Typical Computed Tomographic Images and Operation for Grade IV Pancreatic Injury

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The American Association for the Surgery of Trauma (AAST) defines grade IV pancreatic injury as proximal transection to the right of the superior mesenteric vein or parenchymal injury involving the ampulla. However, there are rare reports of computed tomographic images that match the surgical photographs of grade IV injury. We report computed tomographic and operation images of a typical grade IV pancreatic injury in a 43-year-old woman with a proximal transection of the pancreas after a traffic accident.

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Key Words: Grade IV pancreatic injury, Proximal transection, Superior mesenteric vein, Images

CASE

A 43-year-old woman who had been in a traffic accident was referred to our emergency department from another hospital after a driver traffic accident. Her initial vital signs were unstable: blood pressure, 75/58 mm Hg; pulse rate, 95 beats/min; respiration rate, 18 breaths/min; body temperature, 36.8°C; and oxygen saturation, 98%. Abdominal computed tomography (CT) performed at another hospital revealed complete transection of the pancreas to the right of the superior mesenteric vein (Fig. 1.). Injury severity score of the patient was 57. Emergency surgery was performed, and pancreatic transection was observed (Fig. 2.). The splenic artery and vein were ligated at their proximal portions (Fig. 3.), and subtotal pancreatectomy was performed (Fig. 4.). After ligation of the main pancreatic duct in the remnant pancreas, the pancreatic stump was closed by

fish-mouth interrupted sutures. The initial serum amylase and lipase levels were 104 and 275 IU/L, respectively, and their levels were highest (797 and 671 IU/L, respectively) on day 3 (Fig. 5.). A pancreatic pseudocyst was developed during follow-up period and successfully treated by percutaneous drainage.

DISCUSSION

Pancreatic injuries caused by trauma are rare but associated with significant morbidity and mortality. Heuer et al. (1) reported the results of pancreatic injury through the Trauma Register of the German Society of Trauma Surgery (TRDGU) (1993-2009). In this study mortality was 30.0% for grade IV pancreatic injury. Mohseni et al. (2) reported mortality of penetrating grade IV pancreatic injuries through trauma quality improvement (TQIP) databank analysis. In this study,

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Fig. 1. Abdominal CT performed at another hospital revealed complete transection of the pancreas to the right of the superior mesenteric vein (blue arrow: superior mesenteric vein, red arrow: superior mesenteric vein, PV: portal vein, SV: splenic vein, SMV: superior mesenteric vein).

Fig. 2. Emergency surgery was performed and complete transection of the proximal portion of the pancreas was observed.

mortality was 24.0% in the resection group and 27.1% in the non-resection group ($p=0.68$). However, there are reports that surgical management has better prognosis for grade IV pancreatic injuries confirmed by CT or surgery (3,4).

American Association for the Surgery of Trauma (AAST) defines grade IV pancreatic injury as proximal transection to the right of the superior mesenteric vein (SMV) or parenchymal injury involving the ampulla. However, there are rare reports of CT images matching the surgeries. Therefore, we report a case of complete transection of the pancreas to the right of the SMV after

Fig. 3. A: Splenic artery was ligated at the proximal portion near celiac trunk (upper). B: Splenic vein was ligated at the proximal portion near portal vein (lower). On the left side of the ligation site, the proximal portion of the completely transected pancreas and the exposed main pancreatic duct are observed.

blunt injury with typical images including surgical findings.

Conflict of Interest Statement

None of authors has a conflict of interest

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Fig. 4. There is specimen after subtotal pancreatectomy.

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Fig. 5. The initial amylase/lipase was 104/275 IU/L and the highest at 797/671 IU/L on the 3rd day.

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