Medical Memoranda

Rupture of the Liver in an Epileptic

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Injury during epileptic fits commonly involves the extremities or the head but rarely causes dangerous intra-abdominal injury. This case report presents the diagnostic problem of such a patient.

CASE REPORT

A man aged 59 was admitted in a collapsed state after four epileptic fits, which had occurred during the previous few hours. He had suffered from epilepsy for 15 years, which had been well controlled by phenobarbitone and epanutin.

On admission he was semiconscious, pale, sweating, dyspnoeic, and slightly cyanosed; the radial pulse was not palpable and his blood-pressure was 110/60 mm. Hg. He was able to say that he had pain in the back (D8-L2 region), and denied pain in the abdomen or the chest; no other information was forthcoming. When examined there was no tenderness of the spine or back and no bruising of the overlying skin. In the abdomen there was slight tenderness of the right hypochondrium but no other significant signs, and again no bruising of the skin of the abdominal wall or the chest. Radiographs excluded fracture of the ribs or the vertebrae, and there was no evidence that the patient had suffered a cardiac infarction or a vascular disaster to account for his profound state of collapse.

The initial diagnosis was acute pancreatitis, and intravenous therapy with gastric aspiration was started. During this time the level of the patient's serum amylase had been estimated and was normal, and, as the patient had improved steadily with blood transfusion, the possibility of intraperitoneal bleeding was considered but thought unlikely as he was then fully rational and had no pain in the abdomen, back, or shoulders. Six hours after admission he suddenly developed pain in the left hypochondrium with tenderness, rebound, and rigidity, and, as the abdomen had become silent since admission, haemoperitoneum due to rupture of the spleen was diagnosed and laparotomy was arranged at once.

The operation was begun through a midline epigastric incision and the peritoneal cavity contained over 3 pints (1.7 litres) of blood. The spleen was intact. However, blood clots were seen overlying the right lobe of the liver, and a transverse extension of the incision made through the abdominal wall in that direction exposed a transverse rent in the upper surface of the liver measuring 3 in. (7.6 cm.) in length and ending in a large subcapsular haematoma. This had been the site of the bleeding, but at the time of the operation haemorrhage was minimal and stopped as soon as the torn margins had been apposed with two deep catgut sutures tied over a thin strip of Surgicel. No other intra-abdominal injury was present, and the abdomen was closed with drainage of the right subdiaphragmatic space.

The patient made a slow recovery after operation. He had two more epileptic fits during the first 12 hours, and a brisk haemorrhage from the liver on the third post-operative day required the transfusion of two bottles of blood. After this, drainage from the peritoneal cavity diminished and had dried up by the fourteenth day. The abdominal wound healed without infection and the patient went home on the twenty-first day. He did not have any further fits.

Serial liver-function tests during the post-operative period were normal.

COMMENT

It is most unusual for rupture of the liver to occur without visible or radiological evidence of injury, and the finding of this condition after trivial trauma raises the possibility of a diseased liver (Shepherd, 1961). In this patient the liver was both macroscopically and biochemically normal, and the exact mechanism of the injury remains unknown.

Cerebral dysfunction can distort the clinical picture of intra-peritoneal haemorrhage (Shepherd, 1961). It was difficult to assess this patient's degree of post-epileptic confusion when he was first seen, as he was also shocked. Even when he was rational there was no clue to the real diagnosis until he developed pain in the left hypochondrium leading to the erroneous diagnosis of splenic rupture. How, then, could the correct diagnosis have been made earlier?

Localization of abdominal signs is not reliable. Glas *et al.* (1955) found that in 16 patients with liver rupture localization of physical signs to the right upper quadrant occurred in only eight patients, whereas two patients had signs in the left upper quadrant. Needle aspiration of the peritoneal cavities of nine of his patients established the diagnosis of haemoperitoneum in six.

Haemoperitoneum after closed liver injury requires laparotomy to remove bile and blood from the peritoneal cavity, to excise devitalized liver tissue, and to inspect for damage elsewhere. In only a few cases is violent haemorrhage from the liver a primary emergency, as in most cases the bleeding stops before the operation takes place (Madding, 1955). Before the second world war the mortality of non-penetrating injuries of the liver was particularly high, and death was frequently due to infection, often causing secondary haemorrhage. At that time it was common practice to pack the liver wound with gauze, but when Madding showed that the overall mortality fell to 27% (in 829 cases) by peritoneal drainage after suture of the liver this practice was abandoned. Gauze packing was too often complicated by biliary fistula, subphrenic and abdominal wall abscesses, septicaemia, and even haemothorax (Mikal and Papen, 1950). Glas *et al.* (1955) found that closure of the abdomen without peritoneal drainage led to many similar complications, but those patients who were drained suffered none of these misfortunes (Mikal and Papen, 1950).

It appears, then, that the dangers of primary haemorrhage in liver rupture are secondary to those of infection, biliary fistula, hepatic necrosis, and abscess formation. The major factors in the survival of such patients are resuscitation with intravenous therapy, the establishment of drainage of the peritoneal cavity after early operation, and the administration of antibiotics. The key to early operation is early diagnosis, which in difficult cases could be established by needle aspiration of the peritoneal cavity to detect the presence of haemoperitoneum. This procedure would seem sensible only in cases of suspected haemoperitoneum where a complicating injury, such as a head injury, prevents the patient from communicating with his medical attendants. It is doubtful if simple needling of the peritoneal cavity in those circumstances creates many hazards to the patient when compared with the potential disasters of undiagnosed haemoperitoneum following closed trauma.

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