A Comparative Study between Video Assisted Anal Fistula Treatment Versus Open technique Regarding Post-operative Pain and Complications

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ABSTRACT

Background: *Fistula in ano is a common disease seen in the surgical outpatient department. Many procedures are advocated for the treatment of fistula inano. However, none of the procedures is considered the gold standard. The video-assisted anal fistula treatment (VAAFT) is a new technique which seems to be promising in this field as it is a minimally invasive, sphincter-saving procedure with low morbidity. The aim of our study was to compare the results of the VAAFT with the classic open technique.* ***Methods****: The study was conduct on 20 patients who were suffering from fistula in ano ,they were divided into two groups as 10patients* ***in group A*** *were treated with the open techniquewhile the other* ***group B*** *of 10 patients were treated by the VAAFT. The VAAFT procedure involves diagnostic fistuloscopyand visualization of the internal opening, followed byfulguration of the fistulous tract and closure of the internal opening with a stapling device or suture ligation. The video wasconnected to an illuminating source.* ***Results:*** *The study was conducted from July 2016 to July 2017. Fifty patients with fistula in ano were operated on with VAAFT and open technique and were divided into two groups each contain ten patients then they were followed up according to the study protocol. The postoperative bleeding in group A (open technique) were 2patients (10%) while there were no postoperative bleeding in group B (VAAFT), while the postoperative pain in group A were 7 patients (35%) while only one patient (5%) in group B , there were flatus incontinence in 1 patient in group A while there were no incontinence in group B, while the recurrence rate were higher in group B as6 patients (60%) while no recurrence with group A of the open technique.*
Conclusion: *The VAAFT technique is a minimally invasive and safe technique. But there are higher incidence of recurrence in VAAFT in comparison to the traditional open technique.*
Key Words: *Fistula in ano, Video-assisted anal fistula treatment (VAAFT),Fistuloscopy.*

INTRODUCTION

Fistula in ano is a common problem in patients presenting to the surgical outpatient department. Various procedures have been advocated for the treatment of fistula in ano, including fistulectomy, fistulotomy, and use of a cutting seton. The use of the metallic probe during the first visit or at the beginning of any operative procedure, along with the accurate identification of the internal opening and the location of possible chronic abscesses or secondary tracks are universally considered the keys to successful anal fistula treatment A considerable risk of recurrence of approximately 6.5% is reported with fistulectomy/fistulotomy for repairing simple fistula.[(1)] The cutting seton is associated with recurrence and incontinence rates of 12% and 18%, respectively. The risk of incontinence is more associated to proximal location of the internal opening in the rectum.[(2)] The major cause behind recurrence is the presence of complex fistula, recurrent fistula, horseshoe extension, failure to identify the secondary branches and the internal opening, and the level of surgeon expertise.[(3)] The high risk of recurrence and incontinence associated with these traditional techniques led to development of various other novel procedures with low morbidity and high patient satisfaction. Some of these procedures that were attempted to treat complex anal fistulas are use of fibrin glues, anal fistula plugs, ligation of intersphincteric fistula tract (LIFT) procedure, and video-assisted anal fistula treat ment(VAAFT).[(4–7)]

Recently, a new technique of VAAFT is developed byMeinero and Mori.[(7)] The technique comprises fistuloscopyand fulguration of the fistulous tract. The main aims of thistechnique are identification of the internal opening, secondary

tracts, and abscesses with closure of the internalopening of the fistulous tracts. There is no external wound and there is minimal morbidity.

MATERIALS AND METHODS

Fifty patients with Denovofistula in ano who came to our outpatient clinic the are randomly divided into two groups as group A contain twenty five patients who were treated with the conventional open technique (fitlutomy /fistulectomy) while the other group B containing twenty five patients were operated on with the video assisted anal fistula treatment (VAAFT).the patients were followed up postoperatively and pain , discharge ,bleeding , incontinence and recurrence over 6months were recorded.

Proper history taking as demographics and clinical information were obtained: age, gender, comorbidities, medical history (hypertension, diabetes, cardiac, COPD), surgical history, personal history of smoking or alcohol intake.

Patients were evaluated clinically, and magnetic resonance imaging scans were done in all patients to evaluate the tract of fistula. Preoperative anal manometry was done and repeated in the postoperative phase at one month and 6 months.

Inclusion criteria :

- All the patients were with Denovo fistula in ano
- All the patients had MRI & Anal manometry preoperatively
- All the patients had single external opening
- All the patients had low or equivocal fistula in ano

And in our study we excluded all the patients with recurrent fistulae, those had high fistulae or with multiple external opening and those who had weak anal sphincter .

Surgical technique of the VAAFT

Video-assisted anal fistula treatment is performed with a kit which includes a fistuloscope, manufactured by Karl Storz GmbH (Tuttlingen, Germany), an obturator, a unipolar electrode, an endobrush and 0.5 ml of synthetic cyanoacrylate (Glubran 2—GEM, Viareggio, Italy). The fistuloscope has 8-degree angled endoscope with optical, working, and irrigation channels.. Its diameter is 3.3 x 4.7 mm, and its operative length is 18 cm. A removable handle allows easier maneuvering (Fig. 1), The fistuloscope has two taps one of which is connected to a 5,000 ml bag of glycine–mannitol 1% solution, depending on the position of the fistula. Spinal anesthesia is required. The patient is placed in the lithotomy position. Video-assisted anal fistula treatment has two phases, a diagnostic one and an operative one.

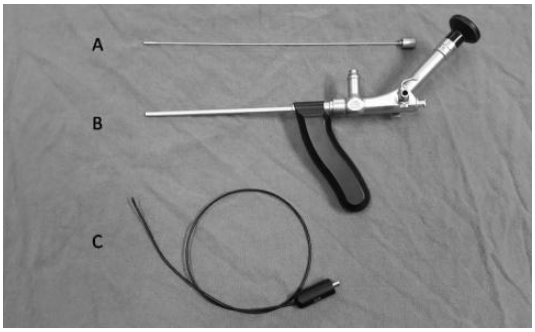

Figure 1.A, Obturator. B, Fistuloscope. C, Diathermy probe.

After proper cleaning and draping of the anal area, an obturator is introduced in the anal canal and fistuloscopy is done to correctly locate the internal opening of the fistulous tract, secondary tracts, and abscess cavity if any. The running glycine-mannitol solution helps to open the fistulous tract. The scope is then advanced forward slowly and the tract is straightened by maneuvering the scope. All of the tracts accommodated the fistuloscope. The next step is visualization of the internal opening, which is identified by the exit of the fistuloscope through it. Narrow openings are identified as a beam of illumination through the rectal mucosa or the exit of irrigating fluid through them. Both primary and secondary os and tracts were explored via fistuloscope. After the internal opening was located, absorbable sutures are taken at its site in the rectum or anal canal for applying traction. In the next step, the obturator is removed and the tract is fulgurated with a probe connected to electric diathermy advancing gently from the external opening to the internal opening under direct vision. The necrotic material is removed with an endobrush and irrigation fluid. The internal opening is then closed by application of absorbable sutures or use of a stapling device.

Surgical technique of open surgery (fistulotomy or fistulectomy):

Under anesthesia, an anorectal examination was performed to verify the findings of the

clinical examination. A dye study of the fistula tract was performed by placing moist gauze in the anal canal and injecting about 2 mL of methylene blue through the external opening. Staining of the gauze piece denoted patency of the fistula tract. A probe was gently passed into the fistulous tract through the external opening. In the fistulotomy with marsupialization, the fistula tract was laid open over the probe placed in the tract. After the fistula tract had been laid open, the tract was curretted and examined for secondary extensions. Wound edges were sutured with the edge of fistula tract by using interrupted 3-0 chromic catgut sutures to marsupialize the operative wound from distal to proximal. The marsupialization would prove difficult proximally where the ano-rectal mucosa had been friable. Hemostasis was achieved .In the fistulectomy, a keyhole skin incision was made over the fistulous tract and encircled the external opening. The incision was deepened through the subcutaneous tissue, and the tract was removed from surrounding tissues. Towards the anal verge. While the tract was being removed, attention was paid to identifying secondary tracts, if any. Hemostasis was achieved

Postoperatively, patients were followed up. The parameters considered in the study were:

1. Postoperative pain
2. Postoperative discharge
3. Blood loss
4. Postoperative incontinence to flatus or stool
5. Recurrence rates after 6 months

RESULTS

Twenty patients were divided randomly into two groups , ten patients in Group A were treated by open technique , while the other ten in Group B were treated VAAFT

The demographic distribution showed that the min Age in group A is 26yrs while the maximum age is 62 yrs (mean =43.6 ± 10.31) ,while in group B the minimum age is 20 and the maximum is 62 yrs (mean =40.5 ± 14.46)

Table 1: Age distribution in each group

AGE	MEAN	SD	MIN	MAX
Group A	43.6	10.319	26	62
Group B	40.5	14.463	20	62

We have 8males (40%) and 12 females (60%) the distribution in each group is as shown in the following table:

Table 2: Sex distribution in each group

SEX	MALE		FEMALE	
Group A	6	30%	4	20%
Group B	2	10%	8	40%
Total	8	40%	12	60%

The associated comorbidities were :five with diabetes mellitus (25%), one patient with hypertension (10%), and diabetes with hypertension in two patients (10%).

Table 3: Co-morbidity distribution in each group

Co-morbid	DM	%	HTN	%	DM/HTN	%	Total
Group A	3	15%	0	0%	1	5%	4
Group B	2	10%	1	5%	1	5%	4
Total	5	25%	1	5%	2	10%	8

In our study the type of the fistulae were detected preoperatively by MRI study for all of the patients and the results were that there were 5patients had simple fistulae in ano (25%) while 15 patients had Branched fistulae (75%).

Table 4: Types of the fistulae in each group

Type of the fistula	Simple	%	Branched	%
GROUP A	2	10%	8	40%
GROUP B	3	15%	7	35%
Total	5	25%	15	75%

The blood loss was assessed intraoperatively and recorded and the results showed there were no bleeding with patients of group b which were treated with VAAFT while there were bleeding in 2patients (10%) of group A which were treated by open technique.

Table 5: Bleeding in each group

Bleeding	**NO**	**%**
GROUP A	2	10%
GROUP B	0	0%
TOTAL	2	10%

Another important item was recorded is the postoperative pain after the both procedures and the result showed that postoperative pain in group A were in 7 patients 35% and only one patient in group B had pain 5%.

Table 6: Post-operative pain in each group

Post operative pain	**No**	**%**
Group A	7	35%
Group B	1	5%
Total	8	40%

In our study there were no fecal Incontinence in both groups, while there was flatus incontinence in one patient (5%) in group A.

The recurrence rate with VAAFT according to our result was higher than the open technique, as there was recurrence in 6 patients (60%) in group B (p value : 0.01677) while no recurrence at all in group A

DISCUSSION

Current surgical techniques for treating anal fistulas are based on three main principles: identification of the tract and the internal opening, excision of the fistula tract and preservation of anal sphincter function. Fistulotomy/fistulectomy is the gold standard in the treatment of anal fistulas with only minor involvement of the sphincters. Complex fistulas are very challenging for the surgeon because of the high incidence of bowel control impairment after these traditional surgical approaches. The rationale of the VAAFT technique is based on the concept of both detection.

There are many surgical procedures advocated for fistula in ano, ranging from simply laying open the tract tocolostomy. Fistulectomy and fistulotomy are the mostwidely accepted procedures performed for the management of simple fistula in ano with minimal involvementof the anal sphincter. The recurrence rate approaches6.5%, the majority of which is caused by failure toidentify the internal opening at the time of surgery. Therest may be a result of the failure to recognize thesecondary branches or of early closure of the surgicalwound.[(11)] The treatment of complex fistulas is very cumbersome because of the high risk of postoperative complications such as incontinence.

Fistulotomy has recently been advocated as a good technique for complexfistulas, with a success rate of 96% and acceptableobjective anal parameters.[(10)] The treatment of fistula inano is directed at identification of the fistulous tract andinternal opening, excision of the fistulous tract, andpreservation of the continence mechanism.

In a study on 136 patients with fitulae in ano all treated with VAAFT, No major complications occurred and no infection or bleeding was observed; however, there were 2 cases of postoperative urinary retention. In one case, scrotal oedema was observed caused by the infiltration of the irrigation solution after rupture of the fistula wall. [(7)]

While in our study among the 10 patients with VAAFT in group B also no bleeding or infection occurred, but in group A who were treated by open technique there were 2cases with bleeding.

In Meinero& L. Mori study, 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 trimetamine on postoperative day1, 20 (20.4%) required Ketorolac trimetamine for 3 to4 days and only 8 (8.2%) needed Ketorolac trimetamine fora week. [(7)]

Another study on eighty-two patients with fistula in ano were operated on with VAAFT ,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. Pain scoring was also repeated at one-week follow-up, at which none of the patients complained of pain.[12]

While in our study there were 1 patient in group B (VAAFT) who suffered from post-operative pain relieved by NSAID analgesia ,while in group A7 patients (35%) suffered from pain postoperatively after being treated with open technique.

In Meinero & L. Mori study, Primary healing was achieved in 72 patients (73.5%) within 2 to 3 months after surgery. In 26 patients (26.5%), no wound healing was observed. Nineteen of the 26 underwent reoperation with VAAFT, and the other 5 underwent cyanoacrylate reinjection. Nine of the 19 patients reoperated upon with VAAFT healed, whereas 6 have had a recurrence and the other 4 are still under observation. The 5 patients who underwent cyanoacrylate reinjection have all had recurrence. They will be reoperated on once more with VAAFT. [7]

Athanasiadis et al. It comprises a threelayered, non-staggered closure of the mucosa, submucosa,and internal and external sphincter after excision of theentire tract along with the internal and external openings. The major drawback of the procedure is the risk ofsuture line dehiscence, leading to persistence or recurrence of the fistula. It was reported in approximately22.5% of the cases. Another study using this procedure reported the success rate as 59%. [13]

Another study on eighty-two patients with fistula in ano were operated on with VAAFT ,thirteen patients developed recurrenceand a patent fistulous tract was discovered on magneticresonance imaging scan. The recurrence rate was 15.85%.[12]

While in our study the recurrence occurred in group B who were treated by the VAAFT in six patients (60%). **So we decided to discontinue this technique due to the high failure rate**

CONCLUSIONS

The VAAFT technique is a minimally invasive and safetechnique. But there are higher incidence of recurrence in VAAFT in comparison to the traditional open technique.

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