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## Horizontal traumatic laceration of the pancreas head: A rare case report



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### ABSTRACT

**INTRODUCTION:** This case report is intended to inform acute care surgeons about treating rare horizontal laceration of the pancreas head caused by blunt trauma.

**CASE PRESENTATION:** A 57-year-old woman who sustained blunt abdominal trauma during a car crash was transported to the emergency center of our hospital with unstable vital signs due to hemorrhagic shock. Computed tomography showed transection of the pancreas head and massive intra-abdominal hemorrhage. She was referred for emergency surgery because of a transient response. Laparotomy at five hours after the accident initially revealed consistent massive bleeding from branches of the superior mesenteric artery and vein, which we resolved by suturing the vessels without damaging the main trunks. A horizontal laceration and complete transection of the pancreatic head were then confirmed but the main pancreatic duct remained intact. The lower part of the pancreatic head including the uncus with the attached part of the duodenum was resected, and the pancreatic stump remaining after transection was fixed by suturing. The jejunal limb was attached to the remnant duodenum by side-to-side functional anastomosis. Although gastric emptying was delayed for one month after surgery, the postoperative course was good and the patient recovered at three months thereafter. The embryonic border of pancreas head accompanied with pancreatic divisum was considered for this laceration without disruption of the main pancreatic duct.

**DISCUSSION:** Blunt pancreatic trauma usually causes vertical transection and thus, horizontal transection is considered rare. The embryological anatomical border between the ventral and dorsal pancreas due to pancreatic divisum was supposed to be transected and therefore the main pancreatic duct was not damaged.

**CONCLUSION:** Hemorrhagic shock and rare pancreatic head trauma were treated by appropriate intraoperative management.

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## 1. Introduction

Blunt trauma, such as that sustained during car accidents, can often damage the pancreas [1,2], and vertical transection usually occurs at the pancreatic body or head [3]. A precise diagnosis determined by imaging is important because pancreatic juice leaking through a fistula due to a damaged main pancreatic duct causes fatal pan-peritonitis and thus an emergency laparotomy is necessary to repair the transection immediately [4]. Complete pancreatoduodenectomy is often the choice of treatment for an injured pancreatic head because the complex damage to the main pancreatic duct is invasive in patients with unstable vital signs [5–7]. Horizontal or

coronary transection of the pancreatic head is very rare [8]. This report describes a patient with critical hemostasis due to rare horizontal laceration and transection caused by blunt pancreatic head trauma. The hemostasis was treated and then appropriate intraoperative management and partial pancreatoduodenectomy (PD) resulted in a good outcome with no serious complications.

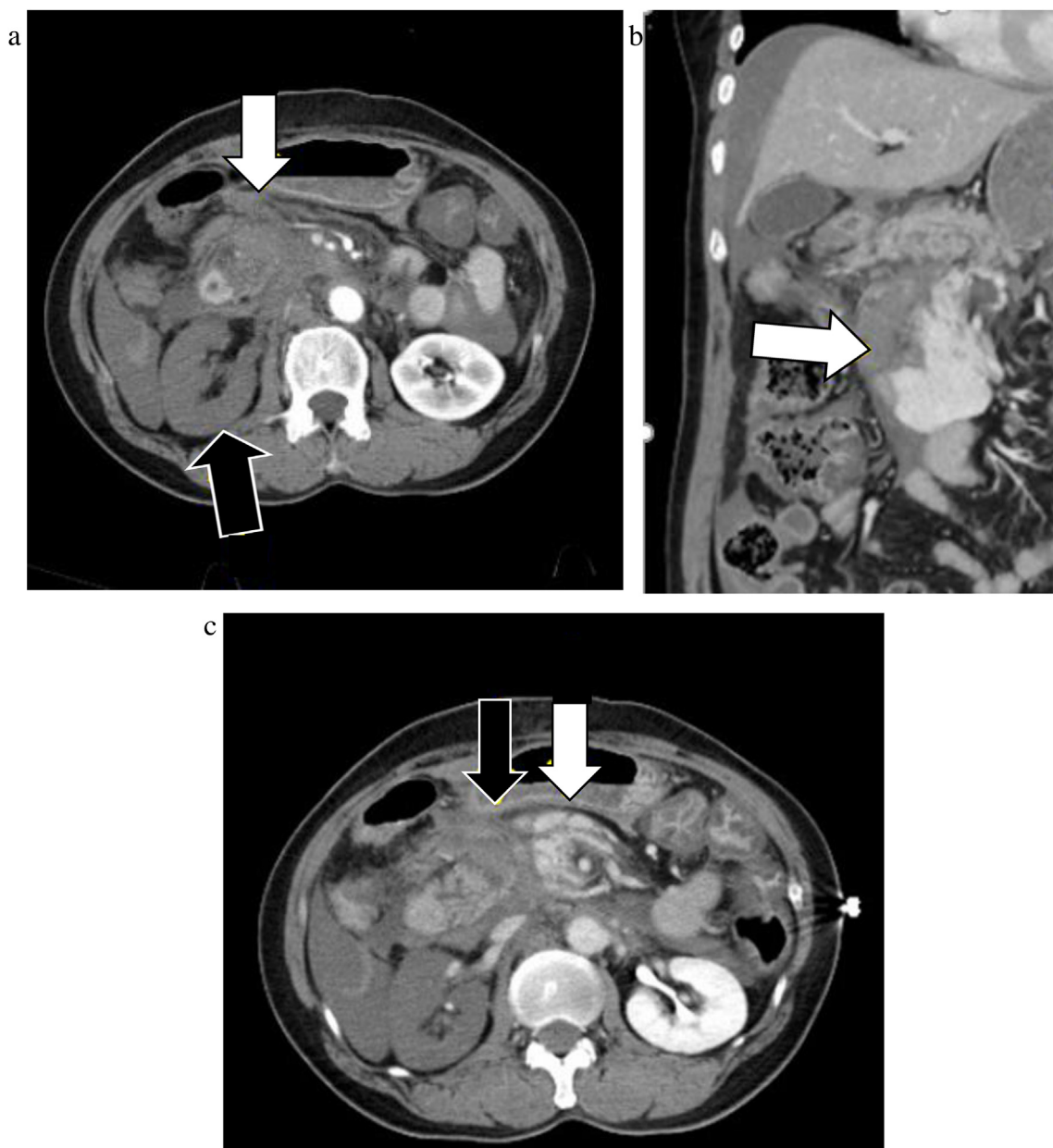
## 2. Case presentation

A 57-year-old woman sustained blunt trauma to the abdomen during a car accident. The unstable vital signs due to hemorrhagic shock transiently responded to a blood transfusion during emergency transport by helicopter-ambulance to our hospital.

The patient was conscious without signs of neurological damage upon arrival at the emergency center two and half hours after the accident. A physical examination showed hemorrhagic ane-

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**Fig. 1.** (a) White arrow, hematoma around pancreas; black arrow, infarcted right kidney. (b) Arrow, hematoma and extravasation of contrast media (bleeding). (c) White arrow, normal parenchyma of pancreatic body; black arrow, transected space of pancreatic head.

mia and a bruise on the upper abdomen. Abdominal computed tomography (CT) using contrast media revealed a massive pool of intra-abdominal blood and the extravasation of contrast media or hematoma around the pancreas head, duodenum and superior mesenteric vessels (Fig. 1a and b). The pancreatic parenchyma seemed to be transected (Fig. 1c). The right kidney was infarcted by an arterial injury, otherwise no other thoracic or abdominal organs were damaged. The unstable vital signs due to hemorrhagic shock rapidly progressed during management at the emergency center, so she was referred to the Division of Hepato-biliary-pancreatic Surgery at the Department of Surgery. An emergency laparotomy proceeded at three hours after admission. Although we considered surgical damage control because of the unstable vital signs, we immediately found bleeding from tiny branches of the superior mesenteric artery (SMA) or veins (SMV). A hemostatic clamp easily controlled the bleeding because the main trunk of the SMA or SMV was not affected (Fig. 2). We assessed organ damage after

stopping the hemorrhage and stabilizing the vital signs. The pancreatic head was lacerated and completely horizontally transected (Fig. 3a), but a pancreatic fistula was not remarkable. Pancreatography was impossible, but intra-abdominal cholangiography after initial cholecystectomy confirmed the location of the duodenal papilla. Thus the transected part was separated from the main pancreatic duct (Fig. 3b). As a result, the discontinuous lower pancreas and uncus was not supposed to need repair, but this part with the attached transverse duodenum was resected (Fig. 3c) and the transected stump of the pancreas was tightly sutured (Fig. 3d). Partial PD was then achieved (Fig. 3e). The remnant descending duodenum was attached to the jejunal limb by functional side-to-side anastomosis using a stapler. A total of 4240 mL of blood was lost.

The unstable vital signs due to hemorrhagic shock immediately recovered after surgery and anastomotic leakage or a pancreatic fistula was not evident. Delayed gastric emptying and appetite loss continued for about four weeks and then gradually improved. The

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