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Cutaneous Flap Reconstruction In Anal Stenosis

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ORIGINAL

Abstract

Anal stenosis is a rare but impactful condition that can arise from various aetiologies, including surgical trauma, inflammatory bowel disease, radiation therapy, and congenital malformations. Treatment approaches vary based on severity, with surgical intervention often required for moderate to severe cases (1). This case report presents a 52-year-old Chinese male who developed severe anal stenosis following multiple perineal debridement procedures for a perineal abscess. A House advancement flap and a Bipedicle flap were used to reconstruct the anal canal, leading to significant symptomatic relief and functional improvement. This report highlights the importance of flap-based reconstruction in managing complex anal stenosis cases (2).

Introduction

Anal stenosis is a pathological narrowing of the anal canal that significantly impairs defecatory function and reduces a patient's quality of life. It commonly results from surgical procedures such as haemorrhoidectomy, but may also stem from inflammatory bowel disease, radiation therapy, or congenital anomalies [1]. While mild cases may be managed conservatively, moderate to severe stenosis often necessitates surgical correction (3). Various surgical techniques have been employed to restore anal canal function, including mucosal and cutaneous advancement flaps (4). Studies comparing diamond versus V-Y advancement flaps for post-haemorrhoidectomy anal stenosis have demonstrated favourable outcomes, reinforcing the role of flap-based reconstruction (1). However, the absence of a universally accepted gold standard underscores the need for personalized treatment approaches. This case report presents the successful application of House advancement and Bipedicle flaps in a patient with severe anal stenosis following perineal debridement. By detailing the surgical technique and postoperative outcomes, we aim to contribute to the growing body of evidence supporting flap-based reconstruction (2).

Case Presentation

A 52-year-old Chinese male underwent multiple perineal debridement procedures due to a perineal abscess, resulting in injuries to both the internal and external anorectal sphincters and substantial bleeding. Over the course of a year, he developed severe anal stenosis, requiring forceful dilatation with a 6mm Hegar dilator during physical examination (3). Laboratory tests were normal, and surgical intervention was planned. The patient underwent anal repair with House advancement and Bipedicle flap reconstruction. Scar tissue at the 3 o'clock and 6 o'clock positions were excised, and two flaps were carefully designed to ensure vascular preservation (2). The grafts were securely fixed into the anal canal without tension, restoring the anal canal length to 2 cm. Postoperatively, the patient was discharged three days after surgery without complications. Follow-up assessments confirmed the excellent condition of the flap, with no signs of infection or necrosis. One-month post-surgery, the patient reported significant improvement in anal function, with no complaints.

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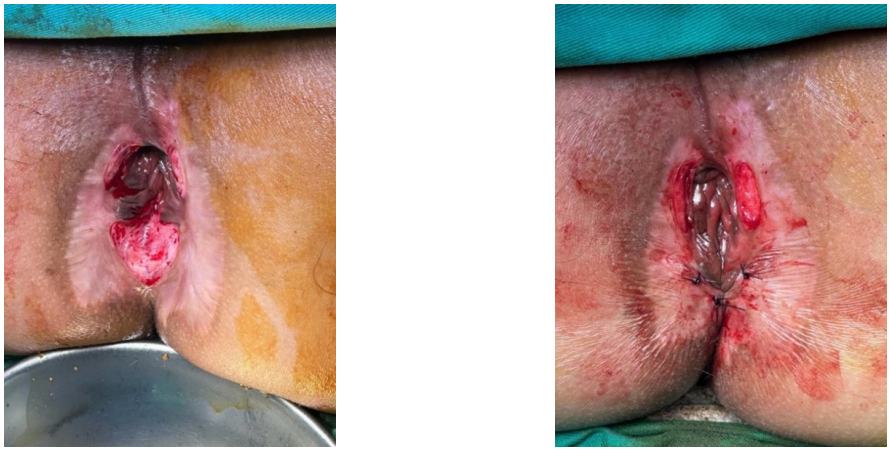
Figure 1. Pre-operative Clinical Picture



(a) (b)

Figure 2. House Advancement and Bipedicle Flap Created, and Sutured.

Figure 3. Post Procedure Outcome.

Discussion

Anal stenosis can lead to severe complications if left untreated, significantly impacting a patient's quality of life. Various surgical techniques have been employed to restore the anal canal, with flap-

based reconstruction proving effective in cases of severe stenosis (2). In this case, dense scarring was observed at the 3 and 6 o'clock positions, necessitating the use of House and Bipedicle flaps (3). The success of flap-based reconstruction relies on several critical factors, including optimal vascularization, minimal tension, absence of infection or hematoma, appropriate flap thickness, and diligent postoperative care (5). The perianal region offers distinct advantages for flap creation due to its abundant vascularity, pliable connective tissue, and thick skin layer, which is accompanied by a substantial layer of adipose tissue (4). During the procedure, fixation within the anal canal was achieved using extended absorbable sutures, while non-absorbable sutures were used for skin fixation (2). Canal calibre and diameter were carefully evaluated to ensure postoperative patency. The combination of different flap techniques in the same setting enhances tissue mobility, improves vascularity, and allows for better wound closure with reduced tension (4). The successful outcome in this case reinforces the efficacy of flap-based reconstruction in managing severe anal stenosis. Postoperatively, the patient was discharged without complications, and follow-up assessments confirmed excellent flap condition with no signs of infection or necrosis (2). One month after surgery, the patient reported significant improvement in anal function, with no complaints. The anatomical and functional improvements observed in this case highlight the effectiveness of combining multiple flap techniques to achieve optimal surgical outcomes.

Conclusion

This case report demonstrates the effectiveness of House advancement and Bipedicle flaps in treating severe anal stenosis. The procedure ensured vascular preservation, minimal tension, and improved function, with no postoperative complications. The successful outcome underscores the importance of tailored surgical approaches, reinforcing flap-based reconstruction as a viable treatment option.

Conflict Of Interest

Author declare no conflict of interest and no funding for this study.

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