

Case Reports

Conservative management of major liver trauma

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Management of major liver trauma remains a significant challenge. Conservative management has traditionally been recommended for minor (type I - II) blunt liver injuries but penetrating and major blunt liver injuries (type III - V) have generally been managed by surgical exploration.¹ However, more recently, the conservative approach has been adopted for the management of type III - V injuries.²⁻⁸ We describe two patients with major liver injuries managed conservatively but with a different clinical course in each case.

CASE 1 A 48-year-old man was admitted after a fall of approximately 25 feet from scaffolding. Although haemodynamically stable, he was markedly cyanosed and tachypnoeic. There was surgical emphysema with decreased air entry on the right side of the chest. A needle thoracostomy followed by intercostal drainage was performed and his air entry improved. An abdominal CT scan revealed extensive laceration of the right lobe of liver, extending from the capsular surface

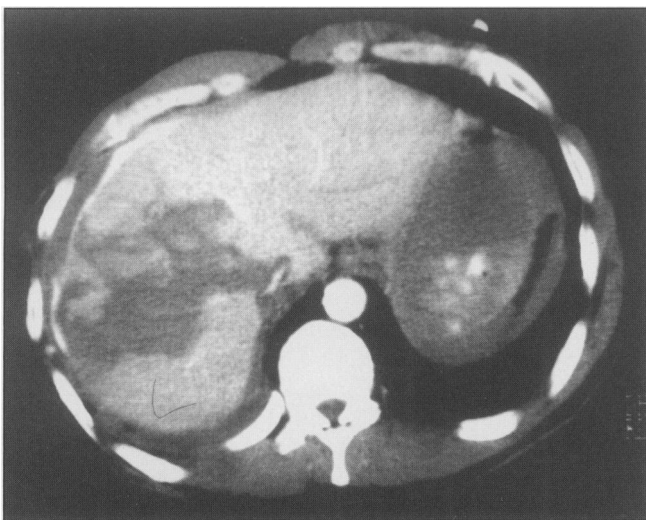


Fig 1. CT scan demonstrating a deep parenchymal laceration between segments V and VIII anteriorly (anterior sector) and segments VI and VII posteriorly (posterior sector).

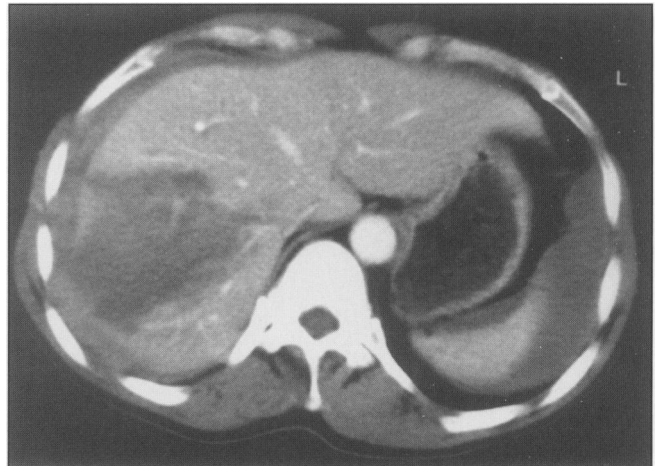


Fig 2. CT scan demonstrating a laceration and large intraparenchymal haematoma.

to the hilum (figure 1). He was transferred to our unit for further management. In view of his stable condition it was decided to manage him conservatively. However, during the following 24 hours, his haemoglobin decreased from 15 gm/dl to 9.7 gm/dl and a significant drop in blood pressure occurred on two occasions. An emergency laparotomy was performed. This revealed 3 litres of blood in the peritoneal cavity in addition to active bleeding from a deep laceration between the anterior and posterior sectors of the right lobe of the liver which was treated by closure of the laceration and compression with Vicryl® mesh. Postoperative recovery was complicated by a right subphrenic abscess. This was treated by percutaneous drainage. Follow up scans confirmed complete healing of the liver laceration.

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CASE 2 A 44-year old man was admitted with a history of a fall down stairs. He complained of pain in the right upper abdomen but was haemodynamically stable. Examination revealed tenderness in the right hypochondrium. A CT scan revealed a deep laceration in the right lobe of the liver (figure 2). He was transferred for further management but remained haemodynamically stable, with a normal haemoglobin. It was therefore decided to treat him conservatively. During the 24 hours following transfer his haemoglobin dropped to 9.8 gm/dl and 2 units of packed cells were transfused. Conservative management was continued. He remained stable but, despite aggressive physiotherapy, he developed right lower lobe consolidation and a right pleural effusion, which required intercostal tube drainage. A repeat CT scan revealed a large subphrenic collection (figure 3), from which 1.5 litres of bile was drained percutaneously. Following this, his condition gradually improved and he was discharged on the 23rd day.

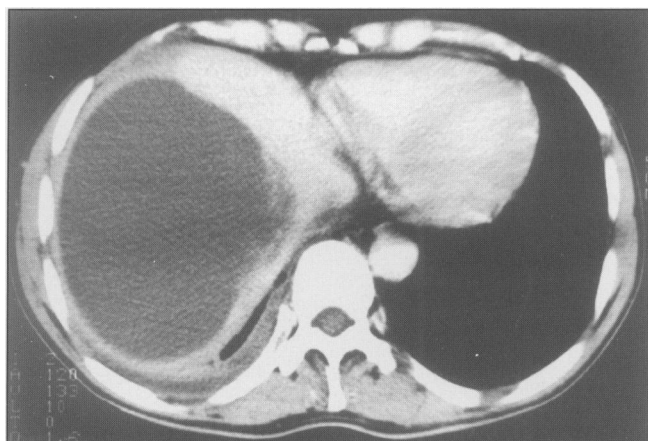


Fig 3. CT scan 10 days post-injury demonstrating a large subphrenic bile collection.

DISCUSSION

Conservative management of blunt liver trauma was first reported in 1972 and was recommended for the management of less serious injuries such as capsular tears and small intraparenchymal haematomas (type I - II).⁵ Strict selection criteria were used, including haemodynamic stability, absence of other signs of intra-abdominal injury, good quality CT scanning, the ability to monitor the patient in an intensive care unit and the facility for immediate surgery by experienced hepatobiliary or trauma surgeons.²⁻⁷ A further

criterion of a CT estimation of less than 125 ml of intraperitoneal blood was initially used but later extended to 250 ml.^{8,9} With increasing experience and reported success rates of up to 90%, the level for CT estimated blood loss was increased to 500 ml and the type of injuries managed was extended to include deeper parenchymal lacerations and larger intraparenchymal haematomas (type III - IV).⁶⁻¹² By the end of the 1990s most authors accepted that the deciding factor in favour of conservative management should be the haemodynamic stability of the patient, irrespective of the grade of liver injury or the amount of haemoperitoneum. It is also now generally accepted that there is no indication for frequent repeat CT scanning and the decision to abandon the conservative approach is largely a clinical one, based on haemodynamic instability, as illustrated by our first case.⁸⁻¹⁴

It is important to emphasise, however, that patients successfully managed conservatively may develop significant complications, including lung collapse and pleural effusion, secondary to subphrenic blood or bile collections, as our second patient demonstrated. Recurrent bleeding may occur, although it is not as likely to happen as with conservative management of splenic trauma. Sepsis is also a significant risk, particularly if subphrenic or pleural collections require drainage. However, complication rates in patients managed conservatively have been shown to be no higher than those in patients treated operatively.² It has also been demonstrated that patients treated conservatively require significantly fewer blood transfusions than surgically treated patients with comparable injuries.¹³

In conclusion, conservative management of liver injury should be considered in the majority of cases provided there are no signs of other intra-abdominal injury, the patient remains haemodynamically stable and strict criteria for ICU and experienced surgical back-up are fulfilled.

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