



A Case of Grade V Liver Laceration Managed Conservatively

KEYWORDS

Grade V ,Liver injury, conservative management.

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ABSTRACT

- *Conservative management of liver laceration due to blunt force trauma is currently becoming the standard of care for hemodynamically stable patients, who account for approximately 85% of all those with blunt hepatic trauma.*
- *We report a case of successful conservative management of Grade V liver laceration and management of its delayed complication - bile leak with flank drain placement and biliary stenting.*
- *However patient safety is paramount and consideration of surgical procedure should be done in case of complications.*

INTRODUCTION

- The liver is one of the most frequently injured organs in abdominal trauma.
- The anterior location in the abdominal cavity and fragile parenchyma with easily disrupted Glisson's capsule make this organ vulnerable to injury.
- There is a paradigm shift in the management of liver trauma due to advancements of diagnostic and therapeutic modalities.
- About a century ago, Pringle conducted an animal experiment, occluding the portahepatis in liver trauma while repairing the injuries. However, application of the same principle in trauma victims led to high mortality.
- Since 1965, the introduction of diagnostic peritoneal lavage (DPL) has led to many nontherapeutic laparotomies in previously unsuspected low-grade injuries. Operative intervention in high-grade injuries may result in high mortality as well. Introduction of computed tomography (CT) scan, use of ultrasonography in trauma, availability of angiography, enhanced critical care monitoring and damage control surgery have revolutionized the management of liver trauma. Numerous studies have shown better outcome with conservative management. Though there is a broader consensus regarding the non-operative approach even in high-grade injuries, however, some controversies still exist.
- This case report is to impress upon the fact that in high grade liver injuries conservative management can be considered in hemodynamically stable patients.

Grade	Injury Type	Injury Description
I	Haematoma	Subcapsular < 10% surface
	Laceration	Capsular tear < 1cm parenchymal depth
II	Haematoma	Subcapsular 10-50% surface area; intraparenchymal, < 10cm diameter
	Laceration	1-3cm parenchymal depth, < 10 cm in length
III	Haematoma	Subcapsular > 50% surface area or expanding, ruptured subcapsular or parenchymal haematoma. Intraparenchymal haematoma > 10cm
	Laceration	> 3cm parenchymal depth
IV	Laceration	Parenchymal disruption 25-75% of hepatic lobe
V	Laceration	Parenchymal disruption involving > 75% of hepatic lobe
	Vascular	Juxtavenous hepatic injuries i.e retrohepatic vena cava/central major hepatic veins
VI	Vascular	Hepatic avulsion

Advance one grade for multiple injuries up to grade III

AAST liver injury scale (1994 revision)

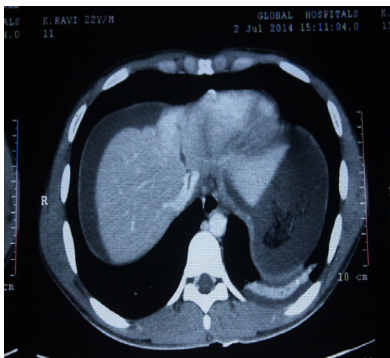
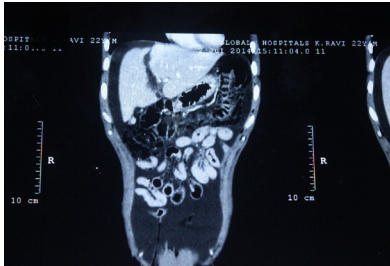
Case report

A 22 year old male patient presented to our casualty of with history of blunt trauma abdomen after fall from bike 10 days back and abdominal pain with yellowish discoloration of eyes . There was no significant past medical , drug or family history.

On examination ,he was clinically well and hemodynamically stable. icterus was present. His abdomen was flat with multiple small abrasions all over the abdomen and lower part of right chest and tenderness over right hypochondriac region was present but there were no signs of peritonitis. Other systemic examinations were unremarkable.

His complete blood picture , electrolytes and renal function tests were normal. Serum bilirubin was elevated to 8 mg/dl . On the day of admission X-Ray erect abdomen

and chest had no significant findings . Ultrasound showed presence of echogenic fluid in the peritoneal space and pelvis suggestive of hemoperitoneum and discontinuity in liver surface suggesting laceration. The CECT abdomen showed laceration involving segments 4a,4b and I of liver with hemoperitonium (AAST Grade V) extending up to IVC and middle hepatic vein confluence .



Since the patient was stable and urine output was well maintained and his bowel movements were regular a conservative approach with fluids and antibiotics , strict immobilization and a careful watch was kept.

On 6th day of admission he had abdominal distension and discomfort which was gradually increasing . U S guided aspiration suggestive of biliary leak . Since the patient was stable without signs of peritonitis bilateral flank drains were placed under local anesthesia and around 3000 ml bile was drained in a controlled way. Distention was relieved. Bile output was about 500-800 ml in drains for 5 days.

Hence ERCP and stenting of bile duct was planned. ERCP was suggestive of second order right hepatic duct injury. Stent was deployed but could not be placed across leak due to sharp angulation. Hence was left in place for biliary decompression. By second day of stent placement bile output in drains became minimal. His serum bilirubin levels gradually decreased to 1.5mg/dl Bile leakage subsided over a period of 10 days . Drains were removed and he recovered well without complications. Review ultrasound showed mild heterogeneity in left lobe sequelae to previous trauma and well defined hypoechoic collection noted along sub diaphragmatic region suggestive of residual he-

matoma . Patient was discharged and had no further complications in follow-up period.

Discussion

Non - operative management is now the standard of care for hemodynamically stable patients, with success rates of 82% -100%.

It should only be performed in centers capable of diagnosis of hepatic trauma and associated injuries, rapid response to change in patient status if necessary, and interventions if complications arise.

Complications include-- bile leaks ,bilioma, hemobilia , bile peritonitis, bilious ascites, hemoperitoneum, abdominal compartment syndrome, missed injuries, hepatic necrosis , hepatic abscess and delayed hemorrhage.

Grade III has a complication rate of 1%, Grade IV at 21%, and Grade V at 63%

Most peripheral biliary leaks will seal without treatment.

Continued high-output biliary drainage may warrant adjunctive endoscopic retrograde cholangiopancreatography and stenting.

Non-operative management of blunt hepatic injury consists of a period of ICU observation/monitoring, serial abdominal examinations, serial hematocrit measurements and a period of immobility.

Conclusion

Hemodynamically stable patients with high grade liver injuries can be managed conservatively provided there is adequate set up for critical care , and anesthetic back up for immediate surgical intervention if necessary and facilities to manage its delayed complications with team approach.

A careful watch must be kept for complications like delayed hemorrhage and bile leaks or biliary peritonitis.

Presence of signs of peritonitis , hollow viscous injuries or associated mesenteric injuries necessitate surgical intervention even in hemodynamically stable patients.