

ISOLATED DUODENAL INJURY FOLLOWING BLUNT TRAUMA: A CASE REPORT

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ABSTRACT

Isolated duodenal injury following blunt abdominal trauma is rare and diagnostically challenging, requiring a high index of clinical suspicion. Early diagnosis and treatment is mandatory and further leads to decreased morbidity and mortality. We herein present a case of a 34-years-old male with an alleged history of trauma from a high-speed road traffic accident who was diagnosed with isolated duodenal injury following a contrast-enhanced computed tomography scan of the abdomen, and pelvis. Primary repair of the duodenal laceration was done.

KEYWORDS

Abdominal injury, case report, duodenum, Nepal

Received on: January 04, 2026

Accepted for publication: June 17, 2026

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DOI: <https://doi.org/10.3126/nmcj.v28i2.97789>

Cite this paper as: Bhandari H, Shrestha S, Shrestha M, Adhikari J. Isolated duodenal injury following blunt trauma: A case report. *Nepal Med Coll J* 2026; 28: 178-80.

INTRODUCTION

The duodenum is the first portion of the small bowel. Duodenal Injury can be diagnostically challenging due to its retroperitoneal location thereby leading to delayed diagnosis and management.^{1,2} Isolated duodenal injury following blunt abdominal trauma is rare and delayed diagnosis and treatment can lead to increased morbidity and mortality.² Hereby, we report a case of a 34-years-old male diagnosed with isolated duodenal injury following blunt trauma.

CASE REPORT

A 34-years-old male presented to the emergency room of our tertiary care center with complaints of severe dull aching pain over right iliac fossa and four episodes of vomiting which was non-projectile, bilious in nature and non-blood mixed. He gave an alleged history of trauma from a high-speed road traffic accident eleven days back for which he was previously admitted in another tertiary care centre for ten days. On examination, the patient was well-oriented to time, place, and person. His body temperature was 101°F and blood pressure was 120/90 mm Hg, respiratory rate 24 breaths per minute, pulse 107 beats per minute, oxygen saturation 95.0% under room air. Abdominal examination revealed tenderness over right iliac fossa. Rebound tenderness was present over the right iliac fossa. Cardiovascular, respiratory, and neurological examinations were unremarkable.

Blood analysis revealed hemoglobin 14 g/dL and white blood cell count of 16000/mm³, (neutrophil 82.0%, lymphocytes 10.0%). Ultrasound of abdomen and pelvis showed a blind-ending tubular structure measuring 6.8 mm with minimal echogenicity. He underwent Contrast-enhanced computed tomography (CECT) scan of the abdomen and pelvis which showed a defect of size 3×2.3 cm noted in the wall of distal portion of second part of duodenum with non enhancing wall measuring 12×9×6.5 cm (volume 365 cc) adjacent to the defect. Free fluid in subhepatic, right perinephric space and right paracolic gutter was noted. No abnormal findings were reported on pancreas and biliary tree. Multiple foci of air with extravasation of contrast material through defect with retroperitoneal extension of collection was seen.

The patient had an emergency exploratory laparotomy. Complete Kocherization of the duodenum was done. Laceration in the anterolateral segment of junction of second

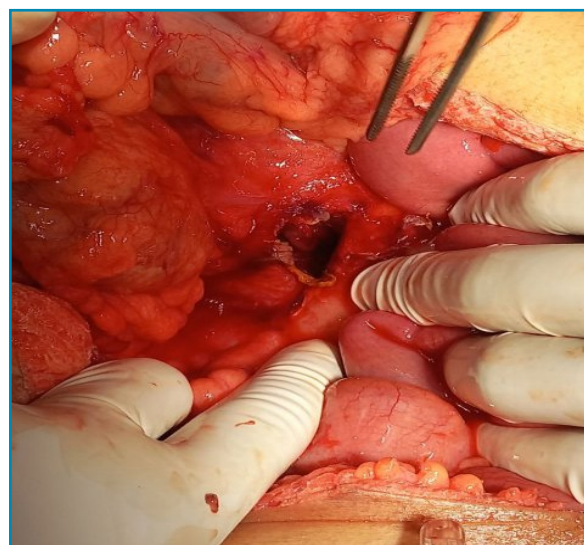


Fig. 1a: Intraoperative image showing a duodenal laceration at the junction of the second and third parts of the duodenum.

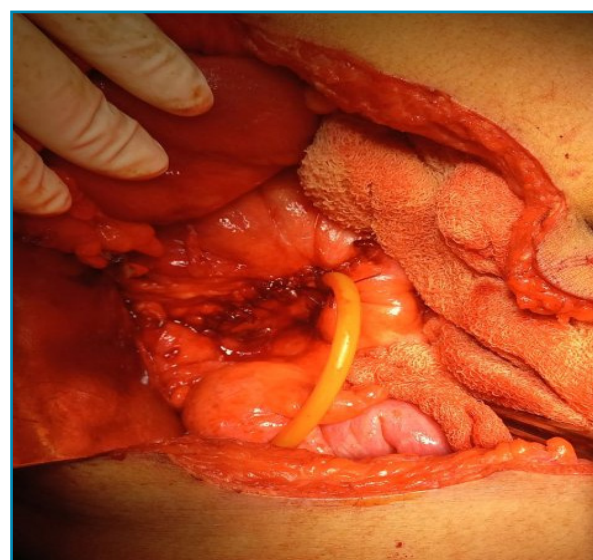


Fig. 1b: Primary repair of duodenal laceration with foley's tube duodenostomy followed by pyloric exclusion with gastrojejunostomy.

and third part of duodenum involving more than 50.0% of the circumference of duodenum which, according to the American Association for the Surgery of Trauma (AAST), is Grade III.³ Purulent collection of nearly 200 ml was seen in retroperitoneal space. There were no other apparent injuries within the adjacent solid organs, stomach, small bowel, mesentery and colon. Primary repair of the duodenal laceration with foley's tube duodenostomy followed by pyloric exclusion with gastrojejunostomy were done. Pyloric exclusion was done with purse string suture using 3-0 polydioxanone. A nasojejunal tube was placed through gastrojejunostomy. After thorough peritoneal lavage Gastrojejunostomy anastomotic site

drain and Morrison's drain were placed. Post-operative management was done in the intensive care unit and total parenteral nutrition was commenced till the sixth post-operative day after which nasojejunal feeding was started. Surgical site infection was noted and secondary suturing was done. Foley's tube duodenostomy was removed on 29th post-operative day.

DISCUSSION

The duodenum is the first portion of the small bowel and is a retroperitoneal organ.¹ Diagnosis of blunt duodenal injury is often delayed due to its retroperitoneal location. It may present with abdominal tenderness, raised temperature and vomiting which was similar to our case presentation.²

Second part of duodenum is the most commonly affected post blunt abdominal trauma.^{4,5} CECT abdomen is recommended in stable patients and is highly sensitive to detect linear laceration, subcapsular hematoma, small amounts of retroperitoneal air and extravasated contrast from the duodenum. In our case study, CECT showed a defect measuring 3 × 2.3 cm was noted in the wall of the distal portion of the second part of duodenum.

According to AAST, Grade III duodenal injury indicates to laceration with disruption of 50.0%-75.0% of circumference of second part of duodenum (D2) or disruption 50.0%-100.0% of circumference of first part of duodenum (D1), third part of duodenum (D3) and fourth

part of duodenum (D4). Grade III duodenal injury can be managed by a tension-free transverse closure. In cases of extensive lacerations, duodenal mobilization with duodenoduodenostomy is advised. Roux-en-Y duodenojejunostomy is recommended in cases of more extensive lacerations.³ Emergency exploratory laparotomy revealed a laceration in the antero-lateral segment of junction of second and third part of duodenum involving more than 50.0% of the circumference of duodenum which is an AAST grade III duodenal injury. Purulent collection mixed with protein flakes of nearly 200 ml was seen in retroperitoneal space.³ The surgical findings in our case were consistent with AAST grade III type of duodenal injury for which primary repair with pyloric exclusion is done.^{6,7} Similarly, primary repair of the duodenal laceration with Foley's tube duodenostomy followed by pyloric exclusion with gastrojejunostomy were done to manage duodenal injury.

Delay in intervention can result in postoperative complications like duodenal leak, subphrenic abscess, wound dehiscence, and chest infection which may further increase the length of hospital stay in patients sustaining duodenal injury.^{8,9} In our case study, the patient had surgical site infection.

Consent: Case report consent form was signed by the patient and the original article is attached with the patient's chart.

Conflict of interest: None

Source of research fund: None

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