Infirmity. I am grateful to the medical and technical staff of Imperial Chemical Industries, who took a great interest in the case and analysed the parent liquid from which the beer-bottle sample was derived.

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Medical Memorandum

Traumatic Retroperitoneal Rupture of Duodenum

In view of the rarity of traumatic retroperitoneal rupture of the duodenum the following case is worthy of record.

CASE REPORT

A window-cleaner aged 17 was admitted on October 16, 1951, at 4.30 p.m. with a history of having fallen from a window-sill, a height of 20 ft. (6 metres), one hour previously. No one had seen him fall and he had been picked up by his workmate a few minutes later. He was quite conscious, but had no memory of falling. He was complaining of severe pain in his abdomen and was bleeding from his nose.

On examination his temperature was 98° F. (36.7° C.), pulse 92, respirations 20, and blood pressure 110/70. He was bleeding from both nostrils and he had a 1-in. (2.5-cm.) laceration of the chin. There was no obvious fracture of the nose or mandible. He complained of severe abdominal pain, mostly in the umbilical and hypogastric regions. He vomited twice during examination, and blood-staining of the vomitus was noticed, but the possibility of blood swallowed from his epistaxis was considered. Abdominal examination revealed abrasions and some bruising in the right iliac fossa. He was very tender, with some guarding over the whole abdomen, especially in the left iliac fossa. There was no rigidity. Bowel sounds were not heard. Dullness was not elicited in the flanks, and rectal examination caused no undue discomfort. A soft rubber catheter was passed to exclude bladder injury. It passed easily and 6 oz. (170 ml.) of clear urine was obtained. A diagnosis of ruptured abdominal viscus was made, and laparotomy was performed by one of us (W.P.C.) two hours after admission.

Operation.—Under thiopentone, cyclopropane, curare, and oxygen anaesthesia the abdomen was opened through a long right paramedian incision. A small quantity of free blood was present in the peritoneal cavity. By palpation no tear was found in either spleen or liver. Further inspection revealed a large left-sided retroperitoneal haematoma behind the descending colon and extending forwards between the layers of the pelvic mesocolon. The haematoma extended upwards and towards the right, and was continuous with a haematoma behind the hepatic flexure and the duodenum. The right kidney felt normal. Blood and extensive bile-staining were present in the lesser omentum. A laceration of the biliary tract was considered. The gall-bladder was normal and contained bile. The lesser omentum was incised and no lesion was seen in the common bile duct. Bile-stained fluid was coming upwards from behind the first part of the duodenum. The peritoneum along the right border of the duodenum was divided and the

duodenum mobilized to the left. A 1-in. (2.5-cm.) linear tear was found on the posterior wall of the first part of the duodenum across the long axis of the bowel. Bile-stained contents were emerging. The tear was closed with two layers of continuous catgut. Examination of the whole bowel revealed no further lesion. Abdominal toilet was performed and the abdomen closed in layers with a stab drain to the duodenum. Extraperitoneal drainage of the left-sided retroperitoneal haematoma was carried out.

After operation 2 pints (1.1 litres) of blood was given by intravenous drip followed by alternating normal saline and 2½% dextrose. Gastric suction was instituted.

His progress was stormy. On the fourth post-operative day the stab drain to the duodenum discharged bile-stained fluid which digested the surrounding skin. Although not analysed, this was doubtless due to associated pancreatic trauma. It cleared up on the ninth day. The abdomen gradually distended and there were signs of paralytic ileus by the sixth post-operative day. Gastric suction and intravenous fluids were continued until the tenth day, when the bowel action returned. The drains were removed on the ninth day and the sutures on the eighteenth day, when the wound was soundly healed and the patient was eating normally.

He reported four weeks after discharge, and was symptom-free and on a full diet. A barium-meal examination on December 7 revealed a slight narrowing of the first part of the duodenum, probably as a result of the operation.

COMMENT

Closed traumatic retroperitoneal rupture of the duodenum is a rare injury. Johnson (1944) collected 52 cases from the literature between 1910 and 1943. The causative force may not necessarily be great, and the diagnosis of intestinal abdominal injury may therefore be delayed until signs of retroperitoneal sepsis or haemorrhage develop. When the parietal peritoneum of the abdomen is torn the signs of developing peritonitis may be the first indication of the diagnosis. In the case here reported the large retroperitoneal haematoma on the left side, associated with the free blood in the peritoneal cavity, no doubt explains the severe lower abdominal pain and tenderness in the left iliac fossa and probably accounted for so early a laparotomy.

The aetiology of retroperitoneal rupture of the duodenum is not clear. Cases of "burst injury" of the duodenum due to sudden compression of gastric contents with "blow out" of the duodenum have been described. This type of injury would be expected to cause a tear in the long axis of the gut. In the above case the tear was across the long axis and was most probably due to a sudden strain at the junction of the fixed and mobile parts of the first part of the duodenum associated with crushing against the vertebral column.

At operation, as pointed out by Simpson (1950), bile-staining of the retroperitoneal tissues should suggest a diagnosis and warrant inspection of this region. Simpson also recommends simple suture if possible, as was performed in this case.

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