

COLORECTAL TRAUMA

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Stop!

in the name
of GOD

The management of the injured colon has evolved considerably over the past century and a half. Accumulated wartime experience demonstrates that mortality fell from >90% during the American Civil War to <10% in Iraq and Afghanistan.

Many factors have led to this improvement, including better transport time, resuscitation, transfusion, antibiotics, and improved surgical techniques.

Multiple well-done studies confirm the safety of primary repair for most injuries although care must still be used in damage-control situations. Extraperitoneal rectal trauma is typically managed by proximal diversion; the utility of routine distal washout and presacral drainage has recently been shown to be of no benefit.

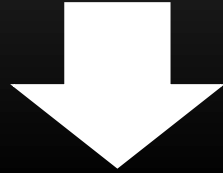
Anal trauma lends itself to delayed reconstruction in many cases.

Most colonic injuries are due to penetrating abdominal trauma. Gunshot wounds are the most common cause , followed by stabbing and impalement. The colon is the second most commonly injured organ in penetrating abdominal trauma, behind only the small bowel

Blunt colonic injuries are rare, accounting for <10% of lesions found at laparotomy for blunt trauma, primarily from motor vehicle crashes. Lap belt use, especially without concomitant shoulder harness, increases the risk of visceral injury . Most blunt injuries are minor—small hematomas or serosal tears; more serious injuries typically involve devascularization due to avulsion from the adjacent mesentery

It is important to remember that the diaphragm may rise as high as the nipple line or the bottom of the scapula at full exhalation. Wounds to the flank or back can cause colonic trauma in the absence of initial peritoneal irritation or hemodynamic instability; computed tomography (CT) with triple contrast is useful for delineating such injuries, with 90% sensitivity and 96% specificity

In concomitant brain or spinal cord trauma



Triple contrast CT is the examination of choice in such instances.

Diagnostic peritoneal lavage is rarely used in the contemporary evaluation of patients with suspected colonic injury.

TABLE 43-1. American Association for the Surgery of Trauma Colonic Injury Scale

Grade	Injury description
I	(a) Contusion or hematoma without devascularization (b) Partial-thickness laceration
II	Laceration $\leq 50\%$ of circumference
III	Laceration $>50\%$ of circumference
IV	Transection of the colon
V	Transection of the colon with segmental tissue loss

The presence of gross blood or fecal matter on aspiration or >500 white cells/>100,000 red cells on lavage analysis is highly suggestive of significant intra-abdominal injury and should prompt exploration.

Laparoscopy has little role in evaluating the most penetrating anterior abdominal trauma, but may be useful in stable patients with back, flank , or pelvic wounds.

the safety and efficacy of primary repair in patients with grade II injuries, even in the presence of risk factors such as hypotension, multiple transfusions, and gross spillage. Grade III, IV, and V injuries require resection. The ASCRS authors concluded that resection and anastomosis are the treatment of choice in all destructive colonic injuries regardless of severity of injury

Over the past two decades, the damage-control laparotomy (DCL) approach to devastating abdominal trauma significantly reduced morbidity and mortality.

Abbreviated laparotomy and intensive ongoing resuscitation aim to avoid the lethal triad of coagulopathy, acidosis, and hypothermia

During the initial exploration for penetrating trauma, control of gross spillage with quick suturing or stapling should occur rapidly, In penetrating trauma, paracolic hematomas must be fully explored; this is less important for blunt injuries unless there are other signs of perforation such as soiling or retroperitoneal emphysema.

In nearly all cases of penetrating colonic injury, the skin is left open, with planned delayed primary closure or secondary closure with a vacuum- assisted closure device.

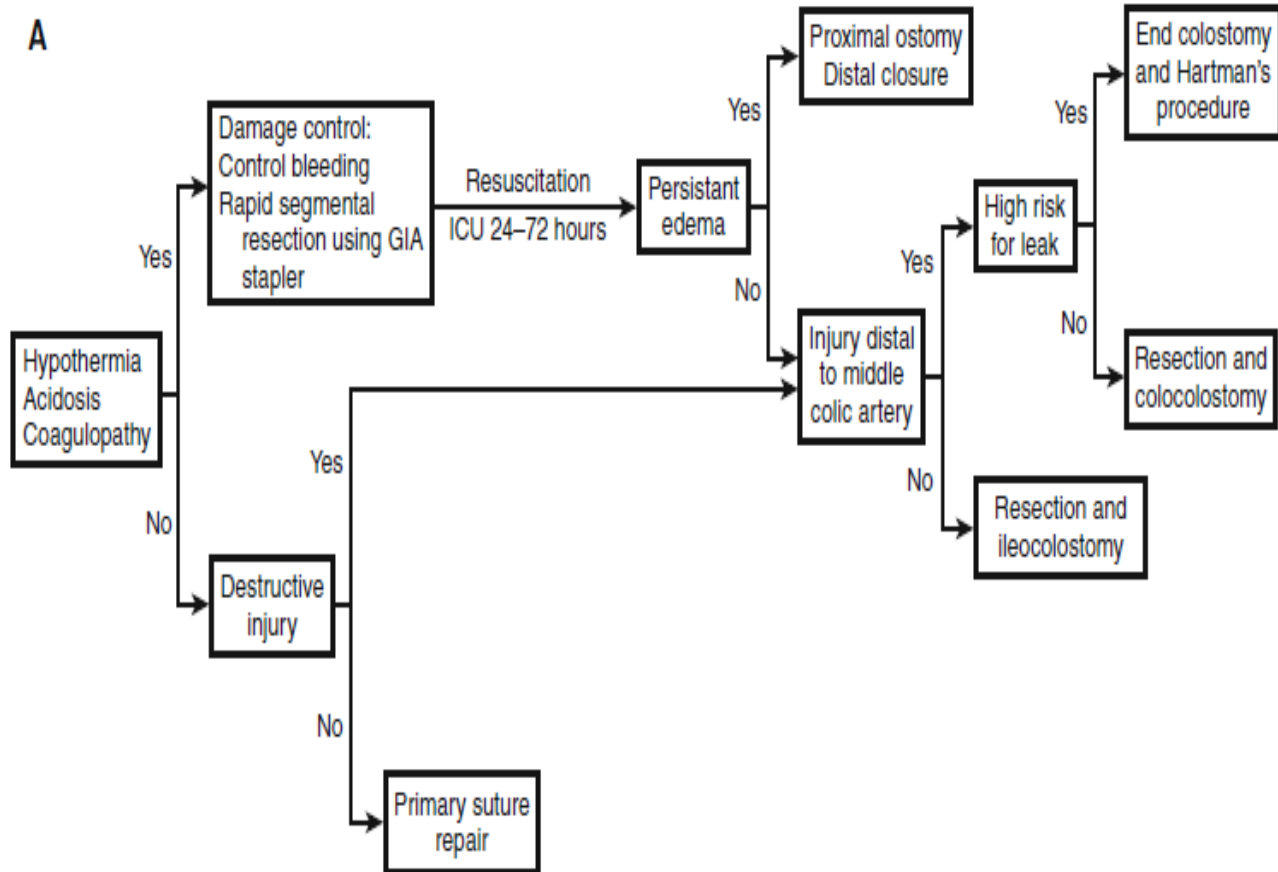
There is little difference between single- and double- layered suture techniques

there is little difference between stapled and sutured anastomoses .

Adherence to the standard principles of no tension, good tissue approximation, and adequate blood supply is critical .

There is typically no need for colonic lavage, even when a left-sided anastomosis is constructed.

FIGURE 43-8. Algorithm for colonic injury management [30].



NOTICE:

loop ileostomy is easier to construct and take down.

Loop transverse colostomies should be avoided

Should DCL be necessary, the colon can be left in discontinuity at the initial exploration; creation of a colostomy is not necessary.

The majority of rectal injuries are from penetrating pelvic trauma, more than 80% from gunshot wounds in most series. Accidental or intentional impalement, iatrogenic injuries, and rectal foreign bodies account for the rest.

TABLE 43-4. American Association for the Surgery of Trauma Rectal Injury Scale

Grade	Injury description
I	(a) Contusion or hematoma without devascularization (b) Partial-thickness laceration
II	Laceration $\leq 50\%$ of circumference
III	Laceration $>50\%$ of circumference
IV	Full-thickness laceration with extension into the perineum
V	Devascularized segment

The presence of gross blood on digital rectal examination is highly suggestive of rectal injury and mandates further evaluation. Sigmoidoscopy, either rigid or flexible, should be quickly performed, Genitourinary injuries accompany up to one- third of rectal injuries; CT scan with bladder and rectal contrast is indicated for preoperative planning in stable patients

Certain injury patterns, particularly transpelvic or buttock gunshot wounds, need thorough investigation even in the absence of rectal blood.

classic “three Ds” of rectal injury management
—diversion, drainage, and distal washout

30% had a permanent colostomy, which was strongly predicted by the presence of concurrent intra- abdominal injury, hypogastric artery ligation, or pelvic fracture

intraperitoneal rectal injuries can be treated as colonic injuries.

Inaccessible injuries are still best managed by proximal diversion;

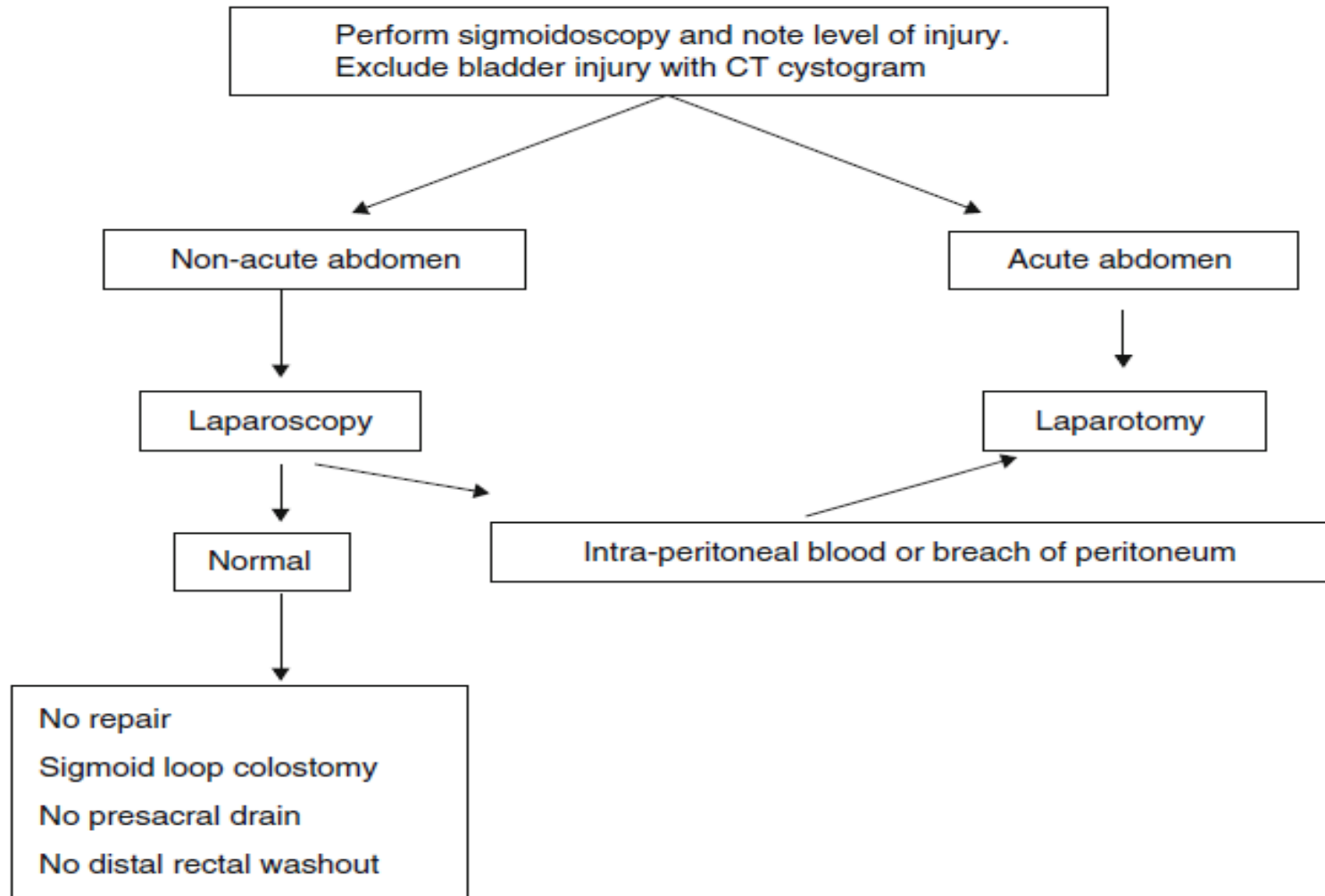
extensive rectal mobilization

is not recommended. If perforations cannot be safely

closed, proximal diversion is still required

If there is no evidence of intraperitoneal injury, then a loop sigmoid colostomy may be easily constructed .

Resection with stapling of the rectum distally and end colostomy is required for destructive injuries. Abdominoperineal resection is occasionally necessary in devastating open pelvic fracture



ALGORITHM FOR RECTAL INJURY MANAGEMENT

**Presacral drainage is no longer recommended
Closed suction drains placed in the pelvis after mobilization and repair of mid-rectal injuries at laparotomy may still be useful, as clean tissue planes are not violated.**

At laparotomy , small visualized wounds can be primarily repaired, while destructive injuries will require resection and end colostomy.

Anal injuries can be repaired primarily in relatively clean wounds in stable patients; routine proximal fecal diversion is not required. For destructive perineal wounds, appropriate debridement and proximal diversion are paramount.

A vacuum- assisted wound closure device can be used on the perineum for short periods while serial debridement is ongoing. Marking of the ends of the sphincters with nonabsorbable suture can aid later reconstruction.

THANK YOU

