Breaking Protocol: Should Destructive Colon Injuries Be Managed Differently in a Balanced Blood Product Resuscitation Era?

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Introduction: Traumatic colon injuries are a significant source of morbidity. For several decades, institutional colon injury management protocol advises diverting ostomy for destructive injuries if patients receive >6 units packed red blood cells (pRBCs) or have medical comorbidities. With advancements in transfusion strategies, interventional radiology, and medical management, this protocol warrants re-evaluation.

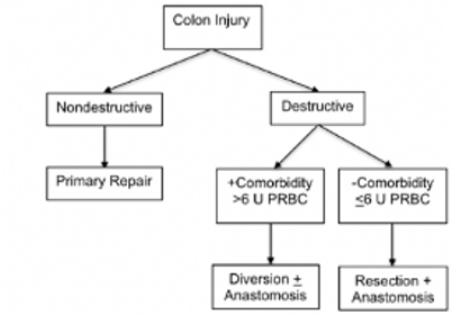
Methods: We retrospectively reviewed five years of traumatic colon injuries at an urban Level 1 trauma center, analyzing destructive injuries treated with resection and anastomosis without diversion. Injury characteristics, management, and outcomes were collected. Factors associated with anastomotic leak (AL), abscess, reoperation, and mortality were assessed. Variables included 24-hour pRBC transfusion, base deficit, body mass index (BMI), comorbidities, pancreatic injury, shock index (SI), and protocol adherence.

Results: Among 559 patients with operative colon injuries, 213 underwent resection and anastomosis without diversion. AL occurred in 10 (4.7%) patients. 13 patients violated protocol, including 9 receiving >6 units pRBCs without diversion. Protocol adherence resulted in lower abscess rates (24% vs. 54%, p=0.043) and drain placement (17% vs. 46%, p=0.007), with no difference in reoperation (8.5% vs 7.7%, p=0.999) or mortality (3% vs 0%, p=0.526). Other variables associated with abscess formation included BMI>35 (p=0.039) and pancreatic leak (p=0.001). Logistic regression identified pRBCs (AOR 1.37, p=0.001) and SI (AOR 8.33, p=0.019) as abscess predictors, and pRBCs was significant for abscess even at a >2 pRBC cutoff (p=0.015). SI was the sole factor for AL requiring reoperation with ostomy (AOR 3.15, p=0.018).

Conclusions: In colon injury patients undergoing resection and anastomosis without diversion, transfusion correlates with abscess but not AL, reoperation, ostomy, or mortality. SI may better predict AL and reoperation. The colon injury protocol should be re-evaluated.

Figure.

Operative Management of Colon Injuries



Indicators of a Destructive Colon Injury

Penetrating	Blunt
Wound >50% of colon circumference	Serosal tear ≥ 50% colon circumference
Complete transection	Full-thickness perforation
Devascularized segments	Mesenteric devascularization

Significant Co-morbidities

Chronic renal failure
CHF
AIDS
Cirrhosis
Uncontrolled diabetes
Chronic steroid use

One Liner: Transfusion volume predicts abscess but not anastomotic leak or mortality after traumatic colon injury, suggesting traditional diversion protocols may warrant re-evaluation.