NON-OPERATIVE MANAGEMENT OF HEPATIC TRAUMA (Case Reports)

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Introduction

The liver has been recognized as an organ commonly injured during blunt abdominal trauma and is the most common source of lethal intra-abdominal haemorrhage in children [1]. Mortality from severe injury is reported to be as high as 10-20 per cent even after reaching the hospital. Fortunately more than two-third (69%) of all paediatric hepatic injuries are minor consisting of haematomas, contusions (32%) and minor lacerations (37%) [1]. The recent emergence and wide-spread availability of new imaging techniques has revolutionized the management of liver trauma in children. Non-operative management of paediatric hepatic trauma was shown to be a viable therapeutic option by Karp et al in 1983 [2] and supported by others [3-5]. We are reporting our experience of non-operative management of hepatic trauma in 2 patients.

Case Report

A 12-year-old boy sustained blunt injury of the abdomen in a vehicle accident and was admitted to Army Hospital, Delhi. There were marks of contusion over the left lower chest and the

Fig. 1 : CT scan showing parenchymal tear with contusion of the liver.

lower end of left radius was fractured. The child was haemodynamically stable and physical examination was suggestive of splenic injury. Ultrasonography (USG) of the abdomen revealed blood in the Morrison's pouch. The spleen appeared normal and thus a doubt of hepatic injury was raised. The child was admitted to ICU and volume replacement done. The child remained haemodynamically stable. CT scan was done to confirm and evaluate the extent of trauma. This demonstrated intra-parenchymal and subcapsular haematoma with a small collection of blood anterior to right kidney (Fig 1). The patient was put on non-operative protocol which consisted of bed rest, frequent physical examination, intravenous fluids and broad spectrum antibiotics. Hepatic enzymes were determined daily and haematocrit 12 hourly. Haemoglobin fell to 10 g/dl, and remained so for the next 48 hours. No blood transfusion was given. Pulse rate however remained 84-90/min for next 72 hours and then settled down. After 72 hours of observation, the child was shifted to the paediatric ward. USG was done on 3rd day and showed no further enlargement of haematoma and no blood was detected in the Morrison's pouch. The child was discharged on the 10th day and reviewed after 4 weeks. Clinically the child was asymptomatic and repeated CT scan showed almost normal hepatic architecture. Child was advised not to take part in contact sport for next 3 months. He was followed-up for 2 1/2 years and has remained asymptomatic.

Case Report

A 5-year-old boy sustained blunt injury abdomen following a fall from a height of about 6 feet. At the time of admission he complained of pain in the right hypochondrium. The pulse rate was 120/min, BP 90/60 mmHg and no signs of peritoneal irritation or peritonitis. Clinically hepatic trauma was suspected and USG showed parenchymal haematoma, laceration and haemoperitoneum. The child was admitted to ICU and resuscitated with intravenous fluids and 200 mL of blood. Pulse settled down to 100/min and blood pressure to 110/70 mmHg. It was decided to opt for non-operative protocol. CT scan corroborated the USG finding and delineated intrahepatic laceration, haematoma, and grade II/III injury (Fig 2). Child remained in ICU for 72 h and was discharged home on 10th day. He was advised to continue to rest at home for 4 weeks. Thereafter child was reviewed and CT scan was done. It showed a resolving lesion with tell-tale

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Fig. 2 : CT scan showing parenchymal tear with intrahepatic hematoma.

residual haematoma or cyst of 1 cm x 1 cm (Fig 3). Child was advised to avoid contact sport for next 3 months. He was reviewed 18 months later and remained asymptomatic.

Discussion

The diagnostic strategy for blunt injury of the abdomen includes physical examination, enzyme estimation, USG and CT scan. In one recent study the sensitivity and specificity of elevated serum transaminase levels were 100 per cent and 92.3 per cent respectively for predicting hepatic blunt injury [6]. USG is the initial investigation and it was suggestive of hepatic trauma in both our patients. CT scan is ideally suited for evaluation and it is capable of identifying intrahepatic laceration and such subtle signs of blunt injury such as periportal tracking of blood [7]. The decision of laparotomy should not be based on the extent of injury as demonstrated by CT scan but rather on the clinical condition and transfusion requirements [8]. We decided to opt for the non-operative protocol as one patient was haemodynamically stable and other became stable following resuscitation. There were no clinical signs of peritonitis.

The pre-requisites for adopting a non-operative protocol are haemodynamically stable and conscious child, facility for repeated physical examination, ICU facility, USG and CT scan facility round the clock, availability of operation theater as and when required, and an organ injury score of grade 1 or 2 [9]. Non-operative management of hepatic injuries mandates admission to ICU and strict bed rest for 5-6 days. Haematocrit and hepatic enzymes should be estimated serially, every 12 h for the first 2 days and thereafter daily. Patients should be given intravenous fluids and broad

Fig. 3 : Follow-up CT scan showing residual lesion.

spectrum antibiotics and nothing orally. Regular nasogastric aspiration is mandatory. Blood transfusion is given when required to resuscitate but if the requirement approaches 40 mL/kg or more the conservative approach should be abandoned [10]. Other indications for termination of non-operative protocol are clinical deterioration, signs of peritoneal irritation persisting or peritonitis becoming evident and expanding haematoma on follow-up USG/CT scan.

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