

## ORIGINAL ARTICLE

## VAAFT (VIDEO ASSISTED ANAL FISTULA TREATMENT); NOVEL TECHNIQUE FOR THE TREATMENT OF ANAL FISTULA

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**Background:** VAAFT (Video Assisted Anal Fistula Treatment) is a novel minimally invasive technique for treatment of Fistula in Ano, which claims superior results compared to current treatment modalities due to the added advantage of real time visualization of the fistula tract and internal opening of the fistula using a fistuloscope. **Methods:** This is cross sectional study in which 84 patients were selected using consecutive non probability sampling. They underwent VAAFT and were followed to assess for primary healing and continence at 6 weeks, and recurrence at 1 year. **Results:** In this study, 97.6% participants were male. Mean operating time was 24 minutes while Mean VAS was  $3.7 \pm 2.2$ . Healing was observed in 83.2% whereas recurrence was found in 10% at one year. All of the patients had normal sphincteric function post operatively. **Conclusion:** The results of our study affirm other studies in terms of cure rates, sphincter preservation and fistula recurrence. Studies with larger sample size and long term follow up are required to establish the superiority of VAAFT over the other currently available treatment options for anal fistula.

**Keywords:** Anal fistula; VAAFT; Fistuloscope; Fecal Incontinence; Primary healing; Recurrence

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## INTRODUCTION

Fistula in Ano is defined as a connection (epithelized) between the rectum or anal canal and the perianal region, which is usually infective in origin. As far as simple peri anal fistulas are concerned, traditional techniques such as fistulotomy and fistulectomy are considered as gold standard. But such procedures are challenging in cases of complex fistulas.<sup>1</sup>

Complex fistula is when the tract crosses more than one third to half of the external sphincter (suprasphincteric, high trans-sphincteric, and extrasphincteric fistulas). Anterior fistula in female, recurrent fistulas and fistula having multiple tracts are also included in complex fistulas.<sup>2</sup> Traditional techniques for complex fistula treatment has high rates of recurrence and risk of post operative faecal incontinence which is of great concern for both surgeon and patient.<sup>3</sup> To solve this issue, innumerable attempts have been made to devise a technique which is equally safe and successful for the treatment of such complex cases.

Some of the novel methods for the treatment of Anal Fistula where main focus is on sphincter preservation include TROPIS (Transanal opening of Intersphincteric space), PERFECT (proximal superficial cauterization, emptying regularly fistula tracts and curettage of tracts), LIFT (Ligation of Intersphincteric Fistula Tract), Fistula-tract Laser Closure (FiLaC™) and TAFR

(transanal advancement flap repair) but their healing rates range from 24–81.4%.<sup>4-8</sup>

LIFT includes ligation of fistulous tract and is associated with failed healing in the initial follow up, so it is advised to follow such patients for longer duration. The best results can be achieved in two thirds of the patients.<sup>9</sup> Although TAFR is found successful in three fourths of the patients, especially those with trans sphincteric fistulas, but there is higher incidence of flatus incontinence, that is in approximately 38% of cases.<sup>10</sup>

As there is increasing trend for use of minimal invasive techniques, one such method being used for anal fistula is VAAFT (Video Assisted Anal Fistula Treatment) which satisfies two basic key points. One is visual identification of fistula tract and other secondary tracts while another is visualization of internal opening. One additional benefit of VAAFT is that it does not leave a significant external wound as in some of the other procedures.<sup>11</sup> One important factor is completion rate which means % of patients in which the procedure is being completed. One of the studies showed completion rate of 85% which is somehow promising.

Systemic review conducted by Emile, S.H showed mean complication rate of 4.8% and mean recurrence rate of 17.7% which varied according to the method of closure of internal opening, being highest after advancement flap (25%).<sup>12</sup> VAAFT is

also tried for crohn-associated anal fistulas with one study showing healing rates of 82% at 9 months.<sup>13</sup> For complex anal fistula, there are many novel techniques which claims to preserve anal sphincter but their success rates vary greatly among different studies. As VAAFT technique is in its infancy, there is large variation in success rates, 66.7–87.5%, reported in the literature.<sup>14–18</sup>

There is no local data on VAAFT. As international data regarding VAAFT showing mixed results, we need to study and compare our results with the international data.

Objective is to determine frequency of healing, recurrence, early post operative outcomes and continence after VAAFT in patients with peri anal fistula.

**Healing:** Primary healing was defined as no evidence of ongoing sepsis or discharge and closed internal and external openings on clinical examination at 6 weeks post-operatively.

**Continence:** To check for continence, 4-point score was used with a score of 0–3. A score of 0 was given to patients who did not have any incontinence. Patients with flatus incontinence were given 1, while those with mucus leak and liquid stool incontinence were given score of 2. Patients with formed stool incontinence were given score of 3.

**Recurrence:** Recurrence was defined as relapse of symptoms after primary healing being observed at 6 weeks.

## MATERIAL AND METHODS

This descriptive cross-sectional study was conducted in the Department of General Surgery, Khyber Teaching Hospital, Peshawar between April 2015 to March 2016 and all these patients were followed up for two years. Consecutive non-probability sampling was done. Patients included were those of both genders, aged 18 to 65 years, symptomatic (i.e., peri anal discharge) for at least three months duration, and were diagnosed with peri-anal fistula based on findings of physical examination, Digital Rectal Examination and Proctoscopy. Patients suspected of complex fistulae were assessed with MRI Scan. Patients with rectovaginal fistula and fistulae associated with Tuberculosis and Crohn's Disease were excluded from the study. Informed consent was obtained from all the patients participating in this study with approval from Hospital Ethical Committee.

All patients were subjected to diagnostic fistuloscopy using Meinero fistuloscope kit, with glycine as an irrigation solution, for visualization of fistulous tract and identification of internal

opening. Patients found to have a fibrosed external opening and very short tract, in whom an endoscopic procedure was not feasible, were excluded from the study at the diagnostic phase.

Operative phase of the procedure consisted of fulguration with monopolar diathermy of the fistula tract, followed by brushing of the tract to remove debris with the help of endo-brush, and closure of internal opening using absorbable suture material (Vicryl 1).

Data collection was done using a pre designed proforma in which any intra operative and post operative complications, post operative pain, continence, healing and recurrence were recorded. A questionnaire was used to assess post-operative pain scores using visual analogue scale, analgesic requirements and any post-operative complications. To check for continence, 4-point score was used with a score of 0–3. A score of 0 was given to patients who did not have any incontinence. Patients with flatus incontinence were given 1, while those with mucus leak and liquid stool incontinence were given score of 2. Patients with formed stool incontinence were given score of 3.

Follow up visits were scheduled at 1 week and 6 weeks post-operatively. Primary healing, recurrence and continence were assessed by physical examination at follow-up visits. All the data were recorded in pre designed proforma. Data were analysed using SPSS version 20.0

## RESULTS

A total of 84 patients were included in our study, with a mean age of 35 years, of which 97.6% (n=82) were males. Two thirds of the participants were symptomatic for up to a 5-year period and 7.25% (n=6) had had a different procedure done in the past. A total of 10 patients (8.4%) presented with a recurrent fistula. The mean operating time in our study was 24 minutes and an internal opening was identified in 75 patients (89.2%). Post-operative pain was assessed by visual analogue score chart at 24 hours and a mean value of 3.7 was observed. The commonest post-operative complications were urinary retention (4.8%) and wound infection in 1 patient (1.2%). Primary healing, defined as absence of symptoms at 6 weeks after procedure, was observed in 83.2% cases, 10% had residual symptoms after the procedure, while 4.8% patients were lost to follow-up. Sphincter function was preserved in all the patients in our study without any transient or permanent incontinence. A recurrence of 10% was observed at 1 year after VAAFT, while 8 patients were lost to long term follow-up.

**Table-1: Patient demographics, intraoperative and postoperative variables**

Age (mean, in years)	35±2.03
Gender (M,F)	M=82 (97.6%)
	F=2 (2.4%)
Operating Time (Mean, in minutes)	24±8.50
Duration of symptoms	Less than a year=19 (22.6%)
	1-5 years=56 (66.6%)
	6-10 years=6 (7.2%)
	More than 10 years=3 (3.6%)
Previous Surgery	Yes=6 (7.25%)
	No=78 (92.85%)
Recurrent fistula	Yes=10 (8.4%)
	No=74 (91.6%)
Postoperative Pain Score (Mean)	VAS= 3.7±2.2
Per-operative Bleeding	Yes=1 (1.2%)
	No=83 (98.8%)
Wound Infection	Yes=1 (1.2%)
	No=83 (98.8%)
Urine Retention	Yes=4 (4.8%)
	No=80 (95.2%)
Internal Opening	Yes=75 (89.2%)
	No=9 (10.8%)
Healing at 6 weeks	Yes=70 (83.2%)
	No=10 (12%)
	Missing=4 (4.8%)
Continence	Score 0, n = 84
	Score 1-3, n= 0
Recurrence (at one year)	Yes= 9 (10.8%)
	No=67 (79.7%)
	Missing=8 (9.5%)

**DISCUSSION**

The traditional treatments for Fistula in Ano had an inherent problem of risking incontinence versus complete eradication of fistula tract, which eventually led to search for better procedures to achieve the main goals of fistula treatment, i.e., destruction of fistula tract, visualization and closure of internal opening and preservation of external anal sphincter. Over time many procedures have been devised with varying success in achieving the goals of treatment.

The Gold standard treatment is Fistulotomy, which achieves 96% healing rate with 30% incidence of flatus incontinence.<sup>5</sup> Similarly, Fistula Plug Procedure is a sphincter saving procedure which is expensive and with success rates between 29–87%.<sup>19-24</sup> Another procedure, the LIFT (Ligation of Internal Fistula Tract), consists of secure closure of internal opening. This procedure has a reported success rate of up to 95%, but is technically very demanding with risk of sphincter damage or ischemia.<sup>25-29</sup> Fistula Laser Closure (FiLaC™) consists of closing the internal opening with a flap and obliteration of the fistula tract with laser, with a reported cure rate of 83%. The disadvantage of FiLaC procedure is the lack of visualization of the complete tract or branch abscesses.<sup>29</sup> VAAFT is based on the principle of adequate closure of internal opening and obliteration of the fistula tract, with the advantage of

real time visualization of the fistula tract and identification of side branches of the tract through a fistuloscope. Gaurav Kochhar *et al* report an operating time ranging from 30 to 90 minutes (mean 45).<sup>16</sup> Similarly, the operative time was progressively reduced (from 2 h to 30 min) as reported by P. Meinero and L. Mori.<sup>15</sup> El-Barbary reports an initially prolonged operative time in the VAAFT reaching up to 145 minutes which was reduced to 30 minutes at the end of his study duration.<sup>30</sup> In our study, the mean operating time was 24min after adjustment for a shorter learning curve due to high volume.

Successful completion of procedure was reported in all cases by Meinero, which was reproduced by our study. A failure of procedure in 2 cases (8.34%) was mentioned by El-Barbary, which he attributed to the fact that some fistula tracts were horse-shoe, or totally sclerosed and fibrotic subsequently making progress of the scope impossible or dangerous.<sup>30</sup> Thomas G *et al*<sup>31</sup> reported completion rates comparable to Hany M E. In our study, the internal opening was identified in 89.2% cases (n=75), which was better than Thomas *et al*.<sup>15</sup>

Our study participants reported a mean VAS score of 3.7 at 24 hours after the procedure that is comparable to a mean value of 4 by Gaurav Kochhar *et al*. Twenty-two (26.8%) patients did not require any analgesia in the immediate postoperative period, whereas 44 (53.6%) patients required analgesic on postoperative day 1, and the remaining 16 (19.5%) patients required analgesics for three days.<sup>16</sup> P. Meinero reported a visual analogue scale (VAS) score with a mean value of 4.5 (on a scale of 1–10) during the first 48 h. None of the patients reported pain after the first postoperative week. Twenty-one patients (21.4%) did not require analgesics, whereas 49 patients (50%) needed Ketorolac on postoperative day 1, 20 (20.4%) required Ketorolac for 3 to 4 days and only 8 (8.2%) needed Ketorolac for a week.

The recurrence rate was 15.85% in the study by Gaurav Kochhar *et al*.<sup>16</sup> Meinero reported (26.5%) patients with no wound healing, nineteen of which underwent reoperation with VAAFT.<sup>15</sup> A study by El-Barbary, HM showed an overall success rate of 84% with a cure rate of 92% after 24 months follow up.<sup>30</sup> Out of the 52 patients included in a study by Hui-hong Jiang *et al*, healing without recurrence was achieved in 44 patients (84.6%) after 9 months of follow-up.<sup>32</sup> In our study, primary healing was not achieved in 10 patients at 6 weeks, while a recurrence of 10.8% was observed at 1 year follow-up. Sphincter function was preserved in all participants of our study as was reported by El-Barbary.<sup>30</sup>

**CONCLUSION**

VAAFT is a new technique of Fistula treatment and ongoing studies are indicative of its superiority in

terms of cure rate and sphincter preservation over the prevalent treatment modalities. Our study indicates that VAAFT is a safe and effective minimally invasive technique which offers promising cure rates with preservation of continence.

## RECOMMENDATIONS

Larger studies and long term follow up are needed to establish its therapeutic advantages over the currently prevalent treatment modalities.

## AUTHORS' CONTRIBUTION

MAK: Conceptualization of study, data analysis, write up. RU: Literature search, data collection. HK: Data interpretation, proof reading. MZ: Proof reading, data analysis

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