

Original Article

Preliminary Results of Video-assisted Anal Fistula Treatment from a Single Center

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Key Words

Anal fistula;
Video-assisted anal fistula treatment;
Minimally invasive

Purpose. This study analyzed the results of a single-center retrospective study of video-assisted anal fistula treatment.

Methods. Twenty patients who received video-assisted anal fistula treatment, which involved fulguration of the fistula tract and closure of its internal opening in our hospital between March 2018 and March 2020, were included in the study.

Results. Of 20 patients who received video-assisted anal fistula treatment, eight had undergone surgery once, and one had undergone surgery twice due to anal fistula. During follow-up, 2 of the 20 patients experienced a recurrence, while none had fecal incontinence.

Conclusions. Our study demonstrated that video-assisted anal fistula treatment is a safe surgical technique with low invasiveness. None of the 20 patients had fecal incontinence, and the pain index was low.

[J Soc Colon Rectal Surgeon (Taiwan) 2020;31:263-268]

An anal fistula is an abnormal passage connecting the anal canal and skin around the anus that results from previous abscesses. The treatment methods previously reported achieved varying results. In 2006, Meinero et al. first proposed the video-assisted anal fistula treatment method (VAAFT).¹ The VAAFT is a sphincter-saving technique without risk of fecal incontinence. The features of VAAFT include precise identification of the fistula tract and the internal opening and obliteration of the tract by fulguration under direct vision. Studies showed that VAAFT had a success rate of 66.7-87% in the treatment of anal fistula.²⁻⁶ The objective of this report was to describe our preliminary experience in the treatment of anal fistula using VAAFT in our hospital.

Materials and Methods

Patient selection

All patients who received VAAFT in our hospital between March 2018 and March 2020 were included in this study. The patients were evaluated using digital rectal examination, anoscopy, or magnetic resonance imaging for the diagnosis of anal fistula. Information on the patients' age, sex, body mass index, history of comorbidities (hypertension, diabetes mellitus, and chronic kidney disease), history of anal fistula surgery, operation time, blood loss volume, postoperative pain score, length of hospital stay, complications, follow-up time, and recurrence, was obtained from their medical records.

Received: May 18, 2020.

Accepted: July 13, 2020.

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Surgical method

The surgical equipment used is made by Karl Storz GmbH (Tuttlingen, Germany), including a set of screen devices, a fistuloscope (Fig. 1), a unipolar electrosurgical unit and an endoscopic forceps. The fistuloscope can be connected to a light source and transmit images to a screen. It provides an 8° direction of view and has two channels: a working channel, which allows delivery of the unipolar electrosurgical unit or forceps for fulguration and continuous irrigation to open the tract, and an optical channel for light transmission and image display.

The patients were placed in a jackknife position under spinal or intravenous anesthesia. The surgical procedure included diagnostic and treatment stages. During the diagnostic stage, the internal opening of the anal canal was located, or the secondary tract or abscess cavity was detected. The fistuloscope was delivered through the external opening, continuous irrigation was simultaneously applied to open the fistula tract to ensure a visual field and allow the slow advance of the fistuloscope to the end of the tract. The internal opening was located by using the light of the fistuloscope (Fig. 2). The treatment stage included the following two steps: fulguration of the fistula tract and closure of the internal opening. Under direct vision, the unipolar electrode was used to fulgurate the tract wall (Fig. 3), and forceps were used to remove the tissue debris (Fig. 4). Continuous irrigation al-

lowed the tissue debris in the tract to flow into the anal or rectal canal through the internal opening. After the fistula tract tissue was cleaned, the internal opening was closed with absorbable suture. The external opening of the fistula tract was kept open to drain secretions continuously.



Fig. 2. The internal opening can be located by observing the fistuloscope light behind the rectal mucosa.

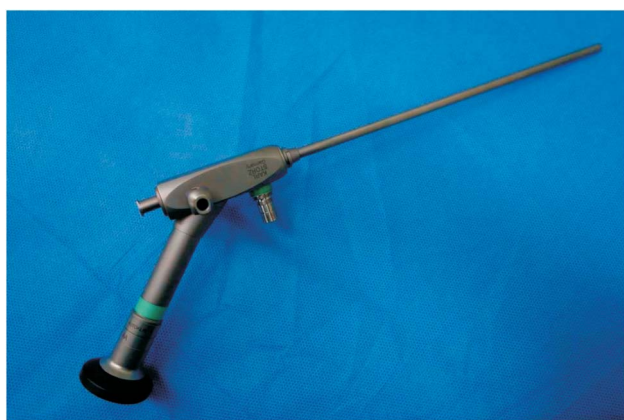


Fig. 1. The fistuloscope provides an 8° direction of view and has two channels: a working channel, also used as an irrigation channel, and an optical channel.

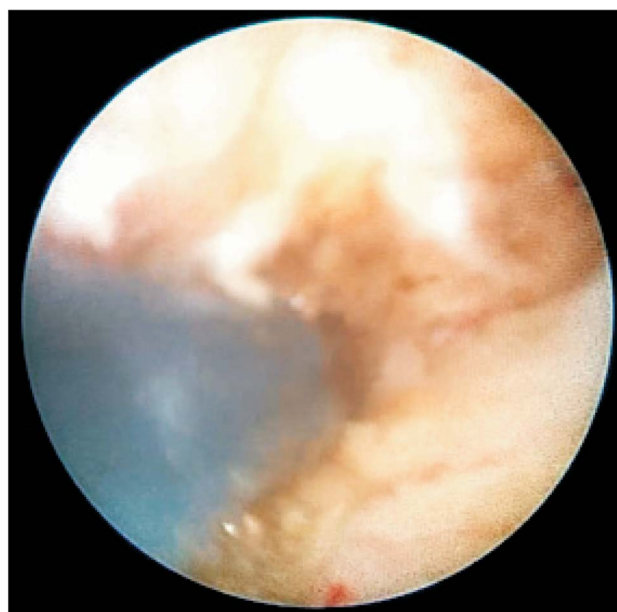


Fig. 3. Fulguration of the fistula tract with the unipolar electrode under direct vision.

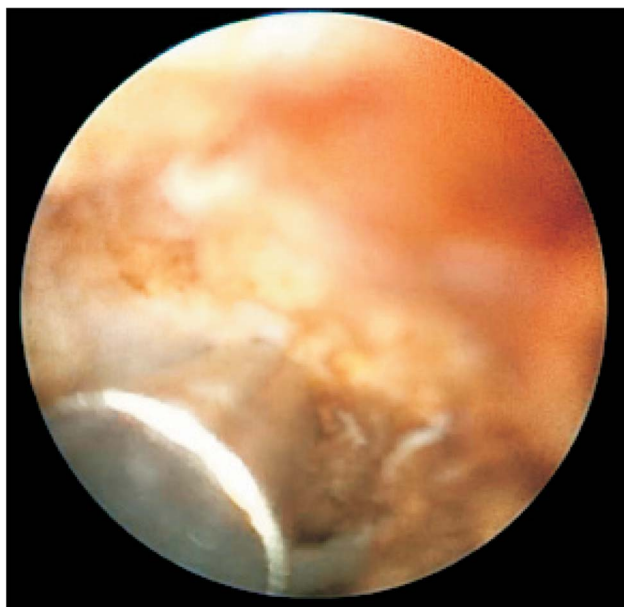


Fig. 4. The necrotic burnt tissue is removed by endoscopic forceps.

Postoperative management

The patients were given routine oral analgesics. Antibiotics were not routinely prescribed after the surgery. Pain was assessed using the visual analog scale (VAS) score, ranging from 0 to 10, on postoperative day 1. A normal diet was resumed right after surgery. The anal wound dressing was changed on the first day after the surgery. The patient was discharged on the first day after the surgery if no fever, intolerable pain, or other complications were observed.

Results

Between March 2018 and March 2020, 20 patients were admitted to our hospital to undergo VAAFT for anal fistula. The patient baseline characteristics are listed in Table 1. The male-to-female ratio was 18:2, and the median age was 46 years (range, 24-63 years). Nine of the 20 patients had previous surgery for anal fistula. The surgical results are listed in Table 2. The median operation time was 35 minutes (range, 25-45 minutes), and the mean blood loss volume was 5 mL (range, 3-20 mL). The fistula types were trans-

sphincteric (14 patients), intersphincteric (3 patients), suprasphincteric (2 patients), and horseshoe (1 patient). The internal opening was identified in all cases. The median length of hospital stay, postoperative VAS score, and postoperative follow-up time was 1 day (range, 1-6 days), 2 (1-3), and 12 months (range, 6-15 months), respectively. Among the 20 patients, two experienced a recurrence. The other three patients had perianal sepsis, of whom two received intravenous antibiotic therapy, and one received an additional debridement surgery. None of the 20 patients reported any degree of fecal incontinence postoperatively.

Table 1. Patient characteristics (n = 20)

Age, years	
Median, range	46 (24-63)
Sex, n	
Male	18
Female	2
Body mass index (kg/m ²)	
Median, range	26.2 (20.0-43.1)
Previous anal surgery, n	
2	1
1	8
0	11
Comorbidity, n	
Hypertension	5
Diabetes mellitus	2
Chronic kidney disease	1

Table 2. Surgical results

Operative time, minutes	
Median (range)	35 (25-45)
Blood loss volume, ml	
Median (range)	5 (3-20)
Postoperative day 1 pain score (visual analog scale)	
Median (range)	2 (1-3)
Anal fistula type, n	
Transsphincteric	14
Intersphincteric	3
Suprasphincteric	2
Horseshoe	1
Postoperative hospitalization (days)	
Median (range)	1 (1-6)
Postoperative follow-up (months)	
Median (range)	12 (6-15)
Postoperative complication, n	
Perianal sepsis	3
Bleeding	0
Fecal incontinence	0

Discussion

Anal fistula treatment has always been challenging. Even for simple fistula, a fistulotomy may carry the risk of continence disturbance. To better preserve function and achieve therapeutic effects simultaneously, various fistula surgical techniques have been developed,⁷ including fibrin glue injection,⁸ fistula plug,⁹ mucosal flap advancement,¹⁰ and ligation of the intersphincteric fistula.¹¹ These procedures have been reported to have different success rates and there is no gold standard treatment.

In 2006, Meinero¹ first proposed the VAAFT method, with a success rate of 87%. VAAFT is useful for both the diagnosis and treatment of anal fistulas. This technology allows observation of the anal fistula tract under direct visualization in an enlarged image. It is very important to remove the fistula tissue and precisely identify the internal opening to ensure proper healing. The fibrotic tract lining must be curetted as thoroughly as possible so that we can close the internal opening with the remaining healthy tissue. However, excessive clearance may cause tissue swelling around the internal opening. Compare to traditional fistula surgery, VAAFT provides surgeons with direct and magnified view from inside of the fistula tract. By this way, the fulguration can be more precise and meticulous, allowing a smaller wound and less post-operative pain. In addition, VAAFT can better preserve the anal sphincter, no fecal incontinence have been documented in previous studies, the recurrence rates and pain scores after VAAFT ranged from 7.5% to 33.3% and from 3.1 to 4.5, respectively.¹²

Our hospital first implemented VAAFT in March 2018. As of March 2020, this technique has been used on 20 patients. In our study group, 11 patients underwent surgery for anal fistula for the first time, and nine patients underwent a second or third surgery due to the recurrence of anal fistula.

During the follow-up period, 90% of patients healed without major complications, while two patients developed a recurrence. Of these two patients, one was obese (BMI: 43.1 kg/m²) with poorly controlled diabetes. The other patient underwent surgery

for the third time and was a heavy drinker and smoker. Regarding fecal incontinence, none of the 20 patients reported any degree of incontinence. In addition, among the nine patients with a recurrence, six chose to undergo VAAFT because of severe postoperative pain from their previous surgery. After VAAFT, they reported less severe pain than in their previous surgery. Our patients' postoperative VAS scores for pain ranged from 1 to 3, which are comparable with those reported in a current literature review.¹² The three patients who had postoperative perianal sepsis already had a certain degree of infection before the operation. One patient had pus draining from the external opening, and the other two patients were found to have abscesses during the dissection to open the fistula tract.

VAAFT has several drawbacks, including a longer setup time for the surgical instruments and imaging equipment, and the high levels of experience and training required for surgeons to perform this operation, especially for more complicated fistulas or fistulas with branches. The imitations of this study were the small number of patients included, the single-center data, and the non-randomized controlled trial study design.

Conclusions

According to our experience with 20 patients, VAAFT is a minimally invasive and safe surgical technique. All the patients in our study group had no postoperative fecal incontinence and had low pain scores. Further randomized control research is needed to verify the outcomes of VAAFT in the future.

Acknowledgements

None.

Funding

None.

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原 著

單一醫學中心肛門瘻管內視鏡治療的初步成果

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目的 本院使用內視鏡肛門瘻管治療的初步成效。

方法 自 2018 年 3 月到 2020 年 3 月，共 20 名病患接受內視鏡肛門瘻管治療的回顧性研究。

結果 共 20 名病患接受內視鏡肛門瘻管治療納入研究，其中 9 位在過去曾經接受肛門瘻管手術。術後追蹤過程中，2 位病患復發，但無病患併發任何程度的大便失禁。

結論 我們的研究顯示內視鏡肛門瘻管治療是安全且侵入性低的手術，其術後的疼痛感少且術後大便失禁比率低。

關鍵詞 肛門瘻管、內視鏡肛門瘻管治療、微創。