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Fissurectomy and Anocutaneous V-Y Flap in the Treatment of Chronic Anal Fissure: Clinical Experiences in Low Tone Cases

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ABSTRACT

Chronic anal fissure is a common condition that severely affects the quality of life. For patients who do not respond to medical and conservative treatments, alternative treatment methods such as fissurectomy and anocutaneous V-Y advancement flap application stand out. This study aims to evaluate the outcomes of 53 patients who underwent fissurectomy and anocutaneous V-Y advancement flap treatment as a sphincter-preserving method.

This study includes 53 female cases conducted at the Department of General Surgery, Van University Faculty of Medicine, between 2022 and 2024. Parameters such as demographic data (age, gender), number and type of deliveries, clinical features of chronic anal fissures, complications related to wound healing in the postoperative period, recurrence rates, and incontinence were examined.

The anocutaneous V-Y advancement flap was successfully applied to all 53 patients, and all patients recovered within an average of 45 days. Only six patients developed wound dehiscence, which was completely healed by the sixth month. At the end of the 12-month follow-up, no recurrence or incontinence was observed in any case.

This study demonstrates that the anocutaneous V-Y advancement flap is an effective and safe method for treating chronic anal fissures in patients with low anal tone who have undergone multiple vaginal deliveries. Due to its high success rate, low complication risk, and ability to preserve anal continence, this method should be considered an important alternative in chronic anal fissure treatment.

Keywords: Anocutaneous V-Y advancement flap, Chronic anal fissure, Fissurectomy

Introduction

Anal fissure is a common anorectal disease that occurs in the anoderm region of the anal canal and causes severe pain (1). Typically localized in the posterior midline and developing as an ulceration on the surface of the anoderm distal to the dentate line, anal fissure is associated with hypertonicity of the internal anal sphincter and tends to become chronic during the healing process (2,3). Due to the involvement of the richly innervated stratified squamous epithelium with abundant pain fibers, it follows a highly painful course. The lesion stretches particularly during defecation, causing sharp and severe pain. This pain often persists after defecation, resulting in significant discomfort for the patient. Clinical findings of anal fissures include mild bleeding due to lesions in the anoderm (4,5).

Anal fissures are classified as chronic based on their duration and morphological changes. Fissures lasting more than eight weeks, along with secondary changes such as fibrotic thickening at the fissure margins, sentinel skin tags, and hypertrophic anal papillae, support the diagnosis of chronic anal fissures. In cases where conservative treatment methods fail in chronic anal fissure patients, surgical treatment options become relevant. Surgical intervention is a proven approach for symptom relief and healing (6,7).

Lateral internal sphincterotomy is one of the most commonly used surgical methods for treating chronic anal fissures (8). However, the risk of anal incontinence following lateral internal sphincterotomy is a significant complication that should not be overlooked (9,10).

To preserve anal continence in the treatment of chronic anal fissures, fissurectomy is a preferred surgical method. This technique allows for the preservation of intact sphincter tissue while reducing the risk of anal incontinence compared to lateral internal sphincterotomy. However, one of the disadvantages of fissurectomy is that the

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Fig. 1. Intraoperative view showing the excised chronic fissure area and the planned anocutaneous V-Y advancement flap

complete healing process of the secondary wound can typically take 10 to 15 weeks (11).

To shorten the healing period, primary wound closure methods can be applied after fissurectomy. This approach is performed using anocutaneous or mucocutaneous advancement flaps, which cover the wound area, accelerate the healing process, and reduce complication risks. This technique is particularly considered effective in cases aiming to significantly shorten the healing process (12).

Flap procedures are primarily recommended for patients with recurrent chronic anal fissures who have previously undergone lateral internal sphincterotomy, those with low anal resting pressure, and multiparous women (13). In this study, we present our experiences with the anocutaneous V-Y advancement flap as a primary surgical treatment for chronic anal fissure in patients with low anal tone who are resistant to medical therapy.

Materials and Methods

This study is a retrospective analysis conducted at Van University Faculty of Medicine, Department of General Surgery, between 2022 and 2024, including 53 female patients with low anal sphincter pressure. All included patients had a history of three or more vaginal deliveries and were diagnosed with chronic anal fissures resistant to medical treatments.

Patients were evaluated based on demographic variables such as age and gender, delivery history (number and method of delivery), clinical symptoms related to chronic anal fissures, surgical interventions performed, postoperative wound

Fig. 2. Suturing process of the V-Y flap to cover the fissurectomy defect without tension

healing complications, recurrence rates, and incontinence development.

The inclusion criteria for this study were defined as follows:

- Participants aged between 18 and 70 years,
- Completion of the surgical consent form,
- Diagnosis of chronic anal fissure,
- Presence of symptoms lasting more than eight weeks,
- Lack of response to previous conservative treatments,
- Low anal resting pressure.

Exclusion criteria for the study were as follows:

- Patients who did not sign the surgical consent form,
- Patients who had undergone previous surgical interventions in the perianal region,
- Pregnant patients,
- Recurrent anal fissure cases,
- Atypical anal fissure locations,
- Patients who underwent surgery for other perianal conditions (anal abscess, hemorrhoids, anal fistula, etc.) simultaneously,
- Patients with high anal resting pressure,
- Patients who did not comply with follow-up procedures.

Fig. 3. Postoperative appearance on follow-up, showing nearly complete closure of the suture line

These criteria were established to identify individuals suitable for clinical research and treatment protocols.

All patients received rectal phosphate administration on the morning of the procedure and were placed in the lithotomy position under spinal or general anesthesia. The procedure began with a rectoscopy. The hypertrophic papilla was excised, and the fissure area was removed using a scalpel to expose the internal sphincter. After curettage of the granulated fissure base, a tension-free V-Y flap measuring 3 cm in width and extending 4 cm from the anal verge was prepared to close the defect (Figures 1, 2). A moist gauze pad was placed in the surgical area, and antimicrobial treatment along with lactulose suspension was administered postoperatively. Patients were followed up on postoperative days 7, 14, and 30 for early complications such as flap necrosis, wound dehiscence, wound healing, and complaints, and at 3, 6, 9, and 12 months for late complications (Figure 3). Incontinence was assessed using the Wexner Score (14).

Statistical Analysis: All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) software, version 22.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were presented as mean ± standard deviation (SD) for continuous variables and as frequencies and percentages for categorical variables. The chi-square test was used to compare categorical variables between time points (e.g., presence of symptoms on postoperative days 7, 14, and 30). For comparisons of continuous variables across groups or time intervals, one-way analysis of variance (ANOVA) was applied. Pearson correlation analysis was conducted to evaluate the relationships between continuous variables such as age and duration of recovery. A p-value of less than 0.05 was considered statistically significant.

Results

This study included 53 female patients who had undergone multiple vaginal deliveries and had low anal tone. All patients underwent fissurectomy and anocutaneous V-Y advancement flap application. The patients were followed up until the end of the 12th month. The average patient age was 39.4 years, with an age range of 18 to 70 years. The fissures were located posteriorly in all cases (at the 6 o'clock position in the lithotomy position). All patients exhibited symptoms such as burning, pain, dermal pile, and bleeding in the fissure area. Additionally, pruritus ani was detected as an accompanying symptom in 10 patients. All patients had a history of at least three vaginal deliveries. Demographic data are presented in Table 1.

The patients were followed up by examination on the 7th, 14th, and 30th days after surgery for possible early postoperative complications. No patient exhibited any previously existing burning complaints after the surgery. Pain was present in 35 patients on the 7th day post-operation. Among these patients, some became pain-free by the 14th day, while pain persisted in 27 patients. By the 30th day, the number of patients who had recovered increased, and only 13 patients continued to experience pain. On the 7th day post-operation, 5 patients still had bleeding, but no further bleeding was observed in subsequent follow-ups. Until the 7th postoperative day, one patient continued to experience pruritis ani, but the patient's active complaint disappeared in later follow-ups. Wound dehiscence persisted in 6 patients on the 7th day after the procedure. With dressing changes on the 14th day, some patients' wounds healed, but wound dehiscence continued in one patient. In the case of this patient, who was followed up with dressings, wound dehiscence still persisted on the 30th day, but healing was observed, and dressing changes were continued. Among the 5 patients with wound dehiscence, superficial infection was present, and by the 30th day, some of the patients had healed after dressing changes, while mild superficial infection persisted in one patient. Table 2 shows the possible early postoperative outcomes after the surgical procedure.

All patients were scheduled for routine outpatient follow-up visits at postoperative months 3, 6, 9,

Table 1: Demographic Characteristics of the Patients

Demographic data	Number of patients (n) and fissure location
Number of patients	53(%100)
Average age	39.4
Fissure location	Posterior
Burning	53(%100)
Pain	53(%100)
Dermal Pile	53(%100)
Bleeding	53(%100)
Pruritis ani	10(%18.9)
Number of vaginal births greater than 3	53(%100)

Data are presented as means (± SD) or number (percentage). No comparative statistics were applied in this table

Table 2: Early Postoperative Complications

Wound characteristics and symptoms	7th Day	14th Day	30th Day
Burning	0	0	0
Pain	35	27	13
Bleeding	5	0	0
Pruritus Ani	1	0	0
Wound Dehiscence	6	1	1
Infection	5	4	1
Incontinence	0	0	0

Frequencies of symptoms were compared across time points using the chi-square test

Table 3: Late Postoperative Complications

Late-stage complications	3rd Month	6th Month	9th Month	12th Month
Incontinence	0	0	0	0
Recurrence	0	0	0	0
Wound Dehiscence	1	0	0	0
Pain	5	2	0	0
Infection	0	0	0	0

Frequencies were compared using the chi-square test. Pain progression was assessed descriptively

and 12 for the evaluation of late complications. During the follow-up visits, no patient showed signs of incontinence or recurrence of fissures. In one patient, mild wound dehiscence continued at the 3rd postoperative month, but secondary healing was achieved with dressing applications. During the same period, 5 patients reported mild pain, but as the follow-up progressed, the pain intensity decreased, and by the 6th month, only 2 patients continued to experience pain. By the 9th month, pain had completely resolved in all patients. One patient with a superficial wound infection showed improvement by the 3rd month. In evaluations conducted at the 12th postoperative month, it was determined that none of the symptoms such as preoperative burning, pain, bleeding, or pruritus ani persisted in any patient. Additionally, no complications such as wound dehiscence, wound infection, incontinence, or recurrence of fissures were observed postoperatively. Table 3 presents the possible late postoperative outcomes after the surgical procedure.

Discussion

Chronic anal fissure is one of the most common pathologies in the anal region and causes significant discomfort in patients. In the treatment of this disease, symptom relief and promoting healing play a crucial role (15). However, the effectiveness of treatment methods and

complication rates are still a subject of discussion (16). Our study demonstrates that the anocutaneous V-Y advancement flap is an effective and safe surgical method for treating chronic anal fissures in patients with low anal tone and a history of multiple vaginal births, due to its high success rates, low complication risk, and capacity to preserve anal continence.

Lateral internal sphincterotomy is one of the most commonly used methods in chronic anal fissure surgery, and the high success rates of this procedure have been proven in many studies (8). However, lateral internal sphincterotomy has been reported to cause long-term complications, such as anal incontinence, in rates ranging from 9% to 14% (9,10). These complications have been observed more frequently in patients who have had vaginal births and have weakened anal sphincter tone, and this situation necessitates the search for alternative treatment methods. In this context, the anocutaneous V-Y advancement flap emerges as a safer alternative treatment option that preserves anal continence (12).

A study conducted by Chambers et al. indicated that the healing rate for chronic anal fissures treated with the V-Y advancement flap was high (17). In a study by Hancke et al. in 2021, involving a large patient group, it was concluded that the anocutaneous V-Y advancement flap could be an effective first-line surgical treatment method for chronic anal fissures that do not respond to medical treatment (18).

The findings of our study demonstrate that the anocutaneous V-Y flap is an effective method in the treatment of chronic anal fissures. It was observed that all patients healed within an average of 45 days, with wound dehiscence occurring in only six patients, and these patients achieved full healing by the 6th month. At the 12-month follow-up, no recurrences, anal incontinence, wound infections, or other surgical complications were detected. Moreover, even in cases of flap insufficiency, no intervention was made on the sphincter mechanism, so there was no adverse effect on the patients. Therefore, if the flap method fails, interventions such as internal sphincterotomy can be considered as the next step. This approach has the potential to eliminate the risk of anal incontinence, which is one of the most common complications after lateral internal sphincterotomy. These findings show that the anocutaneous V-Y flap provides an important treatment option both in terms of accelerating the healing process and reducing complication risks.

Flap methods are particularly considered an advantageous treatment alternative in patients with low anal resting pressure. In female patients who have had vaginal births and have anal sphincter damage due to childbirth, the flap methods are seen to provide more benefit than lateral internal sphincterotomy due to the risk of incontinence. The anocutaneous V-Y flap method has the potential to preserve anal continence and reduce recurrence risk in these patients. With these characteristics, the anocutaneous V-Y flap method stands out as an alternative first-line surgical treatment option for chronic anal fissures.

However, this study has some limitations. The limited sample size and the fact that it only includes women with low anal tone who have had vaginal births may limit the generalizability of the findings. Future randomized controlled trials involving a larger patient population could provide more definitive results regarding the effectiveness and reliability of the anocutaneous V-Y flap.

In conclusion, this study demonstrates that the anocutaneous V-Y advancement flap is an effective and safe option for treating chronic anal fissures in patients with low anal tone and a history of multiple vaginal births. The high success rates, low complication risks, and ability to preserve anal continence make this method a noteworthy alternative in the treatment of chronic anal fissures. We believe this method should be more widely evaluated and applied in future clinical practices.

Ethics Ethics Committee Approval: For this study, approval was obtained from the non-interventional ethics committee of Van University (approval number: 2025/01-30, date: 04/02/2025).

Conflict of Interest: No conflict of interest was declared by the authors.

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