

Comparative Study of Fistulectomy and Fistulotomy in the Management of Fistula-in-ano

Bijaya Kumar Sethi¹, Kalpana Vineet², Yogesh T³, Sidduraj C Sajjan⁴, Vineet Mannan⁵, Ravi Kumar⁶

¹Assistant Professor, Department of Pediatric Surgery, ^{2,4,5}Assistant Professor, ³Senior Resident, ⁶Associate Professor, Department of Surgery, Vydehi Institute of Medical Sciences and Research Centre, Whitefield, Bangalore, Karnataka 560066, India.

How to cite this article:

Bijaya Kumar Sethi, Kalpana Vineet, Yogesh T *et al.* Comparative Study of Fistulectomy and Fistulotomy in the Management of Fistula-in-ano. *New Indian J Surg.* 2019;10(4):407-413.

Abstract

Context: Fistula-in-ano is a condition that has been described virtually from the beginning of medical history. A fistula is usually the result of a previous crypt abscess or glandular infection in the area which has been drained inadequately and not fully healed. This results in persistent or intermittent discharge of pus, blood or mucus. There is not usually much pain, although an abscess can sometimes recur. Fistulotomy is one of the common surgical procedures wherein a probe is passed through the entire fistulous track, incision is made over the probe to cut and lay open the fistulous track. In Fistulectomy, a probe is passed through external opening up to the internal opening, fistula is opened along the probe using a knife, and fibrous tract along with unhealthy granulation tissue is excised. The aim of the study is to compare the operation time, postoperative wound size, postoperative pain, recurrence, anal incontinence and quality of life in both the groups.

Materials and Methods: This comparative study was conducted from 2017 to 2018 that was conducted on 60 consecutive patients diagnosed to have low fistula-in-ano. 30 patients underwent fistulotomy and 30 patients underwent fistulectomy. Parameters

related to surgery, postoperative period and follow up were observed, tabulated and analyzed.

Results: Mean operative time was (11.63 mins) in fistulotomy when compared to fistulectomy which was (12.17 mins). Postoperative wound size was (2.51 cms) in fistulotomy when compared to fistulectomy (2.80 cms). Postoperative pain on day 1 and on day 3 was less in fistulotomy compared to fistulectomy. The quality of life was better following fistulectomy compared to fistulotomy due to more rate of recurrence in fistulotomy group.

Conclusions: Fistulectomy can be considered a better procedure for a low anal fistula owing to lesser postoperative recurrence.

Keywords: Fistulectomy; Fistulotomy; Fissure-in-ano.

Introduction

Fistula-in-ano has been a troublesome pathology to both patient and doctor all through careful history. The assessed commonness of non-explicit fistulae is 8.6 to 10/100000, of the populace every year, with a male to the female proportion of 1.8:1.¹ A fistula-in-ano is a granulating track between the anorectum and the perineum which may consist of primary and secondary tracks. Sometimes these tracks become occluded and a sinus remains. Fistula-in-ano is quite frequently seen in almost all cases of perianal-perirectal suppuration. The most evaluated etiologic factor to cause fistula-in-ano is infection beginning in the anal crypt glands.^{2,3} The disease is known

Corresponding Author: Kalpana Vineet, Assistant Professor, Department of Surgery, Vydehi Institute of Medical Sciences and Research Centre, Whitefield, Bangalore, Karnataka 560066, India.

E-mail: dr_kalpan@yahoo.co.in

Received on 06.05.2019, Accepted on 08.06.2019

for its chronicity and its annoying symptoms. Soiling, pruritus and rectal suppuration render an otherwise healthy person an economic burden, retraction from social engagements and the patient also loses his self-confidence. The understanding of the anatomy of the anal canal and rectum and the mechanisms of continence of the rectum has enabled the surgeons to deal with the disease without causing any interference with anal continence. Many fistulas are low lying, consisting of a single straight track from the skin to the anal canal, merely traversing the lower fibers of the internal anal sphincter. Fistula in ano rarely heals spontaneously and requires surgical therapy to achieve a cure. The majority of such fistulas can be managed by simply laying open the track (fistulotomy) with a good prospect of cure and with no impairment of continence. After surgery, frequent exacerbation and recurrences raise a problem about the complexity of the disease.^{2,4} Therefore, understanding the clinical presentation, pathology, anatomy of fistula tract in relation to anal canal and sphincters is essential to manage this disease.

Fistulectomy, however, poses the advantage that false passages are not created by probing the track. However, the same cannot be said for fistulas that traverse the external sphincter, particularly if they have been associated with a previous ischioanal abscess. The improved surgical techniques have rendered postoperative period uneventful and steep fall in recurrence rate.

The present study is designed to compare the outcome of fistulotomy and fistulectomy in terms of the operation time, postoperative wound size, operative blood loss, postoperative pain, recurrence rate, anal incontinence and quality of life.

Materials and Methods

After approval from the Institutional Ethical Committee a prospective, a comparative study was performed in 60 patients and written informed consent from each patient, who underwent surgery as per the assigned group under spinal anesthesia, was taken before enrolment in the study. Duration of study was from January 2017 to June 2018, the study conformed to the Helsinki declaration (World Medical Association, 1995). Data was collected from a case recording pro forma pertaining to patient's particulars; history, clinical examinations, investigations, diagnosis and surgical procedures who were willing and consented patients with low anal fistula were

included in the study. The exclusion criteria were patients with fistula following perianal trauma, multiple fistulas, high fistula-in-ano, congenital fistulae, and fistula in specific diseases such as tuberculosis, Crohn's disease, actinomycosis and malignancy and also patients with fistulae not consenting for the study and follow up. The operative methods were:

Fistulotomy: Under spinal anesthesia, patient in the lithotomy position, a proctoscope is inserted and a probe is passed through the entire fistulous track, onto which an incision is made through the anoderm, skin, fat and any sphincter musculature distal to the tract, to lay open the track. The edges are trimmed to prevent bridging-over during healing; betadine soaked gauze is packed along with the entire depth of the wound and dressing done.

Fistulectomy: Under spinal anesthesia, patient in lithotomy position, a proctoscope is inserted and a probe is passed through the entire fistulous track, fistula is opened along the probe using a knife, fibrous track along with unhealthy granulation tissue is excised, betadine soaked gauze is packed along the entire depth of the wound and dressing done.

Routine investigations such as complete blood picture (CBC), random blood sugar (RBS), Serology, renal function tests (RFT) and chest X-ray were conducted on all patients and all were evaluated by a pre-anaesthetic check-up. Data regarding the age, gender, operative time, postoperative pain on day 1 and 3 (as per visual analogue pain score) with postoperative analgesics, anal incontinence was collected and tabulated. The antibiotic cover was given with inj. ornidazole with ofloxacin on day 1 of surgery followed by oral antibiotics for 4 days, twice daily postoperatively. All patients were followed up to 6 months after surgery.

Statistical analysis: The statistical analysis was performed by STATA 11.2 (College Station TX USA). Chi-square test has been used to measure the association between the age distribution, gender distribution, quality of life and recurrence with the type of surgery (fistulotomy and fistulectomy) respectively and these expressed as frequency and percentage. Shapiro Wilk test has been used to check normality, Student independent sample t-test was used to find the significant difference between the age, operating time, postoperative wound size and pain score with the type of surgery (fistulotomy and fistulectomy) respectively and these expressed as mean and standard deviation. $p < 0.05$ was considered as statistically significant.

to fistulotomy (70%). There was statistically significant difference found between the mean postoperative quality of life and type of surgery.

Table 5: Showing comparison of postop quality of life according to type of surgery

	Fistulotomy	Fistulectomy	Total	p-Value
Satisfactory	21(70%)	29(97%)	50	0.006
Unsatisfactory	9(30%)	1(3%)	10	
Total	30	30	60	

Mean postoperative recurrence was more in fistulotomy (10%) when compared to fistulectomy (3%). There was statistically significant difference found between the mean postoperative recurrence and type of surgery as shown in Table 6.

Table 6: Comparison of postoperative recurrence according to type of surgery

	Fistulotomy	Fistulectomy	Total	p-Value
Yes	9(10%)	1(3%)	10	0.006
No	21(90%)	29(97%)	50	
Total	30	30	60	

Discussion

Anal fistulae occur as a complication of anal gland infection (cryptoglandular) or from a skin infection. Cryptoglandular infections are caused by intestinal organisms and are invariably associated with an internal opening. Consequently, drainage often results in a creation of a fistula between the skin and anal mucosa, the incidence being more common in men than in women as it is attributed to the occupation, distribution of hair, increased sweating and poor anal hygiene, and the peak age at presentation is more common in third or fourth decade. The anal glands, 8 or more in number, lie in the submucosa, internal sphincter and intermuscular plane. They are flask-shaped and the ducts are lined by modified transitional epithelium. The glands are most abundant posteriorly and in the lower anal canal, most of it in the lower third of the internal anal sphincter. The glandular structures are surrounded by aggregates of lymphoid tissue, which explain why anal glands often get involved by tuberculosis or Crohn's disease. These anal glands become infected when a small abscess is formed which either spontaneously resolve or ruptures into the anal canal. Some episodes are so minor that the patient is unaware of having any anal sepsis. In other cases, there might not be an internal opening because the infective process stimulates an area of fibrosis that occludes the duct. The spread

of sepsis is usually caudal towards the perineum along the fibroelastic septa of the perineal region.

Many fistulas are low-lying consisting of a single straight track, from the skin to the anal canal, nearly traversing the lower fibers of the internal anal sphincter. Such fistulas can, therefore, be managed simply by laying open the track (fistulotomy) or by completely excising the track (fistulectomy), with a good prospect of cure and without impairment of anal continence. However, the same cannot be done if the fistula has traversed the external sphincter and if there is associated with a previous ischiorectal abscess, laying open of such fistulas causes serious and permanent impaired continence. Lunniss *et al.*,⁶ stated that there is growing evidence that even division of internal anal sphincter, leaving the puborectalis and external sphincter undisturbed, may cause impaired continence after successful elimination of the fistula. Hence, we have restricted our study to a low anal fistula. It is found that approximately 70% of patients with anal fistula had the previous history of anorectal sepsis.

A good clinical examination with inspection of the perianal region demonstrates an external opening associated with perianal excoriation. A careful proctoscopic examination is essential; a split proctoscope will allow better visualization of the internal opening. In an attempt to compare the outcomes of fistulotomy and fistulectomy in patients with low anal fistula, we studied 60 patients dividing them into two study groups: variables like age, sex, preop pus culture, operative details, postop wound size, postop pain on day 1 and day 3, histopathology, quality of life and recurrence, the following are the observations made.

Age incidence: The maximum incidence of cases was seen in the age group of 41-50 years followed by nearly equal incidence in the second and third decades. This is comparable to other studies. Sainio P⁷ reported that in a large study of 458 cases the mean age of incidence was 38.3 years. Vasilevsky and Gordon⁸ (1984) and Bruhl⁹ (1986) reported that patients with fistula-in-ano commonly presented in the third or fourth decade of life. In our study, the mean age of patients undergoing fistulotomy was 40.63 and those undergoing fistulectomy was 41, with a p-value of 0.898 which was statistically insignificant.

Gender distribution: There is more dominance in almost every reported series (Adams D and Kovalcik PJ, 1981).¹⁰ The male : female ratio in the 5-year review of 793 patients at St. Marks Hospital was 4.6:1 (Marks CG and Ritchie JK, 1977).¹¹ In Nigeria, male dominance is 8:1 (Ani AN and Solanke TF,

1976).¹² Patients with an anal fistula commonly present in the third or fourth decade of life and were uncommon after the age of 60 (Vasilevsky and Gordon 1984; Bruhl, 1986).^{8,9} In our study, the sex preponderance was 93.3% in males and 6.7% in females for fistulotomy, and 90% in males and 10% in females for fistulectomy with a p-value of 0.640, which was statistically insignificant.

Preoppculture: Preoperative pus cultures revealed 3.33% cases having *E. coli*, 6.67% having enterococcus faecalis and the rest having no growth with a P-value of 0.355 which was statistically insignificant.

Operative time: Mean operating time was 11.63 minutes for fistulotomy and 12.17 minutes for fistulectomy with a p-value of 0.568 which was statistically insignificant.

Postoperative wound size: Mean postoperative wound size was 2.51 cm for fistulotomy and 2.8 cm for fistulectomy with a P-value of 0.028 which was statistically significant.

Postoperative pain (as per visual analogue pain score) with postoperative analgesics: The mean postoperative pain on day 1 was 7.03 in case of fistulotomy compared to fistulectomy which was 7.53 and postoperative pain on day 3 was 2.93 and 3.2 respectively. The P-value was 0.035 for postoperative pain on day 1 which was statistically significant compared to 0.119 for postoperative pain on day 3 which was statistically insignificant.

Histopathology: Sainio P⁷ studied the incidence and epidemiology of anal fistula, of a total of 458 anal fistulae diagnosed during the period under study, the nonspecific fistulae accounted for 90.4%, the tuberculous fistulae for 0.2%, the postoperative and traumatic fistulae for 3.3% and fistulae originating in anal fissure for 3.3%. Anal fistulae associated with ulcerative colitis comprised 1.5% of the total series and fistulae associated with Crohn's disease 1.3%. In our study out of 60 patients, 30 underwent fistulectomy and the specimen was sent for histopathological examination which revealed non-specific infection in all the cases.

Quality of life: Quality of life was satisfactory amongst 70% of patients who underwent fistulotomy and 97% for fistulectomy with a P-value of 0.006 which was statistically significant.

Recurrence: There was 10% recurrence in patients who underwent fistulotomy compared to 3% in patients who underwent fistulectomy with a p-value of 0.006 which was statistically significant. In our study, the operating time, postop wound size, postop pain was significantly better in case

of fistulotomy; however, postoperative recurrence was found to be more in fistulotomy leading to poor quality of life compared to fistulectomy.

In the study, fistulotomy versus fistulectomy for treatment of fistula-in-ano conducted by Kumar RH *et al.*¹³, fistulectomy for fistula-in-ano had a higher chance of recurrence. In our study, the rate of recurrence was higher in case of fistulotomy compared to fistulectomy. In a study comparison of fistulectomy and fistulotomy in the management of an anal fistula, postoperative wounds healed earlier in fistulotomy in comparison to fistulectomy wounds. No significant differences existed between the operating times and visual analogue scale scores for postoperative pain on the first postoperative day were for the two groups. Postoperative wounds were larger in fistulectomy than in fistulotomy. No patient developed recurrence during the follow-up.¹⁴ In our study, the operative time was insignificant, mean postoperative wound size was more in fistulectomy (2.8 cm²) when compared to fistulotomy (2.51 cm²) which statistically significant. Fistulotomy had less postoperative pain as per visual analogue pain score on day 1. No statistically significant difference found between the mean postoperative pains on day 3. The postoperative recurrence was more in fistulotomy (10%) when compared to fistulectomy (3%). In the analytical study fistulotomy versus fistulectomy in the treatment of low fistula-in-ano was carried out and concluded that fistulotomy resulted in lesser pain, lower hospital stay.¹⁵ Fistulectomy is a satisfactory surgery for the treatment of a simple or low transsphincteric fistula while others revealed that fistulotomy keeps on having phenomenal outcomes. In our study, there was similarly lesser postop pain in patients who underwent fistulotomy with a high rate of recurrence; hence we conclude that fistulectomy is better in terms of recurrence rate when compared to fistulotomy.

Conclusion

An anorectal fistula of cryptoglandular origin is the most common condition presenting as perianal fistulae. A good clinical examination provides all information required for the management of anorectal fistulae. In spite of availability of many options majority of the surgeons still rely on the classical lay open technique (fistulotomy), as the "gold standard" for treatment of fistula-in-ano. Fistulectomy provides a complete excision of the track and has the added advantage that tissue can be obtained for histopathological examination.

Histopathological examination revealed only non-specific inflammation. None of the patients developed anal incontinence in either of the procedures. Hence, we conclude that fistulectomy, though has a longer operating time, postoperative wound size and has more postoperative pain, in terms of recurrence and quality of life, has a better prognosis compared to fistulotomy.

References

1. Sameer D, Omer A, Parvinder S *et al.* Fistula-in-ano: advances in treatment. *The Am J Surg.* 2008;196:95-99.
2. Anal fistula. Corman ML, Bergamaschi RCM, Nicholls RJ, Fazio VW, eds. *Corman's Colon and Rectal Surgery.* 6th ed. Philadelphia: Lippincott Williams & Wilkins; 2013. pp.384-427.
3. Steele SR, Kumar R, Feingold DL. American Society of Colon and Rectal Surgeons. Practice parameters for treatment of fistula-in-ano--supporting documentation. *The Standards Practice Task Force. Dis Colon Rectum.* 1996;39(12):1363-72.
4. Poggio JL. *Fistula-in-Ano Treatment & Management, Drugs & diseases, Gen. Surgery,* <https://emedicine.medscape.com/article/190234-treatment>. Accessed 15 February 2017.
5. Hawker GA, Mian S, Kendzerska T, *et al.* Measures of adult pain: Visual Analog Scale for Pain (VAS Pain), Numeric Rating Scale for Pain (NRS Pain), McGill Pain Questionnaire (MPQ), Short-Form McGill Pain Questionnaire (SF-MPQ), Chronic Pain Grade Scale (CPGS), Short Form-36 Bodily Pain Scale (SF-36 BPS), and Measure of Intermittent and Constant Osteoarthritis Pain (ICOAP). *Arthritis Care Res (Hoboken)* 2011;63:S240-S252.
6. Lunniss PJ, Armstrong P, Barker PG, *et al.* Magnetic resonance imaging of anal fistulae. *Lancet.* 1992;340:394-396.
7. Saino P. Fistula-in-ano in a defined population. Incidence and epidemiological aspects. *Ann ChirGynaecol.* 1984;73(4):219-24.
8. Vasilevsky CA, Gordon PH. The incidence of recurrent abscesses or fistula-in-ano following anorectal suppuration. *Dis Colon Rectum* 1984;27(2):126-30.
9. Bruhl S. Perianal fistulae. Part A: survey. *Coloproctology* 1986;8:109-14.
10. Adams D, Kovalcik PJ. Fistula in ano. *SurgGynecol Obstet* 1981;153(5):731-2.
11. Marks CG, Ritchie JK. Anal fistulas at St Mark's Hospital. *Br J Surg.* 1977;64(2):84-91.
12. Ani AN, Solanke TF. Anal fistula: a review of 82 cases. *Dis Colon Rectum.* 1976;19(1):51-5.
13. Kumar RH, Kumar SSR, Gosavi S. Fistulotomy versus fistulectomy for treatment of fistula-in-ano. *J. Evolution Med. Dent. Sci.* 2016;5(50):3217-20.
14. Jain BK, Vaibhaw K, Garg PK, *et al.* Comparison of a fistulectomy and a fistulotomy with marsupialization in the management of a simple anal fistula: a randomized, controlled pilot trial. *J Korean SocColoproctol.* 2012;28(2):78-82.
15. Bhatti Y, Fatima S, Shaikh GS, *et al.* Fistulotomy versus fistulectomy in the treatment of low fistula in ano. *RMJ.* 2011;36(4):284-6.

