Anoplasty For Fused Anus Following Fournier's Gangrene Debridement: A Case Report

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Abstract

Anal stenosis is a rare debilitating surgical condition. The severity and level of the impacted region determines the management options. Numerous tension free anoplasty techniques and its varying success rates have been reported. A patient-tailored anoplasty approach depending on the severity, location, and extent of anal stenosis is rudimentary. We present a case of fused anus following extensive surgical debridement for Fournier's Gangrene. Colonoscopy illumination guided neo-anal creation was performed, which resulted in low severe anal stenosis six weeks later. Subsequently, Y-V anoplasty, lateral internal sphincterotomy, and colostomy closure were done which showed good initial recovery. However, six months later, the anal stenosis recurred, for which diamond-shaped anoplasty was offered but patient had refused any further surgical intervention. The clinical management challenge and learning experience is shared within the report.

Introduction

Anal stenosis is a debilitating condition and technically challenging scenario, secondary to its functional and anatomical causes [1,2]. Common anatomical causes are due to iatrogenic surgical complications and excisional hemorrhoidectomy is the leading cause of anal stenosis [3]. The condition relates to the complication following extensive surgical excision of anoderm and chronic inflammation of the region. Based on the literature, multiple anoplasty techniques and the varying outcomes of each were described. Anoplasty can be performed via tension free simple advancement flap, or full-thickness advancement flap [4]. The fundamental approach to a successful management of anal stenosis is to assess the severity, location, and extent of the lesion to determine a tailored anoplasty approach [1]. We present a case of fused anus following extensive Fournier's Gangrene debridement.

Case Presentation

A 44-year-old man presented with a one-week history of painful scrotal swelling, perianal pus discharge and fever. He has hypertension, dyslipidemia, and ischemic heart disease with angioplasty done five years ago.

Physical examination revealed foul-smelling necrotic scrotal skin with pus discharge from perianal region. Laboratory results showed total white blood count $26.2 \times 10^9/L$ (normal range $4-11 \times 10^9/L$) and compensated metabolic acidosis. Clinical diagnosis of Fournier's gangrene was made.

The patient was resuscitated, and a broad-spectrum antibiotic treatment was initiated. Urgent surgical debridement was performed around the perianal region and scrotum. The external anal sphincter was unhealthy. Sigmoid loop colostomy was performed to prevent feces from soiling into the wound. The wound was managed by the wound care team and healed with secondary intention. During review at outpatient follow-up, healing with secondary purpose resulted in a fused anus (Fig. 1).

MRI of the pelvis demonstrated intact external and internal anal sphincter integrity (Fig. 2). Pre-operative distal loop colonoscopy conducted did not reveal any evidence of rectal stricture (Fig. 3).

Colonoscopy illumination guided neo-anal creation was performed three years after the resolution of index presentation. Cicatricial tissue was excised in a circular fashion using a blade. Full-thickness suture of anal skin to anoderm was performed using interrupted polyglactin 3/0 (Fig. 4a). The patient was discharged after educating on the self-anal dilatation technique. We reviewed the patient weekly and planned for an early colostomy reversal.

Neo-anal creation was complicated with severe anal stenosis six weeks later. Examination under anesthesia, Y-V anoplasty, and lateral internal sphincterotomy were performed. The anal canal was restored, and colostomy reversal was performed.

He was able to bowel open without fecal or gas incontinence. After five months, he complained of straining to evacuate. He had developed recurrent anal stenosis six months following anoplasty (Fig 4b). We offered him an option of diamond or house-shaped anoplasty one year on now, but he refused any further procedure as he was able to empty his bowel with small separate hard lump stool.

Discussion

Anal stenosis is a rare debilitating surgical condition, secondary to functional or anatomical causes [1,2]. Functional anal stenosis is commonly due to the hypertonic internal anal sphincter, whereas anatomical anal stenosis is typically a result of an anorectal surgery complication [2]. Anatomical anal canal stenosis occurs due to extensive excision of normal anoderm, which heals with inelastic tissue. The most common cause of anal stenosis arises post hemorrhoidectomy, reported up to 90% [1,3]. Other causes of anatomical anal stenosis are as follows; complication of ultra-low anterior resection, pelvic tumor radiotherapy and extensive anal warts excision.

Extensive debridement is of paramount importance in Fournier's gangrene. A high index of suspicion of anal stenosis is necessary to follow up, mostly when debridement of circumferential anoderm and external sphincter is performed. Fused anus as a result of cicatricial complication was inevitable in our case. Diversion colostomy may have partly resulted in a fused anus following secondary healing. Okumura K et al, have reported the only other case report of complete anal stenosis following Fournier's gangrene debridement [5].

The presentation of anal stenosis may vary from dyschezia, tenesmus, pruritis ani to bleeding. In our case, the presentation was masked due to the presence of diversion colostomy. The severity and classified level of anal stenosis height from anal verge would determine the basis of our treatment and management [3]. Non-operative measures such as dilatation and stool softener may be effective initially in mild and moderate stenosis but will require surgical intervention in due course [1,3].

Surgical management of anal stenosis should not be performed during the active phase of healing. Ideally, a matured scar is required for surgical reconstruction. Before definitive anoplasty, it is essential to assess the anorectal column via endoscopy and anal sphincter by endoanal ultrasound or MRI.

Management of anal stenosis following anorectal procedure is challenging due to anoderm scarring. There are many anoplasty methods described with varying success rates. Although some anoplasty techniques are easily performed with a high success rate, reconstruction experience is required to achieve a desirable outcome. A patient-tailored anoplasty approach is fundamental, depending on the severity, location, and extent of anal stenosis [1].

Y-V advancement anoplasty is replicable, with a long term success rate of more than 85% [2,6]. From our experience, Y-V anoplasty with lateral internal sphincterotomy is not an ideal method due to the circumferential nature of stenosis. Duieb Z et al, have described using an algorithm approach for tension-free anoplasty repair, which modifies Y-V to diamond flap and if necessary, bilateral diamond flap [4]. Tailored rhomboid mucocutaneous advancement flap case series of 50 patients by Gallo G et al, reported a success rate of 96% with no recurrence. Bilateral advancement flap was performed for three patients as anal caliber was not satisfactory after the unilateral procedure [7]. Farid et al, had done a prospective study comparing anoplasty measure between house advancement flap, rhomboid, and V-Y anoplasty randomizing the cases with no significant difference in caliber of anal canal preoperatively, and has showed highest initial and long term clinical improvement in house advancement flap. Only one recurrence was reported in house advancement flap after one year [8].

Neo-anal creation with anoplasty and concurrent stoma reversal may produce a desirable outcome and reduce the risk of anal stenosis due to restoration of gastrointestinal continuity. Delay in colostomy closure was one of the contributing factor to recurrent anal stenosis.

Conclusion

Anal stenosis is a debilitating and challenging condition . A patient-tailored anoplasty approach is crucial, depending on the severity, location, and extent of anal stenosis. Circumferential anal stenosis should be managed by either bilateral diamond or rhomboid or house advancement flap by an experienced reconstructive surgeon.

Declarations

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Authors' Contribution

JM involved in clinical care, conceptualization and drafting of the manuscript. FH involved in clinical care, revision of manuscript for intellectual content and approval of the manuscript. TYS involved for important intellectual content of manuscript. All the authors read and approved the final manuscript.

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Conflicts of Interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethical Approval and Consent to participate

The case report is in line with local ethics protocol and all photographs and records included have obtained patient consent.

Consent for Publication

Consent was obtained from patient for publication of this case report and accompanying images.

Data Availability

Not Applicable

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Figures

Figure 2

Reformatted T2 coronal image demonstrates high T2 signal lesion at the end of anal canal, suggestive of the granulation tissue that obliterated the anus (a). Reformatted T2 axial image at level just above granulation tissue, showing the intact external and internal sphincter (b). A-external sphincters, B-internal sphincter, C-anal canal