

Blunt anorectal trauma. Case report and literature review

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ABSTRACT

Introduction: Anorectal trauma is a rare cause of consultation to the Emergency Department, with an incidence of 1 to 3%. It is often associated with life-threatening injuries, so it is essential to know the principles of diagnosis and treatment, as well as the initial care protocols for the polytraumatized patient.

Methods: We present the case of a 47-year-old man with a blunt anorectal trauma involving the internal and external anal sphincter, treated with primary overlapping repair of the sphincter complex and suturing of the rectal wall. At 12 months the patient presents good outcome, without anal incontinence.

Conclusion: The treatment of rectal trauma, based on the 4 D's dogma (debridement, fecal diversion, presacral drainage, distal rectal washout) was successful. Repair of the overlapping sphincter injury was simple and effective for anatomical and functional reconstruction.

Keywords: anorectal trauma, traumatic anal sphincter injury.

INTRODUCTION

Anorectal trauma is a rare cause of emergency department consultation. The reported incidence is 1 to 3% in civilian trauma centers and 5% in war scenarios.^{1,2} Its presentation is more common in men between 20 and 40 years old.

Anorectal injuries can be penetrating (56%), most frequently caused by knife stab or gunshots, or blunt injuries (44%), due to traffic accidents (42%), falls from a height (16%) and foreign bodies, among others (1%).³ They can occur isolated or associated with injuries of other organs.

It is essential to know the principles of diagnosis and treatment of anorectal injuries since they can be serious and, although they do not increase mortality in the golden hour of trauma, they can increase late mortality in the polytraumatized patient. For this reason, it is of utmost importance to provide correct primary care based on the ABCDE of the Advance Trauma Life Support (ATLS).

Once the patient is stabilized, secondary survey identifies anal or rectal injuries that require early surgical intervention.¹ Clinical assessment should consider the etiology of trauma, interval since injury, associated injuries, and symptoms, in addition to assessment of general condition. Depending on the latter, the complementary method to be used will be decided, with computed tomography being the most used due to its usefulness in the polytraumatized patient.²

After the multi-institutional retrospective study published in 2018 by Brown, et al.,¹ the 4 Ds dogma (debridement, fecal diversion, presacral drainage, distal washout) has become the treatment of choice for extraperitoneal rectal injuries.

CASE

A 47-year-old male patient consulted the emergency department due to rectal bleeding and subsequent perianal pain after falling from 1.20 meters high onto a flat metal structure.

On physical examination, he was alert, oriented, hemodynamically stable, lungs were clear, abdomen was soft, nontender, nondistended, bowel sound present. BMI: 31.14 kg/ m². He had a hematoma and bleeding from a left anorectal tear with involvement of the sphincter muscles and all layers of the rectum.

Given the hemodynamic stability, a computed tomography scan was requested, which showed a tear in the left internal and external anal sphincter, associated with air bubbles in the left mesorectum of the lower rectum (Fig. 1).

Once the surgical procedure was decided, the patient was placed in the lithotomy position, after spinal anesthesia. The injuries described previously were confirmed (Fig. 2A). A left curvilinear incision from hour 7 to hour 3 was made and the devitalized tissue of the presacral space, ischioanal fossa, and left supralevator space were debrided. After dissection of the internal and external anal sphincter, suturing of all layers of the rectal wall and anal canal, with overlapping sphincter repair were performed (Fig. 2B). The skin was left open. Drains were placed through counterincisions in the left ischioanal fossa and presacral space (Fig. 3). Loop sigmoid colostomy was performed by laparotomy, with extensive distal washout.

On the third postoperative day, a new surgical toilet of the wound was performed, and the patient was discharged on the fifth postoperative day.

Anorectal manometry and dynamic magnetic resonance imaging (MRI) were performed 80 days postoperatively to evaluate sphincter function. Manometry showed hypotensive internal anal sphincter, normotensive external anal sphincter, inhibitory rectoanal reflex present, incomplete relaxation of the puborectalis muscle during straining, and normal rectoanal sensation. Dynamic MRI revealed alteration of the levator ani muscle and sphincters on the left side, in relation to his surgical history, with adequate contraction of the levator ani muscle.

Colostomy closure was performed 95 days after anorectal repair. The outcome was good and the patient was discharged on the third postoperative day.

At the 12-month follow-up, the patient had good sphincter function without incontinence, with a Wexner score of 0 (Fig. 4).

The authors declare no conflicts of interest. Dayana Naranjo Cardenas: gayanaran@gmail.com

Received: July 2022. Accepted: July 2023.

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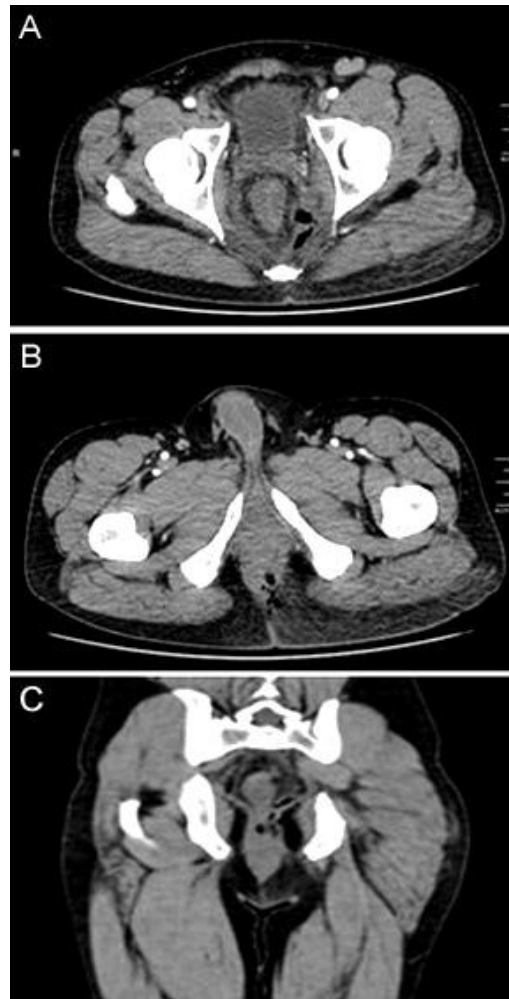


Figure 1. Pelvic CT scan. Axial sections showing left anorectal injury. **A.** Perirectal air bubbles. **B.** Defect of the left sphincter complex with perianal air bubbles. **C.** Coronal section with air bubbles in the left mesorectum of the inferior rectus.

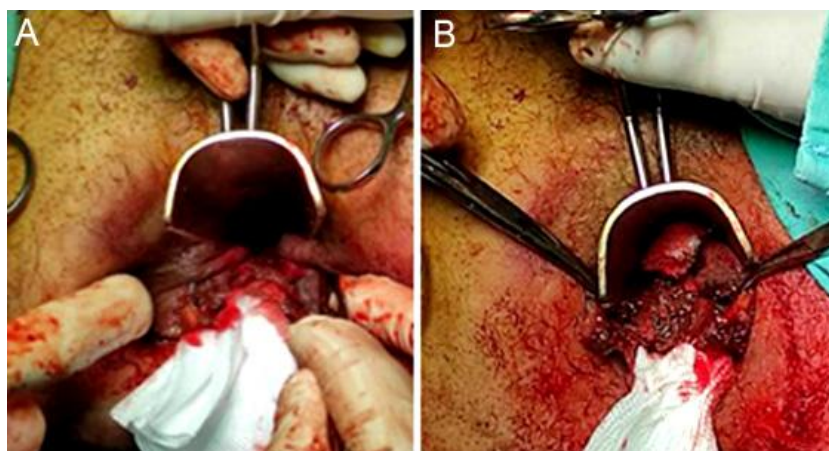


Figure 2. **A.** Tear of the posterior anal canal including the sphincter complex. **B.** External anal sphincter repaired with overlapping technique.



Figure 3. Immediate postoperative period. Open skin wound and drains offered to the presacral space and left ischiorectal fossa.



Figure 4. Late postoperative period.

DISCUSSION

Although traumatic anorectal injuries are rare, they represent a challenge for the general surgeon due to their high morbidity and mortality rate, which ranges between 3 and 10%, and their possible postoperative complications of up to 21%.²

Anatomically, the anorectal region is protected by the thighs, the pelvic bone girdle and the roots of the lower limbs,² which makes diagnosis difficult and requires a high index of suspicion. For detection, rectal examination, rigid

rectoscopy or sigmoidoscopy and triple contrast CT scan of the abdomen and pelvis are essential, the latter being the standard method as long as the patient is hemodynamically stable.

The treatment of anorectal trauma is based on the principles of fecal diversion, distal washout, presacral drainage and debridement (4 Ds) with the aim of preventing sepsis and preserving anal sphincter function. This procedure should be carried out taking into account the classification of rectal trauma proposed by the American Association for the Surgery of Trauma (AAST) Table 1.³ Treatment recommendations are classified into three groups depending on the location of the trauma: intraperitoneal rectal, extraperitoneal rectal and/or anal. Intraperitoneal injuries are treated the same as colonic injuries. If bowel diversion is necessary, it should be performed close to the injury, preferably with a loop colostomy with intraoperative maturation.^{1,3,5,6} If a pelvic fracture is associated, the colostomy should be performed in the transverse colon, close to the hepatic flexure.

In rectal trauma, it is recommended to debride the wound, repair the injury, via a transanal route for the lower rectum and a transabdominal route for the upper rectum, and create a diverting colostomy. In some cases, presacral drainage and/or distal rectal washout may be necessary, maneuvers that should not be included routinely, since they triple abdominal complications.^{4,6}

In anal trauma with sphincter involvement, it is important to initially define whether it is associated with an intraperitoneal or extraperitoneal rectal injury and, accordingly, perform primary or deferred repair, with or without colostomy.⁶ Depending on the location of the lesion (intra or extraperitoneal), a terminal or loop colostomy is recommended. It should be taken into account that the end colostomy (Hartmann type) is a more complex procedure, which is associated with greater morbidity both in its preparation and in its reversal.²

Reconstruction of intestinal transit must be preceded by a colonoscopy, if it has not been previously performed, and by studies to evaluate anorectal function, including manometry, dynamic MRI, and/or endoanal ultrasound. There is still no consensus on the waiting time to perform ostomy closure.

In our patient, after the anorectal function tests, the treatment was based on the 4 pillars (4Ds)^{1,2,4} a sigmoid loop colostomy, hyperbaric chamber sessions that improved the healing of the soft tissues and restauration of bowel continuity at 95 days.

Table 1. Rectum injury scale from the American Association for the Surgery of Trauma (AAST).³

I	Contusion or hematoma without devascularization, or partial-thickness laceration of the rectal wall
II	Full-thickness laceration of the rectal wall <50% circumference
III	Full-thickness laceration of the rectal wall ≥50% circumference
IV	Full-thickness laceration with extension into the perineum
V	Devascularized rectal segment

CONCLUSION

Anorectal trauma is rare and is often associated with serious injuries. The primary goal of treatment is to control life-threatening lesions, minimize infection, and preserve anal sphincter function. Among the multiple strategies described in the literature, in our case we opted for the treatment based

on the 4 pillars and the reconstruction of sphincters with the overlapping technique, obtaining good results.

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