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Clinical Image

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The Refractory Distribution of Shock with Hyperlactemia Caused by Postoperative Portal Vein Ischemia

Pan Pan[1] and Longxiang Su[2*]

[1]College of Pulmonary and Critical Care Medicine Chinese PLA General Hospital, China

[2]Department of Critical Care Medicine, Peking Union Medical College Hospital, Peking Union Medical College & Chinese Academy of Medical Sciences, China

***Corresponding author**: Longxiang Su, Department of Critical Care Medicine, Peking Union Medical College Hospital, Peking Union Medical College and Chinese Academy of Medical Sciences, Beijing 100730, China, Tel/Fax: +86-10-69152308; E-mail: sulongxiang@vip.163.com; slx77@163.com

Clinical Image

An older male, aged 73 years, developed pancreatic leakage after pancreaticoduodenectomy. The bleeding occurred as intraperitoneal hemorrhage on the 10th day after surgery. Emergency surgery was performed to stop the bleeding. During the operation, the junction area of the portal vein and superior mesenteric vein was shown to tear and bleed. Vascular repair was made, and resection of the pancreatic tail and splenectomy were performed. After surgery, the patient was transferred to the intensive care unit. The patient's blood pressure continued to decline after 5h from the end of surgery. Norepinephrine levels gradually increased (from 0.05 to 2.1 μg/kg/min), sustained metabolic acidosis was evident (pH 7.11–7.24), and lactate levels quickly rose to 21 mmol/L. A pulse indicator continuous cardiac output was established and showed the following hemodynamic parameters: central venous pressure 9–11 mmHg, cardiac output 7.9–10.7 L/min/m^2, venous to arterial carbon dioxide difference 0–3, central venous oxygen saturation 84.6%–89.5%, and systemic vascular resistance index 1140–1421 dyn.s.cm^5.m^2. Infection indicators included increased white blood cell count (19.98×10^9 to34.78×10^9/L), neutrophils (92.4%–96.2%), and procalcitonin 6.08 ng/ml. The blood and abdominal drainage fluid bacterial smear/culture was negative, and the abdominal pressure was 8–10 cm H_2O. The liver function deteriorated sharply, with total bilirubin from 29 to73 μmol/L), alanine aminotransferase increasing from 19 to 2219 U/L, and prothrombin activity falling from 60.9% to 23.6%. A bedside ultrasound suggested a suspicious reduction in the intrahepatic blood flow rate, so an emergency abdominal enhanced CT plus portal vein reconstruction was performed. **Figure 1** shows that the portal vein and superior

mesenteric vein junction area was poorly developed, with gas density suggesting local occlusion. Liver parenchymal density reduction, enhanced reduction, and liver ischemia were also suggested.

This case indicates that liver ischemia can cause clinical difficulties in the correction of distributive shock, decreased peripheral vascular resistance, increased cardiac output, and inadequate tissue perfusion with hyperlactemia.

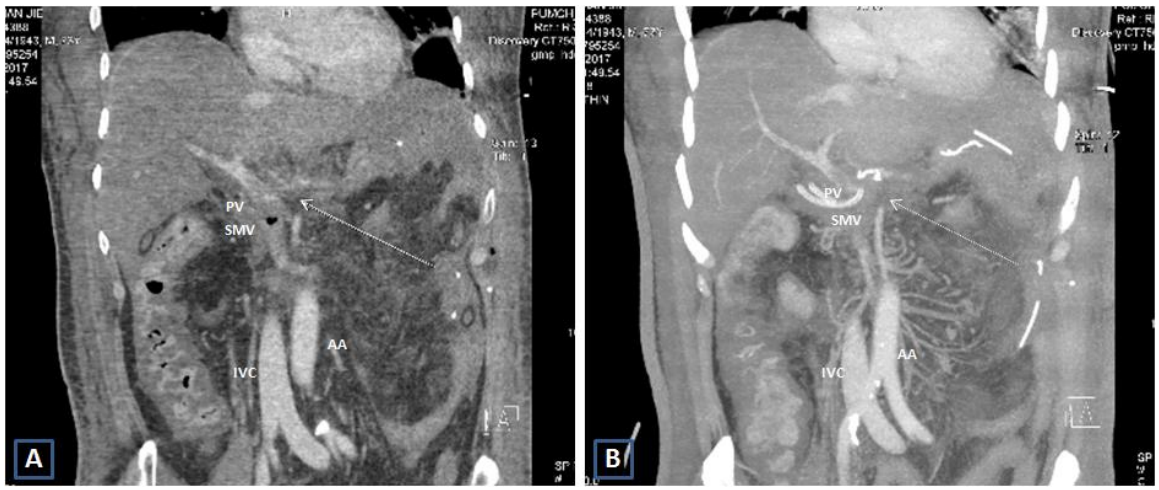

Figure 1: Three dimensional reconstruction of the portal vein by multiplanar reconstruction (panel A) and maximum intensity projection (panel B) during the portal phage.

The portal vein and its branches and the superior mesenteric vein appear slim and poorly developed after portal vein repair surgery. The junction of the portal vein trunk and superior mesenteric vein junction are faintly developed, and are seen as a gas density shadow (arrow). The liver parenchymal density is also decreased. The small intestine and the entire colon wall show diffuse thickening, and rough, enhanced reduction. Mesenteric fat density levels are also increased.

Abbreviations: AA: Abdominal Aorta; IVC: Inferior Vena Cava; PV: Portal Vein; SMV: Superior Mesenteric Vein

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