

Anorectal and Perineal Injuries-A Review

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Abstract :

Objectives: On completion of this article, the reader should be able to summarize the management of anorectal trauma.

Accidental blunt and penetrating injuries to the anorectum are uncommon events. The relative protection offered by the rectum's position in the bony pelvis makes blunt injuries particularly uncommon. Excluding iatrogenic, sex-related, and foreign body injuries, the most common injury is a result of a bull gore injury occurring commonly during the month of January on the occasion of 'jallikattu' in this part of the country- a native animal game of ox taming.; Traumatic anal sphincter injury can be from impalement or other penetrating injury, or blunt trauma, including crush injury. High impact and high momentum injuries are often associated with pelvic fracture and urinary bladder injury. urethral injuries are also to be considered in cases of perineal injuries. The evaluation and management of anorecta and perineal trauma are reviewed here.

Keywords: Anal, Bladder, Impalement, Perineal, rectal

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I. Introduction

The trauma victim must first be assessed with attention to the primary survey to ensure immediate life-threatening injuries are stabilized. During the secondary survey, anorectal trauma can be assessed and evaluated. When possible, obtaining history related to the injury, associated symptoms including abdominal and genitourinary symptoms, as well as baseline bowel function and continence can be helpful. Physical examination begins with visual inspection, including an assessment of entry and exit wounds in the penetrating trauma patient. Digital rectal examination should also include an assessment of resting and squeeze tone when feasible. The position of the prostate may be noted if urethral injury is suspected in the blunt trauma patient. Injuries extending to posterior vaginal wall should also be thoroughly ruled out in case of a female. Although a part of nearly all secondary surveys, the digital rectal exam probably has limited value in detecting injury.

Adjuncts to the physical examination include imaging studies and endoscopy. Bowel injuries can be challenging to detect on computed tomography (CT). However, with newer multidetector CT and appropriate use of oral, intravenous, and rectal contrast, the diagnostic accuracy can be improved.⁷ Rigid proctoscopy or flexible proctosigmoidoscopy has generally been considered to be a reliable tool to detect the presence and location of an injury.⁸ It can be helpful in both blunt and penetrating injuries.^{9,10} However, there is a risk of further injury with the procedure, and it may not be necessary in the setting of good-quality imaging or planned exploration. Although there are frequently abnormal findings, it is unclear whether the findings effectively guide management, or merely confirm findings already suspected.¹¹

Rectal injuries can be classified according to the Rectum Injury Scale from the American Association for the Surgery of Trauma (AAST; see [Table 1](#)). Widespread use of classification tools and registries has allowed for standardized data collection and will improve data analysis.

Rectum Injury Scale of the American Association for the Surgery of Trauma

Grade*	Type of Injury	Description of Injury
Ia	Hematoma	Contusion or hematoma without devascularization
Ib	Laceration	Partial-thickness laceration
II	Laceration	Laceration < 50% of circumference
III	Laceration	Laceration > 50% of circumference
IV	Laceration	Full-thickness laceration with extension into the perineum
V	Vascular	Devascularized segment

Source: Adapted from Moore et al.¹²

*Advance one grade for multiple injuries up to grade III.

II. Management Of Rectal Injuries

The operative management of rectal injuries has evolved with a combination of surgical dogma, personal advice of experienced surgeons, and well-controlled clinical studies. Historically, there have been few high-quality studies to guide decision making, leading to dogma and personal-experience-influenced management decisions. Victims of penetrating rectal injuries, particularly soldiers, were more likely than not to die from their injury until routine use of colostomy was mandated for battlefield injuries in 1948.¹³ The use of a presacral drain was popularized about the same time, and the importance of distal rectal washout was established during the Vietnam War.¹⁴ Diversion, drainage, and washout continues to have a place in the management of rectal trauma, although much more data exist today to support the option of primary repair for intraperitoneal injuries, omission of drains and distal washout, and avoidance of primary repair of extraperitoneal injuries in modern management.

A recent systematic review of the literature from 1965 to 2010 identified 108 acceptable articles on colon and rectal trauma, with very few of these examining rectal trauma in particular.¹⁵ The best data available were from small retrospective studies with heavy selection bias, and only one prospective randomized trial of 48 patients. Currently available data can help guide decision making, however. First, there is ample evidence that primary repair of colon injuries is appropriate in selected patients.¹⁶ Current Eastern Association for the Surgery of Trauma guidelines cite that nondestructive injuries involving < 50% of the bowel wall can be repaired. For destructive or more extensive injuries, resection and anastomosis can be performed in the setting of hemodynamic stability, absence of comorbidities, minimal associated injuries, and no peritonitis. These same guidelines may apply to intraperitoneal rectal injuries. Still there are no established studies with regard to bull gore injuries in the ano rectal and perineal region which occur during ‘jallikattu’ festival. This article may be an eye opener for those who are unaware of the after effects of the pomp and festivities of the famous Dravidian Ox taming show in certain lives.

However, there remains considerable controversy regarding the management of extraperitoneal rectal injuries. Fecal diversion is probably the least controversial, although there are studies supporting either routine diversion or selective omission of a diverting colostomy for extraperitoneal rectal injuries. A case-control trial examining treatment options for extraperitoneal injuries omitted diversion in the study cases, and compared the outcome to historical controls.¹⁷ They noted no significant differences in morbidity after omitting diversion. However, a cohort study comparing matched groups of patients with extraperitoneal injuries found that diversion without repair resulted in the fewest complications.¹⁸ Another study supports the concept that diversion is the most important of the interventions available.¹⁹

Presacral drainage has been well established since World War II. Although studies are split with some showing a benefit and some not, there has not been conclusive evidence of harm with drainage. The only published randomized trial addresses this question. Forty-eight patients were studied and no improvement was found with the use of a presacral drain, although it remains possible that the trial was underpowered.²⁰ Analysis of current data would suggest that the decision could be individualized: placing a drain in patients at high risk for abscess and septic complications, and omitting it in situations where significant additional dissection and disruption of normal tissue would be required to place a drain. Primary repair of the rectal injury can be accomplished if a minimal amount of dissection is required, i.e., the repair can be done transanally or the repair can be done while repairing genitourinary structures with pelvic exposure.²¹ Finally, distal rectal washout remains controversial. It was popularized after a 1971 report of outcomes in Vietnam showing substantial reductions in death and infectious complications.¹⁴ When originally popularized, there were far fewer options for broad-spectrum antibiotics, and it has been suggested that the pattern of injury in Vietnam may have been

one of the reasons for the large benefit. Today, there is some suggestion that washout may stress the repair or worsen the injury, and it is falling out of favor.

The presence of shock or hemodynamic instability is a risk factor for failure of all but the most conservative procedures. In these patients, a minimum of diversion alone should be considered, with additional treatment individualized.¹⁶



Figure 1

An impalement injury causing both anal sphincter disruption and urethral injury in a patient who also had multiple pelvic bone fractures following road traffic accident.



Figure 2

Injury sustained by a patient following impact with the foot rest of another two wheeler over his perineum from behind while he was in a squatting position.



Figure 3: Patient with anal sphincter injury and perianal laceration following bull gore injury. He underwent fecal diversion.



Figure 4

A lorry runover injury with extensive avulsion of the genitalia and perianal and urethral injury. He underwent fecal and urinary diversion.

Anal Trauma

Blunt and penetrating injuries to the perineum can cause disruption of the anal sphincter and can have substantial morbidity. Because of the high rate of concurrent pelvic injury, particularly pelvic fracture in blunt trauma victims, it is imperative that orderly evaluation and resuscitation be undertaken at the initiation of care, beginning with the primary survey to identify and treat immediately life-threatening conditions. Once stabilized, assessment during the secondary survey will identify perineal and/or anal injuries. Often, these patients need early operative intervention for stabilization of the pelvis or treatment of intraabdominal injuries. In these situations, performing a thorough assessment of the perineal injury, proctoscopy, creation of a diverting colostomy, and suprapubic catheter placement should be considered at the initial trip to the operating room. Debridement of nonviable tissue is essential to prevent sepsis, and some authors recommend daily trips to the operating room for lavage and debridement for the first 3 days. In the setting of minor disruptions, primary repair can be considered after clear tissue viability has been established. Such an approach can also be justified from the results from a primary repair for an obstetric injury; therefore, in deciding to proceed with such an approach, the amount of repair to be undertaken should be on par with what would be expected from an obstetric injury.

More extensive injuries should be managed with dressing changes and prevention of infectious complications. Once the perineum has fully healed, the degree of sphincter injury can be assessed by endosonography, concentric-needle electromyography, and manometry. Patients with a sphincter defect can consider overlapping sphincteroplasty. Simple repairs can potentially be treated without diversion.

III. Conclusion

Blunt and penetrating injuries to the rectum and anus are uncommon, but often have severe associated injuries. Attention to life-threatening injuries and stabilization is the first priority. Bull gore injuries and construction site injuries are frequently encountered modes of perineal or rectal and anal injuries. These often warrant imaging other than clinical examination since they are associated with different types of injuries with wide spectrum of complications. For rectal injuries, the optimal management is not universal, and considerable judgment needs to be exercised to provide individualized care. Anal injuries are often associated with severe pelvic injuries. If sphincter repair is not adequate, reconstruction with a graciloplasty or an artificial bowel sphincter is possible.

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