Section: General Surgery

Original Research Article

MANAGEMENT OF LOW ANAL FISTULA BY FISTULECTOMY WITH PRIMARY CLOSURE VERSUS OPEN FISTULECTOMY

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ABSTRACT

Background: Aim: To compare the period of stay, period of wound healing, time period to return to daily activities and cost factor between open fistulectomy and primary closure technique.
Materials and Methods: Patients admitted in all surgical units of J.J.M Medical College and Hospital were included in the study without bias on a serial basis. This is a study comprising 50 patients (n =50) of Fistula in ano over a period of 26 months from May 2018 to July 2020.
Results: Majority of parients in both groups presented with discharge and swelling in perianal region. There is significant difference between duration of stay of patients of open (11 days) and primary closure (7 days) (p value 0.0001). There is significant difference between duration of wound healing of open (27 days) and primary closure (9 days) (p value 0.0001). Patients who had undergone fistulectomy with primary closure had a mean VAS pain score of 5.2 while patients who had undergone open fistulectomy had a mean VAS pain score of 8.7 on the first post-operative day.
Conclusion: The study proved that the primary closure after fistulectomy showed better results in terms of lesser pain management, short hospital stay and lesser period of wound healing as compared to the open fistulectomy. From this study it can be concluded that fistulectomy with primary closure is ideal for low level fistula in ano.
Keywords: Primary closure, Open fistulectomy.

INTRODUCTION

Fistula-in-Ano is the most common malady and an intriguing problem of the Ano-rectal region in general population. Fistula-in-Ano is a preventable disease provided the perianal – perirectal suppurations are treated timely and in a corrective manner. The location of the diseased part makes the patient refrain from early consultation. The common pathogenesis is the bursting open of an acute or inadequately treated ano-rectal abscess into the peri-anal skin. The cause for the delay in treating the patients with perianal suppurations are the shy patients themselves who come to the surgeon late. The more important second factor is that a significant percent of these diseases persist or recur when the right modality of surgery is not adopted or when the post-operative care isinadequate. The chronicity with its annoying symptoms like soiling of the under garments, itching, repeated abscess formation, makes an otherwise healthy and active person lose their earning capacity, with lowered self-confidence. Open Fistulectomy, though considered as the standard treatment for fistula in ano, fistulectomy with primary closure has the merits of short hospital stay for patients, early wound healing, lowers costs and is a safe procedure.

MATERIALS AND METHODS

Our study included all the patients admitted in the surgical wards in all the units of J.J.M.Medical College and Bapuji hospital and Chigateri General Hospital Davanagere. This is a randomized prospective study comprising 50 patients (n =50) of Fistula in ano over a period of 26 months from May 2018 to July 2020.

Inclusion Criteria: Patients with low level fistula in ano.

Exclusion Criteria: Patients with high level fistula in ano, recurrent fistula in ano and anal fistula associated with inflammatory bowel disease.

Patients with Comorbidities like DM, HTN, IHD and COPD, were assessed for the condition first, optimized treatment followed and re assessed for fitness for surgery.

In current study, all patients were subjected to either open fistulectomy or fistulectomy with primary closure procedures under Spinal Anesthesia. Pre operative antibiotics prophylaxis was given to all patient with Inj. Cefotaxime 1gm IV. Open fistulectomy was done in 25 patients and fistulectomy with primary closure was done in rest of the 25 patients. Postoperatively for analgesia, Inj Diclofenac 75 mg IM BD was given for 48 hours to both the cohorts. Post operatively Inj Cefotaxime 1gm IV, BD was given for 48 hours to both the cohorts.

Post operatively, the following was evaluated:

Period of stay in hospital was compared by using the hospital records.

Period of healing was compared by measuring the time taken for complete epithelialisation of the operated site in open fistulectomy cases and complete wound healing in fistulectomy with primary closure.

Work load on the hospital was compared on the basis of number of days of bed occupancy, use of dressings and other medications.

Cost factor was compared on the basis of expenditure on the cost of surgical procedures, dressings, financial loss incurred due to absence from work etc.

Patients were followed up once a month for the first three months, once every three months thereafter in first year and once in six months in the next year and assessed for recurrence.

RESULTS

The 50 patients admitted for the study were divided into two equal and comparable groups. Patients subjected to fistulectomy with primary closure were classified under Group I and those who underwent open fistulectomy were classified as Group II. The patient's characteristics of the two groups were well matched as given in the table below.

Age Incidence

Table 1: Age Incidence in Our Study

Age in Yrs	Primary closure group		Open fistulectomy group	
	No of Cases	Percent	No of Cases	Percent
30-39	6	24	6	24
40-49	12	48	13	52
≥ 50	7	28	6	24
Total	25	100	25	100

In our study the incidence of fistula in ano was noticed more in 40 - 49 years. The highest age was 47 yrs and the lowest age was 24 yrs in our study.

Mean age of presentation was 34.8 yrs in fistulectomy with primary closure and 35.1 yrs in open fistulectomy group.

Table 2: Sex Incidence

Gender	Primary closure group		Open fistulectomy group	
	No of Cases	Percent	No of Cases	Percent
Male	18	72	16	64
Female	7	28	9	36
Total	25	100	25	100

The incidence of fistula-in-ano in male:female is 2:1 in our study

SOCIO ECONOMIC STATUS.

Table 3: Occupational Distribution

Occupation	Primary closure group		Open fistulectomy group	
	No of Cases	Percent	No of Cases	Percent
Farmer	6	24	6	24
Housewife	6	24	6	24
Labourer	2	8	2	8
Shopkeeper	3	12	3	12
Student	1	4	2	8
Teacher	2	8	3	12
Driver	1	4	3	12
Others	4	16	0	0

In our study most of the patients were from low socio economic group status with poor personal hygiene.

Table 4: Presenting compliaints

Symptoms	Primary closure		Open fistulectomy	
	No of Cases	Percent	No of Cases	Percent
Swelling	8	32	6	24
Discharge	25	100	25	100
Pain during defecation (m)	9	36	11	44
Pruritis (m)	2	8	4	16
Bleeding per rectum	5	20	2	8

In our study most of the patients presented to hospital with complaints of discharge and swelling in both the groups.

Table 5: Type of Fistula

Type of Fistula	Primary closure	Open fistulectomy	Total
Anterior	5	4	9
Posterior	20	21	41
Total	25	25	50

In our study of 50 patients with low anal fistula, 41 patients had posterior opening and 9 patients had anterior openings.

Table 6: Associated Diseases

Other associated diseases	Primary closure		Open fistulectomy	
	No of Cases	Percent	No of Cases	Percent
DM	2	8	3	12
HTN	3	12	2	8
BPH	1	4	0	0

In our study 5 cases had HTN and DM and one patient had BPH. HTN and DM were well controlled before operation as per the advice of physician and daily check up was made in hospital.

POST-OPERATIVE PERIOD PAIN.

Pain scoring on a scale of 1 – 10; 1 being no pain and 10 being maximum bearable pain

Table 7: Mean Pain Score

Groups	N	Mean PS	Std. Deviation
Primary closure	25	5.2	0.7
Open fistulectomy	25	8.7	1.4

In the present series, patients who had undergone fistulectomy with primary closure had a mean pain score of 5.20 while patients who had undergone open fistulectomy had a mean pain score of 8.88 on the first postoperative day.

Table 8: Urinary Complications

Urinary complications			
Urinary Complications	Primary closure	Open fistulectomy	Total
Delay in passage of urine	4	5	9
Retention of urine	2	6	8
Total	6	11	17

In our study 8 patients had retention of urine and were catheterized, and in 9 patients there was delay in passing urine but catheterization was not required.

Table 9: Period of Hospital Stay

No. of days stay in hosp. after operation	Primary closure	Open fistulectomy	Total
6-8	23	0	23
9-11	2	17	19
12-14	0	8	8
Total	25	25	50

In our study patients who underwent open fistulectomy stayed for longer duration upto 2 weeks, where patients with fistulectomy with primary closure got discharged in the first week itself except 2 patients who got discharged in the second week.

Table 10: Mean Duration of Hospital Stay

No. of days stay in hosp. after operation			
Groups	**N**	**Mean**	**Std. Deviation**
Primary closure	25	6.8	1.0
Open fistulectomy	25	10.8	1.8

In our study mean duration of hospital stay in fistulectomy with primary closure group was 6.8 days compared to open fistulectomy group which was 10.8 days.

Table 11: Duration of Wound Healing

Duration of wound healing in days	Primary closure		Open fistulectomy	
	No	%	No	%
1 week	3	12	0	0
2 weeks	22	88	0	0
3 weeks	0	0	2	8
4 weeks	0	0	14	56
5 weeks	0	0	9	36
Total	25	100	25	100

In our study, patients who underwent fistulectomy with primary closure wound healed in two weeks of duration whereas in open fistulectomy group, 4-5 weeks was needed for complete healing of wound.

Table 12: Mean Duration of Wound Healing

Duration of wound healing			
Groups	**N**	**Mean**	**Std. Deviation**
Primary closure	25	8.4	0.7
Open fistulectomy	25	26.7	3.6

In our study, patients who underwent fistulectomy with primary closure mean duration of wound healing time was 8.4days, whereas in open fistulectomy group mean duration of wound healing was 26.7days.

Table 13: Late complications

No of cases	Recurrence rate	Incontinenece
Primary closure	Nil	Nil
Open fistulectomy	Nil	Nil

In the present series as only low level fistulae were selected, the anorectal ring was not damaged during surgery. Hence incontinence was not a sequel

Statistical Analysis:

Categorical data was represented in the form of frequency and percentage.

Quantitative data was represented as mean & Sd. Comparison of variables has been done with Paired t test.

A P value of <0.05 was considered statistically significant.

Data was analyzed with IBM SPSS Version 22 for windows.

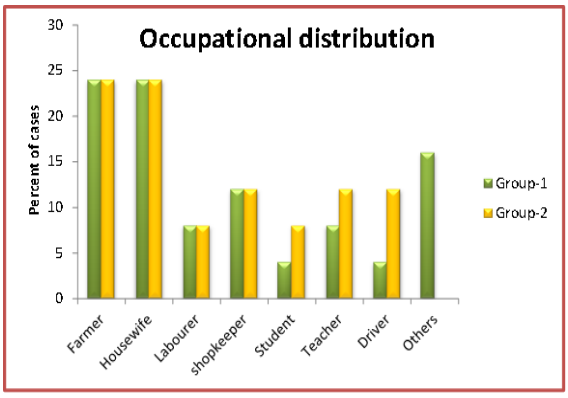

Figure 1: Occupational Distribution

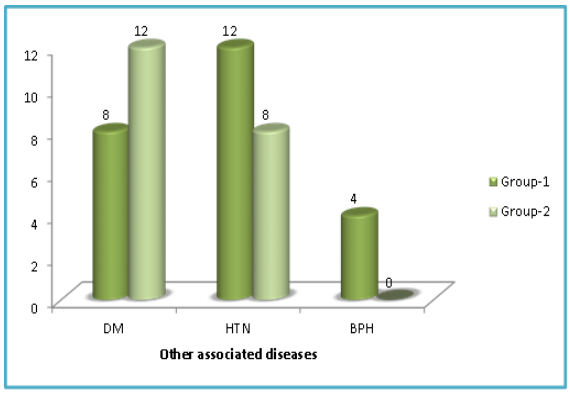

Figure 2: Associated Diseases

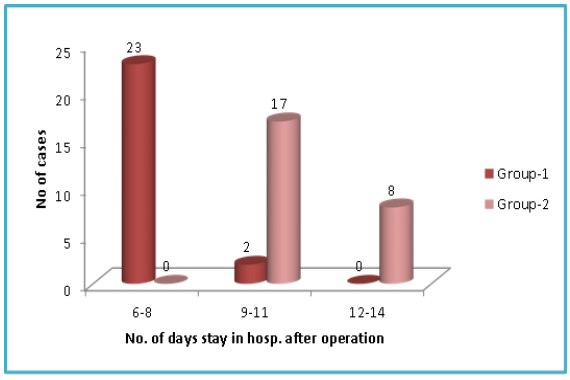

Figure 3: Period of Hospital Stay

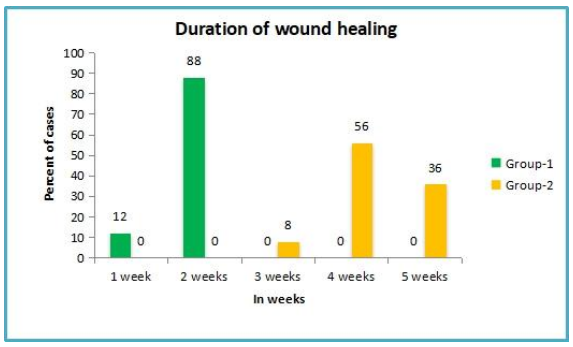

Figure 4: Duration of Wound Healing

DISCUSSION

Fistula in ano is distressing condition for patient and even sometimes it is challenging as well for surgeons.

The majority cases of fistula develop following cryptoglandular infection followed by anorectal abscess. According to cryptoglandular hypothesis, intersphincteric gland infection is the initiating event in causing fistula in ano. Many authors have presented various operative techniques to prevent recurrence and incontinence.

Every surgeon is aware of wound healing by primary intention in which by obliterating the dead space wound edges are brought together. with body's process of tissue inflammation and repair wound healing occurs. This rationale is applied in fistulectomy with primary closure which expediates the wound healing process.

On the other hand in open fistulectomy, wounds have been left open and allowed to granulate well with expected healing time upto 6weeks.

Table 14: Comparision of Age Incidence

	Present study	**Prakash et al[1]**	**Basa M et al[2]**	**Nagare et al[3]**
Age Incidence	21-40 years	21-40 years	21-50 years	21-40 years
H-highest age	H-47yrs		H-68yrs	H-70yrs
L-lowest age	L-24years		L-19yrs	L-21yrs

Fistula in ano commomly occurs in adults in age ranging between 20-70 years. In Prakash et al,[1] it was between 21-40yrs. Basa M et al,[2] it was between 21-50yrs, highest age was 68yrs and lowest was 19yrs.

Nagare et al,[3] showed age incidence 21-40 yrs with highest age 70yrs and lowest age 21yrs. In our present study incidence was between 21-40yrs, with highest age being 47yrs and lowest being 24ys old. This study is comparable to the above mentioned studies with regard to the age group with maximum incidence of cases.

Table 15: Comparison of sex incidence

	Present study	Prakash et al[1]	Basa M et alt[2]	Ani et al[4]
Gender(M:F)	2:1	4:1	2:1	8:1

Fistula in ano affects both male and females. In Prakash et al,[1] ratio of males to female is 4:1, Basa M et al,[3] reported male to female ratio 2:1. Ani et al,[4] reported male to female ratio 8:1. In our present study ratio is 2:1.thus proving that in a given population the incidence of anal fistula is higher in the male gender. This is also comparable to other studies.

Presenting Symptoms

Patients most commonly presents with perianal discharge followed by pain during defecation. IN a clinical study of 199 patients with fistula in ano, Sainio P made the observation that discharge from the external opening was the most common complaint among patients.

In Prakash et al study,[1] most common symptom is perianal discharge followed by swelling in perineum. In Vasilvesky et al,[5] series, most common symptom is perianal discharge followed by pin during defecation. In our study all patients presented with perianal discharge followed by pain during defecation.

Scio-economic status

Majority of patients belongs to low socioeconomic group and are from rural areas in all the previous studies in the literature. In our study also most of the patients belongs to low socio economic group, many were farmer by occupation. Poor sanitation and personal hygiene was found to be major causes for anorectal abscess and fistula formation.

Table 16: Comparision of Type of Fistula

Type of fistula	Present study	Prakash et al[1]	Basa M et al[2]	Nagare et al[3]
Anterior	9	13	12	42
Posterior	41	39	38	18

Majority of fistula occurs in posterior anal regions crypt glands are more in concentration. In Prakash et al study,[1] 39 cases had posterior fistula , 13 cases had anterior type.

Basa M et al,[2] 12 cases had fistula in anterior and 38 cases had posterior type fistula. Nagare et al,[3] study, reported 42 anterior cases and 18 posterior type fistulas. In our present study 41 cases of fistula had

posterior in position, 9 cases were reported anterior type fistula.

Table 17: Comparision of pain score

Pain score	Present study	Prakash et al[1]	Basa M et al[2]	Nagare et al[3]
primary closure group	5.2	3.33	5.28	3.36
Open fistulectomy group	8.88	9.8	8.68	7.4

In Prakash et al study,[1] mean pain score on primary closure group was 3.3, Basa M et al study,[2] reported 5.28 and in our present study mean score in primary closure group is5.2.

Where as in open fistulectomy group Prakash et al study,[1] reported pain score is 9.8, Basa M et al,[2] study, mean pain score is 8.6 and our current study mean pain score reported is 8.8. After statistical comparision, we reject null hypothesis, indicating data is statistically significant with less pain score in primary closure group.

POSTOPERATIVE URINARY RETENTION(POUR)

Immediate postoperative complications include retention of urine. It has been shown to increase with increasing age, risk increases by 2.4times after 50yrs age. In Prakash et study,[1] 11cases had urinary retention. Basa M et al study,[2] 7 cases needed catheterization following urinary retention. In our current study 8cases had problem of urinary retention.

Table 18: Comparision of Mean Duration of Hospital Stay

Hospital stay	Present study	Prakash et al[1]	Basa M et al[2]	Singh et al[6]
primary closure	6.8 days	5.3days	7days	7.93days
Open fistulectomy group	10.8 days	11.7 days	13days	11.46days

In fistulectomy with primary closure group, Prakash et al study,[1] reported mean duration of hospital stay is 5.3days. Basa M et al study,[2] mean duration hospital stay is 7days. Singh et al study,[6] mean duration hospital stay is 8days, whereas our current study reported mean hospital study 6.8days

In open fistulectomy group, Prakash et al study,[1] reported mean duration of hospital is 11.7days. Basa M et al study,[2] mean duration of hospital study is 13days. Singh et al study,[6] mean duration hospital study is 15days, whereas our current study reported mean hospital study 10.8days.

A statistically significant P value was obtained considering the mean duration of hospital stay among primary closure and open fistulectomy group.

Table 19: Comparision of Mean Duration of Wound Healing

Wound healing	Present study	Prakash et al[1]	Basu et al[2]	Damor et al[7]
Fistulectomy with primary closure	8.4days	14days	8.4days	9.79days
Open fistulectomy	3.8weeks	4.5weeks	5weeks	3.8weeks

In fistulectomy with primary closure group, Prakash et al study,[1] reported mean duration of wound healing is 14days. Basa M et al study,[2] mean duration of wound healing is 8.4days. Damor et al study,[7] mean duration of wound healing is 8.2days, whereas our current study reported mean duration of wound healing 8.4days

In open fistulectomy group, Prakash et al study,[1] reported mean duration of wound healing is 4.5 weeks. Basa M et al study,[2] mean duration of wound healing is 5weeks. Damor et al study,[7] mean duration of wound healing is 3weeks, whereas our current study reported mean duration of wound healing 3.8weeks.

A statistically significant P value was obtained considering the mean duration of duration of wound healing among primary closure and open fistulectomy group.

CONCLUSION

In 25 cases treated by open fistulectomy pain score, duration of hospital stay and duration of wound healing is more. Which results in more hospital visits and expenditure in terms of dressing material, medications. Also increased work burden on hospital staff during follow ups.

Whereas fistulectomy with primary closure group there is significant decrease in pain score, duration of hospital stay and early wound healing in comparison to open fistulectomy group. Patients can return to their normal activities at the earliest, can earn daily income also and has less medical expenses keeping in the mind most of the patients belong to low socio economic group.

The primary closure method of fistulectomy is a safe and feasible method and more effective in the management of fistula in ano in our study.

The most important criteria is careful selection of the patient, pre – operative bowel preparation, preoperative antibiotics and low residue diet. On the

operation table identification and complete excision of fistula tract and securing perfect hemostasis is essential. Primary closure of the wound should be without tension of sutures.

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