

Comparison of Recurrence of High Trans-Sphincteric Anal Fistula After Vaaft and Tight Setons in Military Hospital Rawalpindi

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ABSTRACT

Objective: To compare the recurrence rate in patients undergoing fistulectomy using tight setons with those using video-assisted anal fistula treatment (VAAFT).

Study Design: Comparative prospective study.

Place and Duration of Study: Department of General Surgery, MH Rawalpindi, Pakistan from May 2018 to Dec 2021.

Methodology: We included 200 patients with high trans-sphincteric anal fistula (simple or complex) of age 18 to 60 years, having ASA I or II. Group- A comprised patients undergoing treatment with VAAFT, while Group- B included patients undergoing treatment with Tight Seton in conventional surgery. Patients were followed for three months after the procedure. Patients having a history of discharge around or in the vicinity of the previous external opening of the anal fistula were labelled as having a recurrence. Recurrence was confirmed on MRI Fistulogram.

Results: The mean age of patients in Group-A was 42.10 ± 8.26 years, and in Group-B was 42.17 ± 7.91 years ($p=0.95$). There were 58 male patients in Group-A and 55 male patients in Group-B ($p=0.67$). The mean duration of the fistula was 5.30 ± 1.64 months in Group-A and 5.22 ± 1.61 months in Group-B ($p=0.72$). Recurrence was diagnosed in 24 patients in Group-B and only 06 patients in Group-A ($p<0.001$).

Conclusion: Video-assisted anal fistula treatment (VAAFT) has a lower recurrence rate than Tight Setons in conventional surgery in treating high trans-sphincteric anal fistula.

Keywords: Anal fistula, Recurrence, Setons, Video-assisted anal fistula treatment (VAAFT).

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INTRODUCTION

A fistula in ano is a small abnormal channel that develops between the end of the bowel (internal opening) and the skin surrounding the anus.¹ These commonly develop in patients with a history of anal abscess that does not heal properly, usually referred to as crypto glandular in origin.² The incidence rate is 1.2-2.8 per 10,000 population, with higher (two third) incidence in men than women.³ Anal abscess is the commonest cause of fistula, accounting for up to 38% of total cases. The patients usually present with itching and anal discharge accompanied by pain relieved after discharge of pus or blood.⁴

Tight Setons are commonly employed in anal fistulas because of their availability and simplicity. Tight Setons slowly divide the sphincters leading to scarring with limited disruption of the muscular ring having recurrence rates of 22%.⁵ Placement of Tight Setons by conventional surgery has been routinely practised in our hospital. Video-assisted anal fistula

treatment (VAAFT) is a novel technique in which the fistula tract and internal opening can be visualized under direct endoluminal vision. It has very promising results with a recurrence rate of only 7.5%.⁶

Recurrence of anal fistula is a major health problem with significant morbidity in such patients. In this study, we compared the recurrence rate in patients undergoing fistulectomy using tight setons with those using VAAFT.

METHODOLOGY

This was prospective comparative study conducted from May 2018 to December 2021 at the General Surgery Unit of Military hospital Rawalpindi, Pakistan.

Inclusion Criteria: Patients with high trans-sphincteric anal fistula (simple or complex) of age 18 to 60 years, having ASA I or II, were included in the study.

Exclusion Criteria: Patients having co-morbid diseases such as diabetes, hypertension, or malignant diseases were excluded from the study.

Written informed consent was taken from all patients. The diagnosis of the anal fistula was made by MRI Fistulogram. We included 200 patients, Group-A

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comprised patients undergoing treatment with VAAFT, while Group-B included patients undergoing treatment with Tight Seton in conventional surgery.

All the patients received rectal enema on the night before surgery and the morning of surgery. One dose of intravenous third generation Cephalosporin (1-gram) and Metronidazole (500-milligrams) was administered at the time of induction of anaesthesia. Surgery was performed under spinal anaesthesia.

In VAAFT was done using a fistuloscope having an 8-degree angled eyepiece. After a diagnostic fistuloscopy, the operative phase was started by cutting the tract with curettage and closing the internal opening using 01-vicryl sutures.⁷

In conventional surgery using Tight Setons, hydrogen peroxide mixed with normal saline was injected into the external fistula opening using a 6 Fr NG tube to identify the location of the internal opening. A 3 mm blunt-tipped probe was passed out from the external opening of the fistula. Granulation tissue was curetted out with a curette. Silk 1 Seton was passed from external to internal opening and tied tightly.

Postoperatively, patients were shifted to the ward; two further doses of Intravenous Metronidazole and third-generation Cephalosporin were administered at the specified time. Patients were monitored for the development of any complications. If stable, patients were discharged on the first post-operative day and passed stools. Patients were advised to take daily baths and maintain hygiene in the operated area. For follow-up, contact numbers of the patient were recorded, and recurrence was measured within three months postoperatively to determine recurrence. Patients having a history of discharge around or in the vicinity of the previous external opening of the anal fistula were labelled as having a recurrence. In addition, patients were assessed through Digital Rectal Examination and Proctoscopy. Recurrence, if clinically present, was confirmed on MRI Fistulogram.

Statistical Package for Social Sciences (SPSS) version 21.0 was used for the data analysis. For qualitative variables like gender and fistula recurrence, frequency and percentage were calculated. For quantitative variables like age, Mean±SD deviation was calculated. The chi-square test was used to compare the fistula recurrence between the two Groups.

RESULTS

The mean age of patients in Group-A was 42.10 ± 8.26 years, and in Group-B was 42.17 ± 7.91 years

(*p*=0.95). The majority of the patients, 124 (62.0%), were between 41 to 60 years of age. Out of these 200 patients, 113 (56.50%) were males, and 87 (43.50%) were females, with a male to female ratio of 1.3:1. There were 58 male patients in Group-A and 55 male patients in Group-B (*p*=0.67). The mean duration of the fistula was 5.30 ± 1.64 months in Group-A and 5.22 ± 1.61 months in Group-B (*p*=0.72). Forty-one patients in Group-A had a complex fistula, and 43 patients in Group-B had a complex fistula (*p*=0.77) (Table).

Table: Comparison of baseline study variables between the groups (n=200)

Study Variables	Group-A (n=100)	Group-B (n=100)	<i>p</i> -value
Mean Age	42.10±8.26	42.17±7.91	0.95
Gender			
Male	58 (58.0%)	55 (55.0%)	0.67
Female	42 (42.0%)	45 (45.0%)	
Duration of Fistula	5.30±1.64	5.22±1.61	0.72
Type of Fistula			
Simple	59 (59.0%)	57 (57.0%)	0.77
Complex	41 (41.0%)	43 (43.0%)	

The recurrence rate was high in Group-B; recurrence was diagnosed in 24 patients in Group-B and only 06 patients in Group-A, with a statistically significant *p*-value of <0.0001 (Figure).

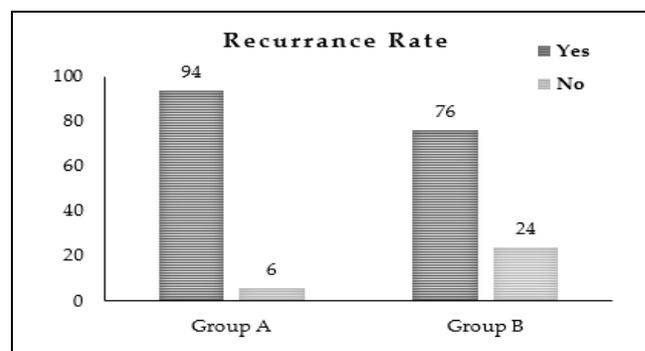


Figure: Frequency of Recurrence Rate between the Groups

DISCUSSION

Fistula in Ano is an older gastro-intestinal disorder known to human beings. The aetiology of this disorder is multifactorial, and the exact pathology is still unknown. Surgical treatment is the only option for most patients, and fistulectomy is the gold standard. Anal fistulas are classified based on the proximity of the fistula with the external anal sphincter. Garg Parks *et al.* proposed the commonly used classification. They classified anal fistula into four Groups; extra-sphincteric fistula. Inter-sphincteric fistula, trans-sphincteric

fistula and supra-sphincteric fistula.⁸ Most fistulae are intersphincteric (45%) and trans-sphincteric (40%). Secondary extensions classify simple and complex fistulas; the latter may have multiple extensions while the former has none. High fistulas have a high risk of anal incontinence if laid open by fistulotomy (in which the overline anal sphincters are also incised); low fistulas are those with a lower risk of anal incontinence.⁹

Simple intersphincteric and low trans-sphincteric anal fistula are easily managed, usually by simple operative procedures like fistulotomy and fistulectomy. The main aims of treatment are drainage of pus, healing of fistula, preservation of sphincter integrity and avoidance of recurrence. However, due to diverse variations in the types of fistula and multiple etiologies, some of the high and complex trans-sphincteric fistulas are difficult to treat, and multiple strategies have been advocated for the treatment of such anal fistulas.

The major contest for operating surgeons for fistula management is to cure it completely and prevent a recurrence.¹⁰ Any technique opted for fistulectomy is not without complications; damage to the sphincter muscle, incontinence and recurrence. The faecal incontinence rate varies from 10% to 45%, and recurrence is reported in 10 to 30% of patients.¹¹⁻¹³ The commonly used techniques for fistula repair include Loose Setons, Tight Setons, advancement flaps, bio-prosthetic plugs and the LIFT procedure. Each of them has a different recurrence rate.^{14,15}

The conventional technique for fistula management is the closure of the fistula using setons. The setons preserve both external and internal muscle sphincters affected by the fistula and provide a passage for drainage of pus.¹⁶

With the increasing interest of surgeons in minimally invasive surgical access, Meinero *et al.* in 2006 developed the first fistuloscope for video-assisted treatment of anal fistula.¹⁷ This fistuloscopy provides a direct visual approach during fistulectomy and consists of two phases; diagnostic and operative. In the first step, the scope is inserted through the external opening with continuous irrigation fluid to assess the fistula tract and associated branches under direct visualization. In the second phase, the fistula tract and its all associated branches are ligated using electrocautery. After completion, the necrotic material is removed using an and-brush. After that, the internal opening is closed using staples or sutures.⁶

We conducted this study to compare the frequency of recurrence of high trans-sphincteric anal fistula after VAAFT and tight setons employed in conventional surgery. The mean age of patients in Group-A was 42.10 ± 8.26 years, and in Group-B was 42.17 ± 7.91 years. Out of these 200 patients, 113 (56.50%) were males, and 87 (43.50%) were females, with male to female ratio of 1.3:1. In my study, recurrence in Group-A (VAAFT) was found in 06 (6.0%) patients, and Group-B (tight seton) was found in 24 (24.0%) patients with a *p*-value of <0.001.

Zheng *et al.* in a similar study compared the outcomes of VAAFT with tight setons for the management of fistula in Ano, the authors reported a recurrence rate of 7.1% in VAAFT and 15.6% in tight setons, the recurrence rate in setons Group was high but with the insignificant difference (*p*-value 0.31). The authors also compared operative time, bleeding and post-operative time between the Groups and reported that VAAFT was also better in terms of all parameters and was associated with shorter recovery times. The incontinence rate was also significantly higher in the setons Group, 20.0% versus 2.4% in the VAAFT Group.¹⁸

Liu *et al.* in a similar study, including 128 patients with mixed types of fistulas, reported recurrence in 15.6% of patients after the VAAFT Group- versus in 17.2% of patients in the setons Group-. The authors reported that VAAFT offers its advantages for complex fistulas, is associated with lower complications, and better preservation of sphincters.¹⁹ Al-Marzooq *et al.* in a case series of 55 patients with anal fistula who underwent fistulectomy using tight setons, reported three months recurrence rate of 10.1%.²⁰

Some points should be kept in mind when deciding on VAAFT, the fistuloscope is a rigid 4.0mm diameter scope, having a length of 18 cm, so it is difficult to pass the scope through a narrow or crooked fistula.¹⁷ The accurate closure of internal opening is another important point; different techniques such as staplers, sutures and advancement flaps are employed, but the ideal closure technique remains controversial.²¹ Mendes *et al.* recommended advancement flap as a preferred option over sutures and staplers in patients having complex fistula with severe fibrosis, as other options in such patients may lead to incomplete closure and early dehiscence.²²

LIMITATIONS OF STUDY

This study had some limitations; the main focus of our study was to determine the recurrence rate after both of these procedures. We did not note other complications such as

incontinence, intra and post-op bleeding and pain. So studies are needed to cover all these aspects of VAAFT compared to other fistulectomy techniques so that comprehensive conclusions can be drawn regarding the effectiveness of VAAFT over other fistulectomy techniques.

CONCLUSION

This study concludes that VAAFT has a lower recurrence rate than Tight Setons in conventional surgery in treating high trans-sphincteric anal fistula. Therefore, we recommend that VAAFT be used as a primary technique in the treatment of high trans-sphincteric anal fistula to reduce the recurrence rate and morbidity of these particular patients.

Conflict of interest: None.

Author's Contribution

MHA.; AN: Manuscript writing, study design, UB: Conception, proof reading and analysis, HS.; FAM.; SAA.; AK.; MAA: Literature review, data collection and analysis.

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