the female sex was an independent predictor of fistula or sinus formation after drainage of perianal surgery (p>0.05).

Literature has shown that about 40% patients develop a fistula in ano after primary incision and drainage of perianal abscess.[14,15] As perianal abscess frequently co-exists with fistula in ano, failure to identify and treat the internal opening at the time of primary operation may result in chronic fistulation and recurrent abscesses. This study showed 15% and 20% patients had recurrence of abscess and fistula formation after 2 months of follow up respectively though all the patients had healed wounds which coincides with previous studies.[16,17]

The greater portion of respondents (n=154, 70%) did not use wipes for anal cleansing after defecation while the rest only 66 (30%) patients maintained anal hygiene which was an important risk factor for abscess recurrence and fistula formation (OR-1.36,95% CI:1.31-1.42, p=0.001). Poor anal hygiene has been associated with perianal septic conditions especially in developing countries which has been identified in previous studies.[18] The present research demonstrated similarities with these studies. Aerobic and anaerobic organisms have been found to be responsible for these abscesses including *Bacteroides fragilis,*

Peptostreptococcus, Prevotella, Fusobacterium, Porphyromonas, Clostridium species, Staphylococcus aureus, Streptococcus, and *Escherichia coli*. In the current study Escherichia coli was the most prevalent organism found in the culture of pus obtained from perianal abscess which demonstrated similarities with studies conducted by Zanotti et al.[19]

In the present study, diabetes mellitus (DM) was the most common disease that was complicated by perianal abscess in both genders. All of the patients (n=11, 5.0%) who had recurrence suffered from diabetes making DM an important risk factor for abscess recurrence and fistula formation (OR-2.17 955 CI: 2.11-2.23, p=0.001).

The patients who developed sinus or fistula in ano had longer mean duration of clinical features which was statistically significant (OR-1.61, 95% CI:1.54-1.72, p=0.002). This finding is supported by a study done by Elhassan et al where 28 patients who had delayed presentation developed fistula in ano.[20]

Preoperative imaging modalities like pelvic MRI or endoanal ultrasound (EAS) have been recommended in varies studies to assess the perianal abscess especially in case of horse shoe abscess and branching abscess cavities.[21] In this study, all the patients who did not have Pre-operative pelvic MRI or EAS developed fistula or sinus formation (OR-1.42,95% CI: 1.38-1.51, p=0.001) indicating the importance of pelvic MRI and EAS in detecting complicated perianal abscess.

Many researchers attempted to answer the clinical question whether drainage alone is better than drainage with fistula surgery.[22,23] These trials evaluated the role of abscess drainage and fistula surgery. Furthermore, one meta-analysis was recently published by Quah suggested a tendency for reduced fistula recurrence (RR-0.17, CI-0.09-0.32) and more minor incontinence (RR-2.46, CI-0.75-8.06) after abscess drainage with fistula surgery compared to drainage alone.[24] In our studies there were 11 patients having internal opening of fistula and all of them underwent abscess drainage and fistulotomy.

Limitations

The present study had some limitations. It was a single centre study conducted over a short period of time. Besides sample size was small which may not represent the overview of the whole population of the country. Further large-scale randomized researches should be conducted to ascertain a better result.

CONCLUSION

The present study had demonstrated some important risk factors for post-surgical fistula formation and abscess recurrence following incision and drainage of perianal abscess. Surgeons should appropriately address these factors in order to provide a better outcome to the patients following surgical management of perianal abscess.

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REFERENCES

1. Knoefel WT, Hosch SB, Hoyer B, Izbicki JR. The initial approach to anorectal abscesses: Fistulotomy is safe and reduces the chance of recurrences. Dig Surg. 2000;17(3):274-8.
2. Grace R, Harper I, Thompson R. Anorectal sepsis: Microbiology in relation to fistula-in-ano. Br J Surg. 1982;69(7):401-3.
3. Fielding M, Berry A. Management of perianal sepsis in a district general hospital. J R Coll Surg Edinb. 1992;37(4):232-4.
4. Li D, Yu B. Primary curative incision in the treatment of perianorectal abscess. Chin J Surg. 1997;35(9):539-40.
5. Eisenhammer S. The final evaluation and classification of the surgical treatment of the primary anorectal, cryptoglandular intermuscular fistulous abscess and fistula. Dis Colon Rectum. 1978;21:237-54.
6. Tang CL, Chew SP, Seow-Choen F. Prospective randomized trial of drainage alone versus drainage and fistulotomy for acute perianal abscesses with proven internal opening. Dis Colon Rectum. 1996;39(12):1415-7.
7. Vasilevsky CA, Gordon PH. The incidence of recurrent abscesses or fistula-in-ano following anorectal suppuration. Dis Colon Rectum. 1984;27(2):126-30.
8. Malik A, Hall D, Devaney R, Sylvester H, Yalamarthi S. Impact of specialist experience in the surgical management of perianal abscesses. Int J Surg. 2011;9(6):475-7.
9. George BD. Anal and perianal disorders. Medicine (Baltimore). 2005;35(3):147-52.
10. Read DR, Abcarian H. A prospective survey of 474 patients with anorectal abscess. Dis Colon Rectum. 1979;22:566-8.
11. Hebjorn M, Olsen O, Haakansson T, Andersen B. A randomized trial of fistulotomy in perianal abscess. Scand J Gastroenterol. 1987;22:174-6.
12. Tonkin DM, Murphy E, Brooke-Smith M, Hollington P, Rieger N, Hockley S, et al. Perianal abscess: A pilot study comparing packing with nonpacking of the abscess cavity. Dis Colon Rectum. 2004;47(9):1510-4.
13. Yano T, Asano M, Matsuda Y, Kawakami K, Nakai K, Nonaka M. Prognostic factors for recurrence following initial drainage of an anorectal abscess. Int J Colorectal Dis. 2010;25:1495-8.
14. Abcarian H. Anorectal infection: Abscess–fistula. Clin Colon Rectal Surg. 2011;24:14-21.

15. Ommer A, Herold A, Berg E, Fürst A, Sailer M, Schiedeck T. German S3 guideline: Anal abscess. Int J Colorectal Dis. 2012;27(6):831-7.
16. Lohsiriwat V, Yodying H, Lohsiriwat D. Incidence and factors influencing development of fistula-in-ano after incision and drainage of perianal abscesses. J Med Assoc Thai. 2010;93(1):61-5.
17. Adamo K, Sandblom G, Brännström F, Strigård K. Prevalence and recurrence rate of perianal abscess: A population-based study, Sweden 1997–2009. Int J Colorectal Dis. 2016;31(3):669-73.
18. Guraya SY. Association of type 2 diabetes mellitus and risk of colorectal cancer: A meta-analysis and systematic review. World J Gastroenterol. 2015;21(19):6026-31.
19. Zanotti C, Martinez-Puente C, Pascual I, Pascual M, Herreros D, García-Olmo D. Incidence of fistula-in-ano in four countries of the European Union. Int J Colorectal Dis. 2007;22:1459-62.
20. Elhassan YH, Guraya SY, Almaaramphy H. Prevalence, risk factors, and outcome of surgical treatment of acute perianal abscess in a single Saudi hospital. J Res Educ Indian Med. 2017;5:101-6.
21. Narayanan A, Sundararaman S, Varadhan L, Rajput R, Reay-Jones N, Gupta V. Value of microbiological analysis of pus swabs in perianal abscess: Have they stood the test of time and antibiotic usage? Int Surg J. 2015;2(2):175-8.
22. Oliver I, Lacueva FJ, Pérez Vicente F, Arroyo A, Ferrer R, Cansado P. Randomized clinical trial comparing simple drainage of anorectal abscess with and without fistula tract treatment. Int J Colorectal Dis. 2003;18:107-10.
23. Ho YH, Tan M, Chui CH, Leong A, Eu KW, Seow-Choen F. Randomized controlled trial of primary fistulotomy with drainage alone for perianal abscesses. Dis Colon Rectum. 1997;40:1435-8.
24. Quah H, Tang C, Eu K, Chan S, Samuel M. Meta-analysis of randomized clinical trials comparing drainage alone vs primary sphincter-cutting procedures for anorectal abscess–fistula. Int J Colorectal Dis. 2006;21(6):602-9.

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