

A Rare Case Report: Abdominal Firearm Injury Causing Gallbladder Perforation

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How to cite this article:

Ranjith Kumar, Jaspreet Singh Bajwa. A Rare Case Report: Abdominal Firearm Injury Causing Gallbladder Perforation. New Indian J Surg. 2019;10(4):448-450.

Abstract

Injury to gallbladder is rare in the set up of penetrating trauma caused by firearm injury. Here we reported a case of a 23-years-old male with an alleged history of firearm injury to abdomen received in a state of shock. On evaluation, NCCT shows pneumoperitoneum with hemoperitoneum and Grade II renal injury on the right side.

On exploration, we found gallbladder perforation through its neck along with liver laceration involving segment IV, V, VI and right perinephric hematoma for which patient underwent cholecystectomy and entry wound was debrided. Purpose of reporting was the rarity of gallbladder injury in penetrating abdominal trauma and difficulty in preoperative diagnosis.

Keyword: Gallbladder perforation; Penetrating abdominal trauma; Gunshot injury.

Introduction

Penetrating abdominal trauma is seen in many countries. The commonest cause is a stab or gunshot. The most common organs injured are the small bowel (50%), large bowel (40%), liver (30%), and intra-abdominal vascular (25%). A gunshot

from near range had more kinetic energy when compared to distant range. Usually, gunshot wounds had linear projection but there may be secondary injuries from bone/bullet fragments. Hence there may be missed occult injuries, resulting in delayed complications.¹

Case Report

A 23-years-old male patient presented to the emergency department with an alleged history of firearm injury received within 12 hrs after injury with a wound in the upper abdomen. On examination, the patient was pale with cold and clammy extremities with tachycardia (137/min) and hypotension (90/50). Per abdomen was tender and rigid. An entry wound was in left hypochondrium and exit wound in the back of right hypochondrium. His USG abdomen liver-shows-hyperechoic areas in segment V, VI GB-contracted, wall edematous. Right, kidney-bulky and moderate free fluid in the peritoneal cavity.

NCCT abdomen shows—pneumoperitoneum with hemoperitoneum. We had a high index of suspicion of bowel injury patient underwent exploratory laparotomy—surprisingly we found gross hemoperitoneum with liver laceration and gallbladder perforation and right perinephric hematoma for which cholecystectomy and peritoneal lavage done. Postoperatively patient had an uneventful course.

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Received on 12.05.2019, **Accepted on** 08.06.2019



Fig. 1:



Fig. 2:

Postoperatively patient developed controlled biliary fistula with daily output of <200 ml managed conservatively and drain was removed on 8th POD and followed up in OPD.

Discussion

The gallbladder is the storage organ for bile, stores bile for some time before drains into the intestine. Located in the inferior surface of the right lobe of the liver, under cover of the costal cartilages. This anatomical location of the gallbladder made it more protective and less vulnerable to injury.

Whenever a bullet enters into the tissue, kinetic energy of the missile decelerates. Increased velocity causes more damage than mass. During the passage, they made tissue destruction at the contact points results in permanent cavitation. In addition to damage, they create lateral wave forcing tissue away, which results in cavity formation.²

Up to 90% of the gunshot injury patients need exploration, unlike the stab injury because of the fact that they may create multiple internal bowel perforations and higher incidence of occult injury.³ Hollow viscus injury can be predicted preoperatively, but diagnosing gallbladder injury was very rare. Biliary injury can be suspected in case of frank bile during abdominal tap or bile staining of the hepatoduodenal ligament. Most often gallbladder injury was identified intra-operatively and cholecystectomy is the treatment of choice. Risk of leak and absence of benefit in preserving gallbladder makes cholecystectomy is the best choice of treatment in case of gallbladder injury.⁴

Chad G Ball *et al.* documented 45 patients of gallbladder injury in which 24 cases are due to gunshot injury. Among those preoperatively, gallbladder perforation was diagnosed in 7(16%) patients by CT imaging and the rest of them were found intraoperatively. Among these cases 93% underwent cholecystectomy and 7% underwent drainage procedure in view of the poor pre-op condition. Mortality directly associated with other organ injuries.⁵

Conclusion

Even with the advent of enhanced diagnostic tools, preoperative identification of perforated gallbladder in an acute trauma setting is difficult and need a high index of suspicion. For a case of gallbladder perforation cholecystectomy is the better option than repair.

Education on firearms and their potential to cause harm should be taught to society.

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