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RESEARCH ARTICLE

Elastic Seton Placement in Treatment of Complex Anal Fistula: Analysis of 44 Patients

Kompleks Anal Fistül Tedavisinde Elastik Seton Uygulaması: 44 Hastanın Analizi

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ABSTRACT

Aim: There is no consensus on the treatment of complex anal fistula. Although there are various methods, the seton placement is commonly used in the treatment. Setons can be placed tight or loose. Loose setons are commonly used when prolonged drainage is required. Tight setons have disadvantages in terms of patient comfort due to painful tightening periods and adverse effects on continence.

Method: The data of 48 patients admitted to our outpatient clinic and operated for complex anal fistula between January 2015 and December 2016 was retrospectively analyzed. Demographic data, fistula characteristics, coexisting inflammatory bowel disease (IBD), abscess formation, perioperative details, postoperative complications, and incontinence and recurrence rates were evaluated.

Results: Forty-four patients who underwent elastic seton placement were enrolled in the study. Four patients for whom the internal opening could not be identified were excluded. The female to male ratio was 14/30 and median age was 43.5 years (18-83 years). There were abscess in 19 patients and coexisting IBD in 5 patients. The median operative time was 22 minutes (11-50 min), and the duration of hospital stay was one day except for 2 patients. None of patients had postoperative complications. Twenty-five patients (56.8%) had recovered at the end of the first month with one-stage operation. Eighteen patients required second or third procedures, 5 of them due to premature tearing of the seton. One patient had 5 operations. Full recovery was seen in 40 patients (90.9%) at the end of 3 months and none of the patients complained of incontinence. The median follow-up period was 11 months (6-21 months) and 2 patients (4.5%) had recurrence during this period.

Conclusion: Elastic setons can be used as an alternative to tight setons with satisfactory clinical success and the advantage of no need for painful tightening periods.

Keywords: Anal fistula, complex fistula, seton, elastic seton

ÖZ

Amaç: Kompleks anal fistül tedavisinde konsensüs bulunmamaktadır. Çeşitli yöntemler bulunmakla birlikte tedavide sıklıkla seton uygulmaları yer alır. Setonlar sıkı ve gevşek olarak konabilir. Gevşek setonlar genellikle uzun süreli drenaj gereken vakarda tercih edilir. Sıkı setonlar ise ağrılı sıkma seansları ve kontinans üzerine olumsuz etkileri nedeniyle hasta konforunu düşürmektedir. Bu çalışmada, kompleks anal fistül tedavisinde sıkı seton alternatif olarak elastik seton uygulaması sonuçlarımızı paylaşmayı amaçladık.

Yöntem: Ocak 2015-Aralık 2016 tarihleri arasında kliniğimize başvurup kompleks anal fistül nedeniyle opere edilen 48 hastanın verileri geriye dönük olarak incelendi. Demografik veriler, fistül detayları, enflamatuvar barsak hastalığı (İBH) öyküsü, apse varlığı, peroperatif detaylar, postoperatif komplikasyonlar, inkontinans ve rekürrens oranları incelendi.

Bulgular: Çalışmaya elastik seton konan 44 hasta dahil edildi. İç ağız bulunamayan 4 hasta dışlandı. Hastaların 14'ü kadın, 30'u erkek olup ortanca yaş 43,5 yıl (18-83 yıl) olarak belirlendi. On dokuz hastada preoperatif apse vardı. Beş hastada İBH eşlik ediyordu. Ortanca operasyon süresi 22 dakika (11-50 dk), hastanede kalış süresi iki hasta dışında bir gündü. Postoperatif komplikasyon görülmedi. Yirmi beş hasta (%56,8) birinci ayın sonunda tek seansla iyileşti. Beş hastada seton yırtılması nedeniyle olmak üzere 18 hastada ikinci ve üçüncü kez operasyon gerekti. Bir hastada ise 5 kez operasyon gerekti. Üçüncü ay sonunda 40 hastada (%90,9) tam iyileşme gözlendi ve klinik olarak hiç bir hastada inkontinans gözlenmedi. Ortanca takip süresi 11 ay (6-21 ay) olup bu sürede 2 hastada (%4,5) rekürrens gelişti.

Sonuç: Elastik seton uygulaması, ağrılı sıkma seanslarına gereksinim duyulmaması, bununla birlikte tatmin edici klinik başarısının olması nedeniyle kompleks anal fistüllerin tedavisinde sıkı setona alternatif olarak kullanılabilir.

Anahtar Kelimeler: Anal fistül, kompleks fistül, seton, elastik seton

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Introduction

Anal fistulas, which are believed to usually result from chronic inflammation of cryptoglandular structures in the anal canal, almost always require treatment.[1] Clinically, they are generally divided into four main groups according to the Parks classification: intersphincteric, transsphincteric, suprasphincteric, and extrasphincteric fistulas.[2] Anal fistulas are also classified as "simple" or "complex" depending on their relationship to the sphincters.[3] Simple fistulas include intersphincteric fistulas and transsphincteric fistulas involving less than 30% of the external sphincter. Fistulotomy and curettage are usually effective in the treatment of these types of fistulas. The success rate of this treatment method has been reported as 90%.[4] Complex fistulas include transsphincteric fistulas involving more than 30% of the external sphincter; suprasphincteric and extrasphincteric fistulas; fistulas accompanied by inflammatory bowel disease (IBD); radiation-induced fistulas; fistulas with multiple external openings; anteriorly located fistulas in females; and recurrent fistulas.[5] To date, there is no consensus or widely accepted method for the treatment of complex fistulas. Various methods such as seton applications, advancement flaps, and fistula plugs are used. The basis of fistula treatment is to eliminate the existing tract and prevent recurrence without affecting continence.[6,7] Conventionally, seton placement is commonly used for complex fistulas.[8] Setons can be applied either tight or loose. The purpose of seton placement is to close the tract with minimal damage to the sphincters. Loose setons are preferred in conditions where prolonged drainage is required (such as abscesses, IBD, etc.), while tight setons are preferred for treatment of shorter duration. However, tight setons needs to be retightened several times, and this painful procedure negatively affects quality of life and continence.[8,9,10,11] In this respect, placing elastic setons is thought to possibly reduce these problems while allowing faster treatment with less damage. Mentes et al.[12] performed a similar application by using a strip of surgical glove as an elastic seton, and observed full recovery in all patients in the study after 3 months. In the present study, we present our results of using vessel loops as elastic setons in patients with complex fistula.

Materials and Methods

Of 48 patients who presented to the outpatient clinic between January 2015 and December 2016 with complex anal fistula, 44 patients were treated with elastic seton and included in this study. Four patients were excluded because the internal orifice could not be located. Consent form was filled out by the patient. Our analysis included retrospective review of the following patient data: demographics (age, sex), history of concomitant IBD, presence of abscess, position of fistula, duration of operation and hospital stay, postoperative complications, total number of operations, clinical recovery rates at 1 and 3 months, presence of incontinence, and recurrence rates. Clinically, cases were considered "non-recovery" when complaints did not improve and "recurrence" when complaints returned during the follow-up period. Recurrent cases were examined with pelvic magnetic resonance imaging (MRI) to radiologically demonstrate the recurrence. Continuous variables were expressed as median (range), and categorical variables were expressed as percentage.

Diagnosis and Preoperative Preparation

All patients underwent pelvic MRI. Complex fistula was diagnosed based on MRI and physical examination. Preoperatively, all patients received a laxative enema for intestinal cleansing. Patients also received 750 mg intravenous cefuroxime axetil (Cefaks Vial, Deva Pharmaceuticals, Turkey) as prophylaxis.

Surgical Technique

Operations were performed under general anesthesia with patients in lithotomy position. First, hydrogen peroxide was injected into the external orifice, and the internal orifice was identified using an anoscope. A probe was then inserted into the external orifice and out of the internal orifice. In 4 patients, the internal orifice could not be located using this procedure and they were excluded from the study. In the remaining patients, the part extending to the sphincter complex was incised and curetted. The vessel loop was attached with silk suture to the end of the probe protruding from the internal orifice. Using the probe, the vessel loop was pulled through the external orifice and knotted as an elastic seton. The seton was applied so as to place pressure on the sphincters via its elasticity, without excessive tightness. After tying the seton, silk suture was used to further secure the knot.

Postoperative Follow-up

Patients without early postoperative complications were discharged on the first postoperative day and called for follow-up examination in the outpatient clinic 7-10 days later. Patients were also advised to visit the outpatient clinic if their seton became dislodged. In outpatient follow-up examination, the position and tautness of the seton and condition of the wound were evaluated and patients were asked about incontinence. After the fistula healed, patients were called for follow-up examination at intervals of 1 and 3 months. Condition of the wound site and recurrence were evaluated. The data were recorded electronically in the patients' outpatient records.

Results

Forty-four patients with complex fistulas were included in this study. There were 14 female (31.8%) and 30 male (68.2%) patients. The median age was 43.5 years (18-83 years). Fistula types seen in the patients in the study are shown in Table 1. Preoperative abscess was detected in 19 patients (43.2%). Five patients (11.4%) had concomitant IBD (Crohn's disease). The median duration of the operation was 22 min (11-50 min). Length of hospital stay was 1 day for all but 2 of the patients. Discharge was delayed for these patients for reasons unrelated to the surgery (congestive heart failure, chronic kidney disease). None of the patients developed postoperative complications. At the end of the first month, 56.8% of the patients (n=25) recovered fully after one operation. Eighteen patients (40.9%) required a second or third operation for complete recovery; 5 patients underwent reoperation because the seton broke or fell out prematurely, while in 13 patients the seton became loose. One patient required five operations. The total recovery rate was 90.9% (n=40) after 3 months. The 4 patients (9.1%) who did not heal had concomitant Crohn's disease. None of the patients developed flatus or fecal incontinence. The median length of follow-up was 11 months (6-21 months) and recurrence was observed in 2 patients (4.5%) during this period.

Discussion

Although fistulotomy and curettage are adequate for simple fistulas, the treatment of complex fistulas is more complicated. The use of seton in the treatment of anal fistulas has been known and practiced since the time of Hippocrates.[13] It is the most commonly used method for complex fistula treatment. Setons can be applied tight or loose, with loose setons especially preferred in cases requiring prolonged drainage. Tight seton application aims to gradually transect the sphincters via pressure necrosis, thereby eliminating the fistula tract without causing acute sphincter damage and allowing the sphincters to heal over a period time. However, disadvantages include the needs for painful retightening at specific intervals, and negative impacts on continence and quality of life.[8,9,10,11] Elastic setons can be used as an alternative to tight setons to overcome these disadvantages. Mentes et al.[12] used strips cut from surgical gloves as elastic setons in their 20 patients, and they observed 100% recovery rate at 3 months. The recovery rate in our study was 90.9%. We attribute this difference to our inclusion of patients with IBD in our study. Mentes et al.[12] included only patients with cryptoglandular fistulas and there were no IBD-associated fistulas in their study. Another problem associated with elastic seton is falling out prematurely due to slackening or breaking. Mentes et al. [12] reported this phenomenon at a rate of 10%. In our study, this rate was 11.4%. We believe this may have been a result of the silk suture passed through the seton after knotting in order to secure the knot. Instead, knotting the silk without passing the suture through the seton may help eliminate this problem. Surgical failure manifests as incomplete recovery. The main reasons for unsuccessful surgery include being unable to locate the internal orifice, creating a false tract during surgery, leaving secondary tracts untreated, or presence of granulated persistent primary fistula tract.[14,15,16] In our study, 4 patients (9.1%) did not completely heal with seton placement. Drains were placed in another 4 patients because the internal orifice could not be located to place a seton. Factors leading to surgical failure can also cause recurrence after healing. Mentes et al.[12] reported a 5% recurrence rate, while ours was 4.5% in the present study. However, an adequately long follow-up time is necessary to effectively determine the rate of recurrence.

Incontinence is one of the most feared complications after fistula operations. It often occurs when the integrity of the sphincter complex is compromised. In a retrospective study by Isbister and Sanea[17] in which tight seton placement for complex fistula was done in 47 patients, 36% of the patients had flatus incontinence, 8.5% had liquid fecal incontinence, and 2.3% had solid fecal incontinence. Mentes et al.[12] reported that 20% of patients had some degree of incontinence after elastic seton application compared to their initial scores, but the change was not statistically significant. None of the patients in our study developed flatus or fecal incontinence at 3 months, suggesting that the use of elastic setons contributes substantially to preserving continence. As there are no additional steps involved in the elastic seton operation, the procedure has the same duration of conventional tight seton placement in terms of identifying the fistula tract and placing the seton. In addition, elastic seton placement did not result in longer hospital stays. Limitations of our study include the retrospective design, relatively short follow-up times, and lack of postoperative pain score and quality of life assessments. Prospective studies comparing tight and elastic setons are necessary for a more robust evaluation. Elastic

Table 1. Preoperative fistula details

Fistula details	Patient number (%)
Transsphincteric fistula	36 (81.9%)
Suprasphincteric fistula	3 (6.8%)
Extrasphincteric fistula	0 (0%)
Anterior fistula (female)	3 (6.8%)
Recurrent fistula	2 (4.5%)
Total	44 (100%)

seton can be used as an alternative to tight setons for the treatment of complex anal fistulas because they do not require painful retightening sessions, they reduce the workload of physicians, and provide satisfactory clinical success.

Ethics

Ethic Committee Approval: Retrospective study.

Informed Consent: Consent form was filled out by the patient.

Peer-review: External and internal peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: H.K.B., E.K., Concept: H.K.B., E.K., Design: H.K.B., E.K., Data Collection or Processing: H.K.B., Analysis or Interpretation: H.K.B., E.K Literature Search: H.K.B., Writing: H.K.B., E.K

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