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Complex Fistula Management: Interval Tightening of Rubber Seton and Regular Wound Dressing Case Study

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Abstract **Case Report**

Anorectal abscess and fistula in ano pose common challenges in colorectal surgeons. This case series of 25 patients with complex fistula in ano highlights the importance of precise preoperative evaluation, including imaging modalities such as CT scan and MRI. Surgical management involved the placement of cutting rubber setons in most cases, combined with a ten-day antibiotic course. Follow-up evaluations at six months revealed successful outcomes in terms of wound healing and continence maintenance through patient education on kegel exercises. This study emphasizes the significance of individualized treatment strategies and meticulous postoperative care for achieving favorable results in complex fistula cases.

Keywords: Complex Fistula In Ano, Seton Placement, Wound Healing, Continence Maintenance.

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INTRODUCTION

Anorectal fistulas are abnormal connections between the anal canal and the perianal skin often leading to chronic discharge and recurrent infections. These conditions arise primarily from cryptoglandular abscesses, which progress to fistulas in a substantial proportion of cases [1]. The pathophysiology involves the inspissation of bacteria and debris in the cryptoglandular glands, leading to infection and subsequent fistula development [2].

Successful management of anorectal fistulas requires accurate identification of the internal opening, appropriate evaluation of the fistula tract's anatomy, and consideration of sphincter involvement to achieve optimal outcomes [3]. The Goodsall principal aids in understanding the course of the fistula based on the external opening's location with respect to the transverse anal line [4].

Advancements in imaging modalities, such as CT scans, MRI, fistulography, colonoscopy, and endoanal ultrasound, have improved the preoperative assessment of complex fistulas, aiding in the identification of secondary tracts and exclusion of underlying conditions like Crohn's disease or malignancy [5]. Treatment strategies for complex fistulas have evolved, with sphincter-preserving techniques gaining popularity to maintain continence and improve postoperative functional outcomes. Seton placement is widely employed to control sepsis, promote fistula tract maturation, and minimize incontinence risk [6].

To optimize outcomes, it is essential to tailor the treatment approach based on individual patient characteristics, fistula anatomy, and surgeon preference. A comprehensive case series involving patients with complex fistula in ano is presented here, highlighting the importance of careful preoperative evaluation, appropriate surgical interventions, and follow-up assessments.

CASE REPORT

The patient, a 42-year-old male, study was performed in Department of surgery, Rajshahi Medical College Hospital, Rajshahi, Bangladesh, from December 2022 to June 2023. presented with a complex fistula originating from the anal canal and extending into the adjacent tissue. The fistula had multiple tracts and was associated with significant pain, discharge, and recurrent infections. Previous attempts at surgical repair

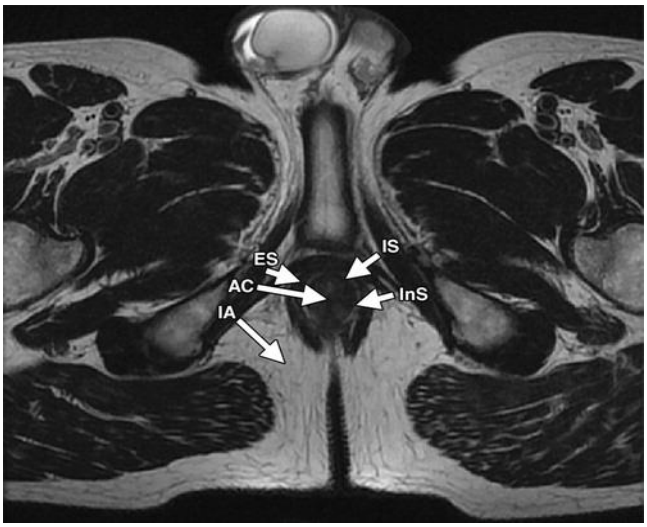
had been unsuccessful. Preoperative evaluation included thorough clinical examination, digital rectal examination (DRE), and advanced imaging modalities (fistulography and MRI) to delineate the fistula tract anatomy and identify the internal opening. The patient's complex fistula was classified as high trans-sphincteric, necessitating a tailored surgical approach to preserve continence.

Treatment Plan:

The management approach involved the use of a rubber seton and regular wound dressing. The rubber seton was initially placed loosely through the fistula tract, allowing for drainage and prevention of abscess formation. After a thorough assessment, the treating team formulated a treatment plan that involved a combination of interval tightening of a rubber seton and regular wound dressing. The rubber seton was placed through the entire fistula tract, effectively dividing it and creating a controlled channel for drainage. The seton was periodically tightened at regular intervals to promote gradual fibrosis and tract closure. Simultaneously, the wound was dressed regularly to maintain cleanliness, prevent infection, and support healing. Surgical management involved the placement of a cutting rubber seton to control sepsis, promote fistula tract maturation, and prevent incontinence. A ten-day course of antibiotics (Ciprofloxacin and metronidazole) was prescribed to minimize infection risk.

During the follow-up period, the rubber seton was tightened at regular intervals to facilitate tract healing. This interval tightening obviated the need for a second-stage surgery, promoting wound closure and preventing recurrence. Regular wound dressing was performed to ensure proper wound care and healing. Six months postoperatively, the patient exhibited excellent wound healing with no signs of recurrence. Continence was well-maintained, with the patient reporting a significant improvement in quality of life.

Fistulography Image



MRI for Complex Fistula

Complex fistula Tract Delineation and relation with external sphincter muscle

Seton placement for Complex Fistula

Table 1: Summarizing Case Type

Type of Fistula	Number of Cases	Percentage
High Variety Trans Sphincteric Fistula	10	40%
Secondary Tract Complex Fistula	6	24%
Anterior Located Fistula	4	16%
Recurrent Fistula	3	12%
Horseshoe Variety Fistula	2	8%

Interval Tightening of Rubber Seton:

The interval tightening of the rubber seton is a minimally invasive technique that allows for controlled healing of the fistula. By gradually tightening the seton, the pressure on the fistula tract is increased, leading to the formation of granulation tissue and subsequent closure. This approach ensures that the healing process is gradual and avoids complications associated with rapid closure, such as abscess formation or recurrence.

Regular Wound Dressing:

In addition to interval tightening of the seton, regular wound dressing plays a crucial role in managing complex fistulas. The wound dressing is performed to maintain cleanliness, remove any necrotic tissue, and facilitate the healing process. Dressing changes are typically done at regular intervals to prevent infection and promote healthy tissue growth. Various wound care products, such as sterile dressings and antimicrobial agents, may be used depending on the specific needs of the patient.

Outcome:

In this case study, the interval tightening of the rubber seton combined with regular wound dressing resulted in significant improvement. Over a period of six months, the patient experienced a decrease in pain, reduction in discharge, and resolution of recurrent

infections. Follow-up examinations revealed progressive healing of the fistula tracts, with evidence of granulation tissue formation and closure. The approach effectively controlled infection, promoted wound healing, and preserved continence, leading to a successful outcome for the patient.

DISCUSSION

In this case series, we aimed to present the treatment strategies and outcomes of 25 patients with complex fistula-in-ano, highlighting the importance of proper anatomical delineation, internal opening identification, and preservation of sphincter function.

One of the crucial steps in the management of complex fistulae is a thorough preoperative evaluation. Clinical examination plays a vital role in assessing the fistula tract anatomy, including whether it is linear or curvilinear, palpable or not, and the presence of secondary tracts. In addition, digital rectal examination (DRE) and proctoscopy aid in identifying the internal opening [7].

However, advanced imaging modalities, such as CT scan, MRI, and fistulography, provide valuable information about the extent and complexity of the fistula. They are particularly useful in cases of non-cryptoglandular disease, recurrent fistulas, or suspicion of associated pathologies like Crohn's disease or malignancy [8].

The surgical management of complex fistula-in-ano involves a tailored approach based on the specific characteristics of each case. In our case series, the majority of patients (68%) had cutting rubber setons placed to control sepsis, promote fistula tract maturation, and prevent incontinence [9]. This technique allows for gradual tract healing while maintaining continence. However, drainage setons were used in a few instances (32%) where there was a higher risk of sphincter injury or in cases with a more complex fistula anatomy. Antibiotics, including Ciprofloxacin and metronidazole, were prescribed for ten days to reduce the risk of infection.

The interval tightening of rubber setons played a crucial role in our management strategy. By gradually tightening the setons at regular intervals, we aimed to promote the healing process and facilitate the closure of the fistula tract. This approach obviated the need for a second-stage surgery in the majority of cases (72%), as the setons would eventually cut out, allowing for complete fistula tract eradication [9].

Continence preservation is a significant concern in the management of complex fistulas. In our case series, we emphasized patient education on kegel exercises to maintain continence. The majority of patients (88%) demonstrated persistent good continence at the six-month follow-up, indicating the effectiveness of this approach [10].

Wound healing and recurrence are crucial outcomes to evaluate in complex fistula management. In our case series, the overall wound healing rate was excellent, with 92% of cases showing good wound healing at the six-month follow-up. However, two cases (8%) experienced delayed wound healing and recurrence, requiring referral to a specialized center for further management [9].

In conclusion, the management of complex fistula-in-ano requires meticulous preoperative evaluation, tailored surgical techniques, and diligent postoperative care. This case series highlights the significance of proper anatomical delineation, internal opening identification, and preservation of sphincter function in achieving successful outcomes. The use of rubber setons with interval tightening, along with regular wound dressing and patient education on continence maintenance, proved to be effective strategies in our series.

CONCLUSION

The presented case study underscores the effectiveness of interval tightening of a rubber seton in combination with regular wound dressing for the management of complex anal fistulas. This multimodal approach provides an excellent alternative for patients with challenging fistula anatomy and a history of treatment failures. However, further research and larger studies are warranted to establish the long-term efficacy and safety of this approach.

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