Malone Procedure in a Young Adult With Fecal Incontinence Secondary to Severe Pelvic Trauma: A Case Report

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INTRODUCTION

Anal incontinence is a disorder that significantly affects quality of life. In patients with irreversible impairment of sphincter function, antegrade colonic irrigation can significantly improve functional outcomes. The Malone procedure, also known as MACE (Malone Antegrade Continence Enema), was first described in 1990 by Paul Malone. The original procedure combined the principle of antegrade colonic enema for bowel lavage with the creation of a continent conduit that could be easily catheterized through the abdominal wall.[1] Initially proposed for children with severe fecal incontinence secondary to congenital anorectal malformations or spina bifida (myelomeningocele), indications have since expanded to other conditions, including functional constipation, even in adults. It provides an alternative approach for patients who have failed conventional therapies and wish to avoid a permanent ostomy.[2]

This report aims to describe the use of the Malone procedure as a valid surgical alternative for the management of anal incontinence in adults.

CASE DESCRIPTION

We report the case of a 28-year-old man with sphincter complex dysfunction secondary to severe pelvic trauma from a high-impact motorcycle accident. The patient had previously undergone multiple abdominal and orthopedic surgical procedures for a complex pelvic injury, including a perineal flap and creation of a colostomy. Physical examination revealed a paracolostomic hernia. Physical examination revealed a paracolostomic hernia. Proctologic evaluation showed a scar in the anal region, complete sphincter atony, and rectal mucosal prolapse (Fig. 1A). During digital rectal examination, gluteal contraction was noted, but no sphincteric response was elicited. Anorectal manometry could not be performed due to the patient's inability to retain the sensor.

Computed tomography demonstrated a midline hernia containing both fat and intestinal loops, with the left-sided colostomy in the iliac fossa. Magnetic resonance imaging (MRI) revealed atrophy and hypotrophy of the sphincter complex and levator ani muscles, fibrous tissue in the left ischiorectal fossa, and signal changes in the left sphincter complex suggestive of denervation. Asymmetry of both ischiorectal fossae with atrophy of the left gluteal muscles was also observed (Fig. 1B).

Examination under anesthesia revealed fibrosis from 12 to 3 o'clock, palpation of the internal anal sphincter from 3 to 10 o'clock, anal canal mucosal ectropion, and absence of endoluminal lesions on anoscopy.

Based on these findings, a collaborative surgical intervention was deemed necessary, involving the coloproctology and abdominal wall teams.

The surgical procedure involved restoration of intestinal continuity, hernia repair, and MACE as a therapeutic alternative for anal incontinence, aiming to avoid permanent colostomy and improve quality of life.

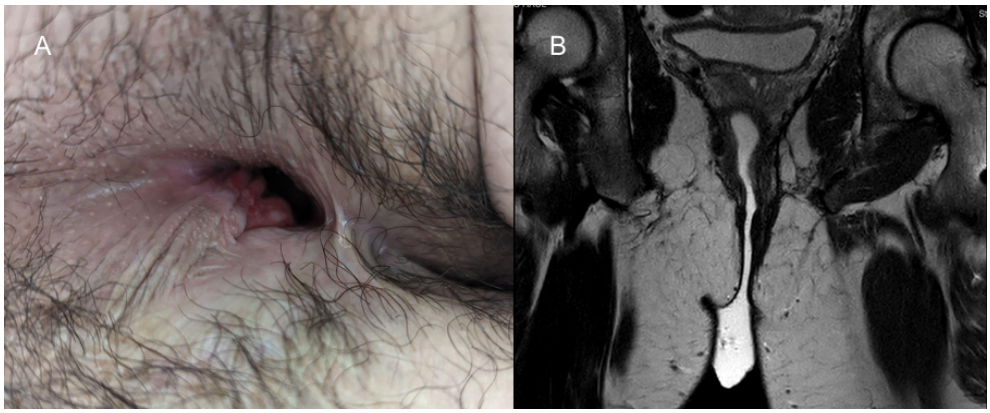

Figure 1. Preoperative status of the patient. A. *Severe sphincteric anatomical defect with absence of the external anal sphincter and a retractile fibrotic scar extending from 3 to 6 o'clock.* ***B.*** *Magnetic resonance imaging demonstrating complete fibrosis of the external anal sphincter and muscular atrophy.*

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As part of MACE, cecal base plication was performed to create a continent reservoir and prevent reflux (Fig. 2). The mesoappendix was meticulously dissected, preserving the appendicular vessels to ensure viability, a critical step for long-term success. The appendix was exteriorized through a right lower quadrant incision and fixed to the skin. Subsequently, cecal fixation to the parietal peritoneum was performed to prevent rotation or torsion of the cecum (Figs. 3 and 4). The patient had an uneventful postoperative course, with a hospital stay of only five days. On follow-up, he performs antegrade colonic irrigation every 2–3 days, maintains adequate sensation to liquids and gas, experiences no leakage, and reports excellent quality of life.

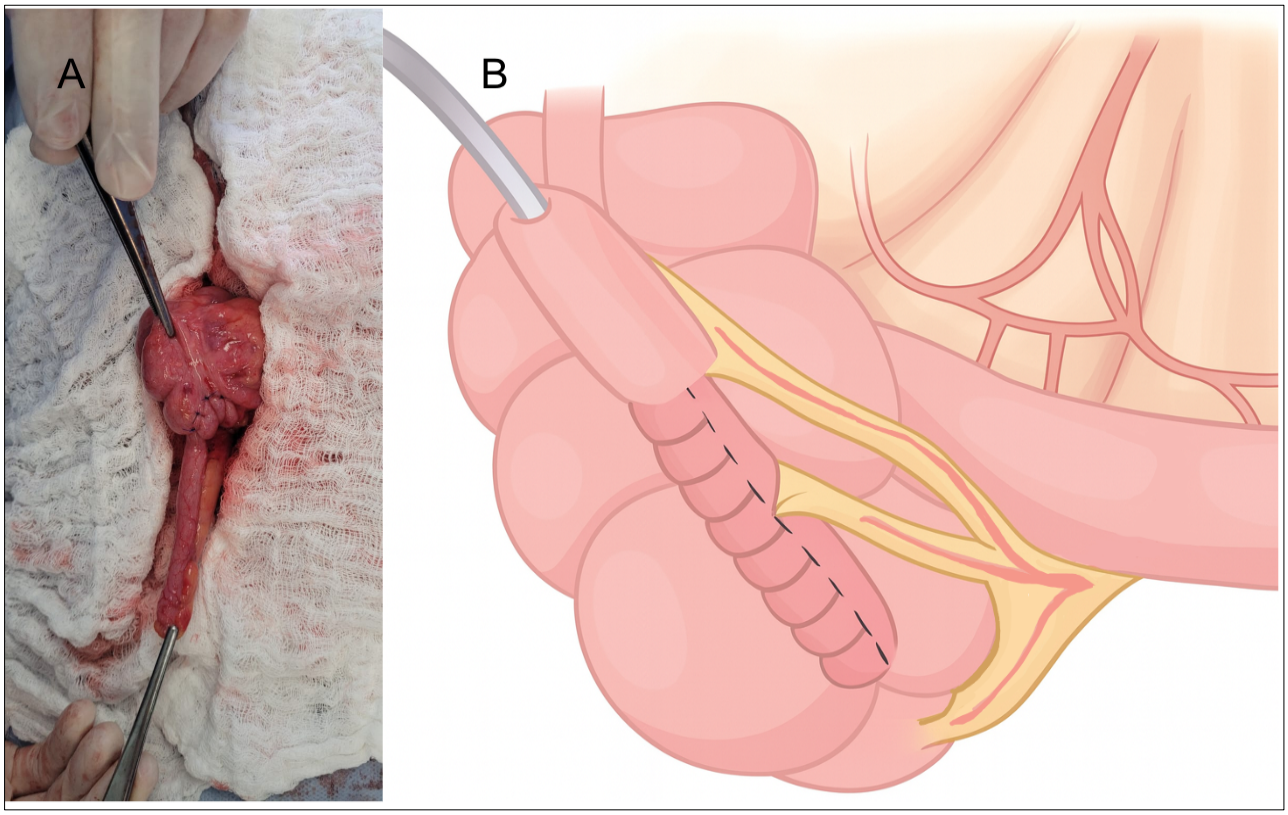

Figure 2. Malone procedure. A. *Intraoperative image of the cecal appendix prepared for exteriorization, with plication of the cecum around its base to create an antireflux valve.* ***B.*** *Illustration depicting the plication of the cecum around the appendix to form a continent conduit.*

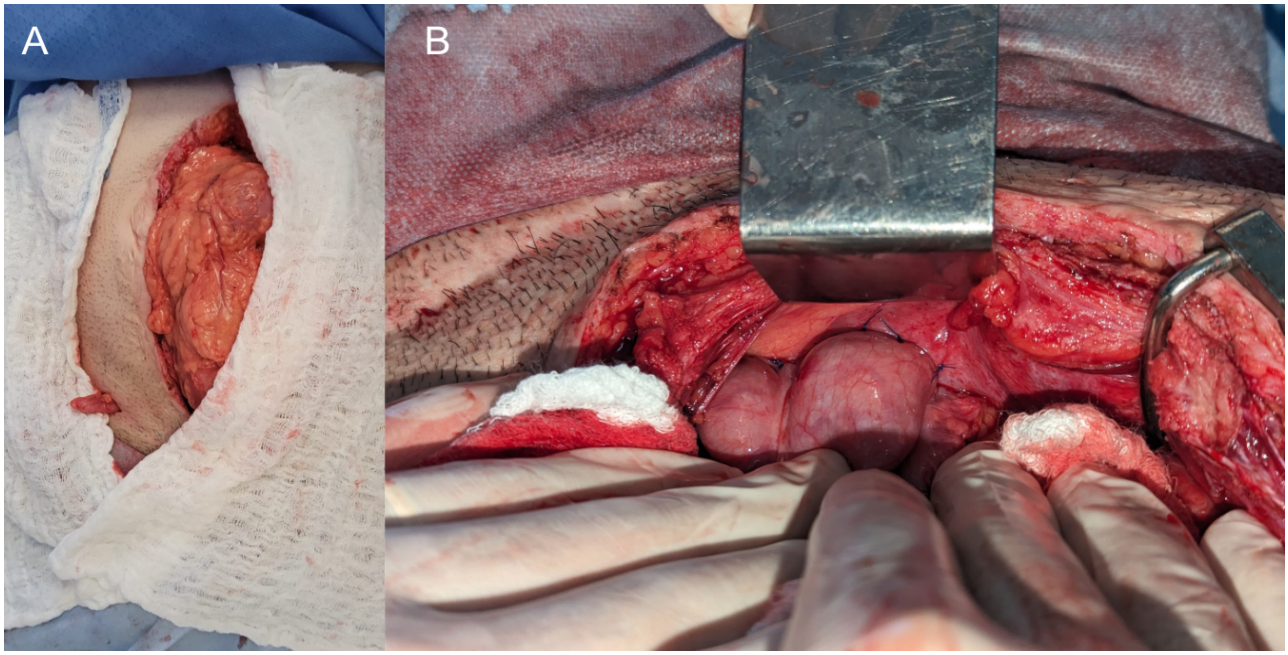

Figure 3. *Malone procedure.* ***A.*** *Exteriorization of the cecal appendix through the right iliac fossa.* ***B.*** *Pexy of the cecum to the abdominal wall after appendiceal exteriorization to prevent torsion and intra-abdominal leakage.*

DISCUSSION

MACE creates a proximal colonic stoma that allows antegrade irrigation of the colon for the management of fecal incontinence and functional constipation. The original technique combines principles of antegrade colonic lavage with a catheterizable Mitrofanoff antireflux channel, creating a continent colonic stoma that enables complete emptying while preventing incontinence.[3]

MACE is a valid alternative for patients with anal sphincter dysfunction, as it allows the establishment of a bowel irrigation regimen through the appendix. This procedure avoids the need for a permanent colostomy and may result in partial restoration of continence in selected patients.

The 2023 guidelines from the American Society of Colon and Rectal Surgeons (ASCRS 2023) propose a stepwise approach to fecal incontinence that includes conservative measures, minimally invasive therapies, and surgical options. Sacral neuromodulation (SNM) has been identified as the alternative with the most robust evidence of long-term efficacy and safety.[4] While sphincter integrity guideline, the efficacy of SNM has been documented in patients with sphincter defects up to 120 degrees.

In our patient, no viable nerve fibers were identified along the entire left hemicircumference of the anal canal, making an adequate response to this technique very unlikely. The guideline further emphasizes the efficacy of transanal irrigation, particularly in patients with neurogenic dysfunction or altered intestinal transit; however, its use is limited in severely compromised anorectal anatomy. Alternatively, definitive colostomy remains a safe and effective option for the management of fecal incontinence, despite a considerable psychosocial impact, particularly in young adults.

Figure 4. Malone procedure. *Postoperative appearance of the abdomen showing the cecal appendix exteriorized in the right iliac fossa with the irrigation catheter in place.*

Finally, MACE represents a surgical alternative aimed at achieving continence through the creation of an access for antegrade irrigation. In the present case, this technique provided a functional solution that restored continence and obviated the need for a definitive colostomy.

The existing literature supports the efficacy of MACE for patients with fecal incontinence secondary to trauma or intestinal dysfunction, demonstrating substantial improvements in quality of life for both pediatric and adult populations. In children diagnosed with slow intestinal transit or neuropathic intestinal dysfunction, Bani-Hani et al.[5] reported favorable outcomes in a cohort of 236 patients with a median follow-up of 50 months, achieving continence in 94% of cases. The surgical revision rate was 17%, and overall patient satisfaction was high. Hoekstra et al.[6] demonstrated that 86% of pediatric patients and their families expressed satisfaction with the outcomes, accompanied by a significant reduction in the frequency of incontinence episodes following the intervention. Concurrently, Yerkes et al.[7] documented an 89% satisfaction rate, accompanied by substantial enhancements in personal hygiene, social integration, and patient autonomy. The study observed that 77% of patients attained complete or nearly complete fecal continence. In adults with neurogenic bowel disease, Teichman et al.[8] reported that 83% (n = 6) of patients were satisfied with the outcomes and rated their quality of life as improved following the procedure. Furthermore, Patel et al.[2], in a systematic review of 15 studies including 374 adults, concluded that MACE is a safe, effective, and well-tolerated treatment for fecal incontinence and functional constipation, yielding consistent clinical improvements and acceptable patient satisfaction.

Collectively, these data provide strong evidence supporting the efficacy of MACE, demonstrating its ability not only to achieve high rates of continence but also to enhance patient autonomy, reduce psychosocial burden, and improve satisfaction for both patients and families across diverse age groups and clinical etiologies. Accordingly, for a carefully selected subset of patients, particularly those who are refractory to other treatment modalities or who decline a permanent ostomy, MACE should be considered a valid and potentially transformative therapeutic option.

CONCLUSIONS

This case highlights the clinical relevance of the Malone procedure as a therapeutic option in young patients with fecal incontinence. It provides evidence supporting the importance of tailoring surgical strategies to optimize quality of life. The procedure should be considered a valid alternative for selected patients who have failed conventional treatments and wish to avoid a permanent ostomy.

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REFERENCES

1. Graf JL, Strear C, Bratton B, Housley HT, Jennings RW, Harrison MR, et al. The antegrade continence enema procedure: a review of the literature. J Pediatr Surg. 1998;33(8):1294-6.
2. Patel AS, Saratzis A, Arasaradnam R, Harmston C. Use of Antegrade Continence Enema for the Treatment of Fecal Incontinence and Functional Constipation in Adults: A Systematic Review. Dis Colon Rectum. 2015;58(10):999-1013.
3. Malone PS, Ransley PG, Kiely EM. Preliminary report: the antegrade continence enema. Lancet. 1990;336(8725):1217-8.
4. Paquette IM, Varma MG, Kaiser AM, Steele SR, Rafferty JF. The American Society of Colon and Rectal Surgeons Clinical Practice Guidelines for the Management of Fecal Incontinence. Dis Colon Rectum. 2023;66(6):663-687.
5. Bani-Hani AH, Cain MP, Kaefer M, Meldrum KK, King S, Johnson CS, et al. The Malone antegrade continence enema: single institutional review. J Urol. 2008;180(3):1106-10.
6. Hoekstra LT, Kuijper CF, Bakx R, Heij HA, Aronson DC, Benninga MA. The Malone antegrade continence enema procedure: the Amsterdam experience. J Pediatr Surg. 2011;46(8):1603-8.
7. Yerkes EB, Cain MP, King S, Brei T, Kaefer M, Casale AJ, et al. The Malone antegrade continence enema procedure: quality of life and family perspective. J Urol. 2003;169(1):320-3.
8. Teichman JM, Zabihi N, Kraus SR, Harris JM, Barber DB. Long-term results for Malone antegrade continence enema for adults with neurogenic bowel disease. Urology. 2003;61(3):502-6.