

Small Bowel Transection Following Blunt Abdominal Trauma

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Introduction

- Hollow viscus injuries represent only 1-5% of identified intra-abdominal injuries after blunt trauma.¹
- Diagnosis of bowel or mesenteric injuries can be challenging, even with advancements in imaging technologies. Numerous studies have attempted to formulate CT imaging-based criteria for operative exploration, such as the 2015 Bowel Injury Prediction Score, which identified CT image findings of mesenteric contusion with associated bowel wall thickening or interloop fluid as predictors of occult hollow viscus injury.²
- While a useful adjunct, CT imaging alone cannot predict all hollow viscus injuries.

Case Description

We present a case of a 37 year old female involved in a high speed motor vehicle collision. On arrival to the trauma center, her primary survey was intact and vitals were within normal limits. On secondary survey, she had severe diffuse abdominal tenderness, left arm deformity, and multiple deep left hand lacerations. CT imaging revealed bowel wall thickening and free fluid within the abdomen. On operative exploration of her abdomen, we identified a complete transection of her jejunum and corresponding mesentery approximately 30 cm distal to the Ligament of Treitz. Additionally, we observed multiple longitudinal serosal tears along her cecum, a large mesenteric defect supplying her right colon, and an injury involving approximately 60% bowel wall circumference to the third portion of the duodenum.

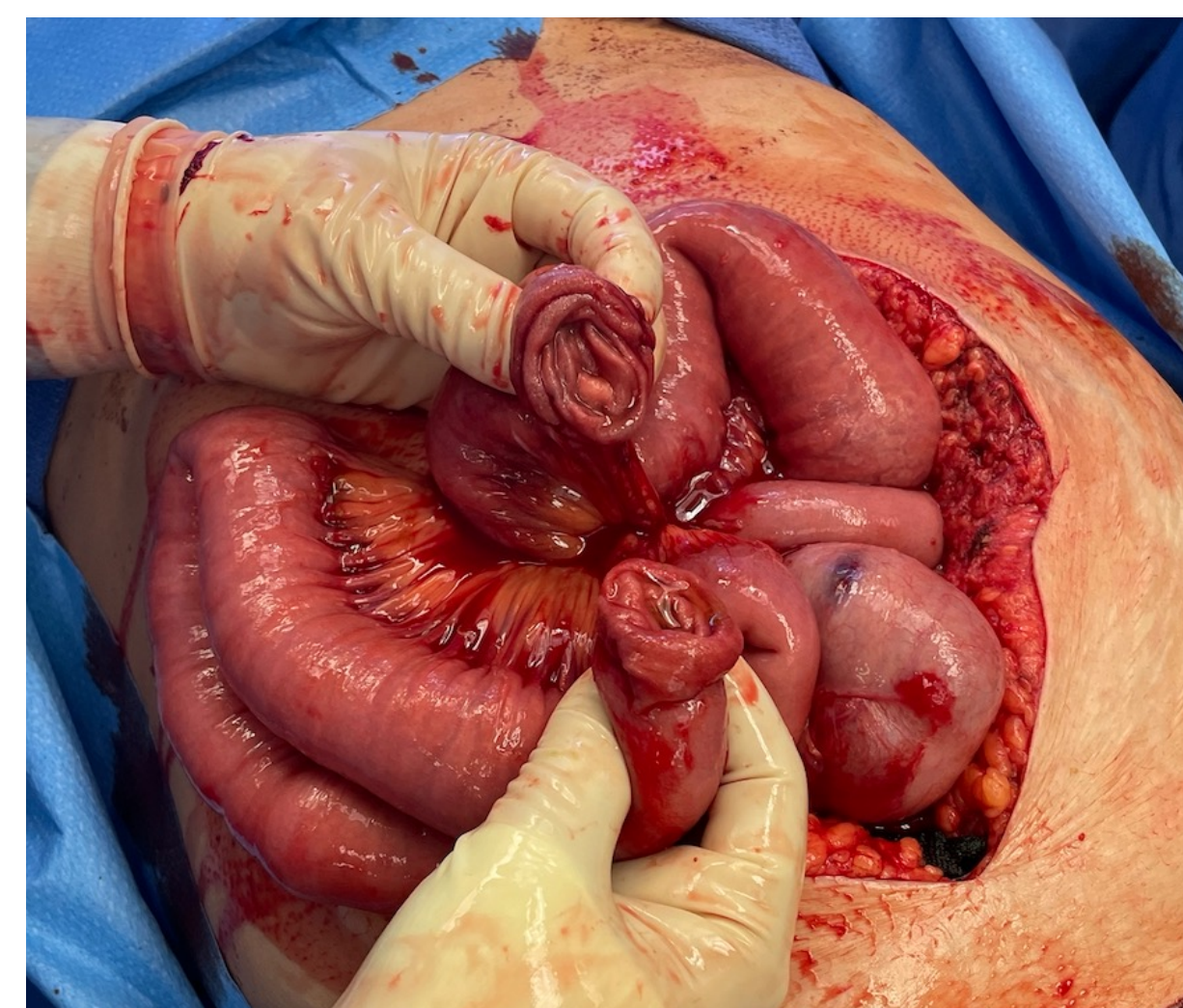


Image 1: Initial CT imaging

Image 2: Intra-operative photo demonstrating complete transection

We elected to resect the small bowel from the duodenal injury to jejunal transection and performed an antecolic side-to-side hand sewn duodenojejunosomy for reconstruction. An ileocecectomy was performed given the mesenteric injury with creation of an end ileostomy. Prior to closing her abdomen, a nasojejunal feeding tube was placed distal to our anastomosis to ensure future feeding access. Postoperatively, contrasted imaging studies showed a patent anastomosis without leak. During a work-up for leukocytosis, a pelvic abscess was identified requiring CT-guided drain placement. Otherwise her recovery was uncomplicated, and she was discharged home on post operative day 17.

Conclusion

- Delay in diagnosis and intervention in patients with bowel or mesenteric injuries is associated with increased morbidity.
- This case emphasizes the importance of maintaining a high index of suspicion for hollow viscus injuries in blunt abdominal trauma, and highlights that significant intestinal damage can exist despite an only modestly impressive CT scan.

References

1. D. D., Wasserman, M., Malek, A., Gorantla, V., Anderson, S. W., Soto, J. A., & LeBedis, C. A. (2017). Multidetector CT of surgically proven blunt bowel and mesenteric injury. *RadioGraphics*, 37(2), 613–625. <https://doi.org/10.1148/rg.2017160092>
2. McNutt, M. K., Chinapuvvula, N. R., Beckmann, N. M., Camp, E. A., Pommerening, M. J., Laney, R. W., West, O. C., Gill, B. S., Kozar, R. A., Cotton, B. A., Wade, C. E., Adams, P. R., & Holcomb, J. B. (2015). Early surgical intervention for blunt bowel injury. *Journal of Trauma and Acute Care Surgery*, 78(1), 105–111. <https://doi.org/10.1097/ta.0000000000000471>