



Case Report

Successful emergent coil embolization of an inferior epigastric artery perforation in a neonate



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ABSTRACT

A 28-day-old neonate with a postoperative ventricular septal defect and coarctation of aorta suffered from a right inferior epigastric artery perforation at the time of a central venous catheter placement. It resulted in a rapid and extreme hemoglobin decrease and decrease in the systolic blood pressure. The contrast computed tomography scan revealed a large amount of retroperitoneal hemorrhaging and a hematoma. Pressure hemostasis was not effective in eliminating the extravasation and surgical hemostasis seemed uncertain to succeed, because the baby was too small and its condition was unstable. An emergent coil embolization using a Target[®] coil (Stryker Inc., Tokyo, Japan) was effective in completely eliminating the extravasation, resulting in saving its life. We speculated that a coil embolization was the only solution to rescue a neonate with a retroperitoneal hemorrhage due to an artery perforation.

<Learning objective: Retroperitoneal hemorrhaging caused by an inferior epigastric artery perforation is a fatal condition in a neonate, because the neonate cannot express symptoms and this results in a delay in diagnosing it. Pressure hemostasis and surgical hemostasis are not effective in these cases. If a peritoneal hemorrhage is suspected, a coil embolization must be performed promptly as a sole solution to rescue the patient.>

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Introduction

The inferior epigastric artery arises from the external iliac artery, immediately proximal to the inguinal ligament. It ascends along the medial margin of the abdominal inguinal ring, and finally anastomoses with the superior epigastric artery above the umbilicus. Because of its anatomy, an inferior epigastric artery perforation is not a rare complication at the time of central venous catheter placement. Once the perforation occurs, it results in retroperitoneal hemorrhage and hematoma formation. In neonates or small infants, a delayed diagnosis can be fatal and a prompt diagnosis and subsequent hemostasis is required.

Case report

A 21-day-old female was transferred to our institution with tachypnea and lower limb sensation. The body weight at the time

of admission was 3492 g. An echocardiogram revealed a coarctation of the aorta (CoA) and ventricular septal defect (VSD). The next day, VSD patch closure and repair of the CoA were successfully performed surgically. On postoperative day 6, routine central venous catheter exchange in order to avoid a catheter-related infection was attempted from the right internal jugular vein to right femoral vein under guidance of ultrasound. However, because the guide-wire did not advance smoothly, central venous catheter placement was performed from the left femoral vein. Several hours later, the systolic blood pressure suddenly fell from 90 mmHg to 60 mmHg, and the hemoglobin decreased from 14.4 mg/dL to 7.2 mg/dL in the arterial blood gas analysis. The systolic blood pressure did not rise in spite of an emergent blood transfusion and catecholamine use. The abdominal ultrasound revealed large amount of fluid retention in the abdominal cavity and a hemoperitoneum was strongly suggested. Emergent contrast computed tomography (CT) scan revealed a large amount of retroperitoneal hemorrhaging and a hematoma. Also, the CT scan revealed extravasation of contrast medium from the right inferior epigastric artery (Figs. 1 and 2). The right kidney was compressed on the ventral wall by the hematoma (Fig. 1a and b). Pressure hemostasis was continued all the while, but it seemed ineffective.

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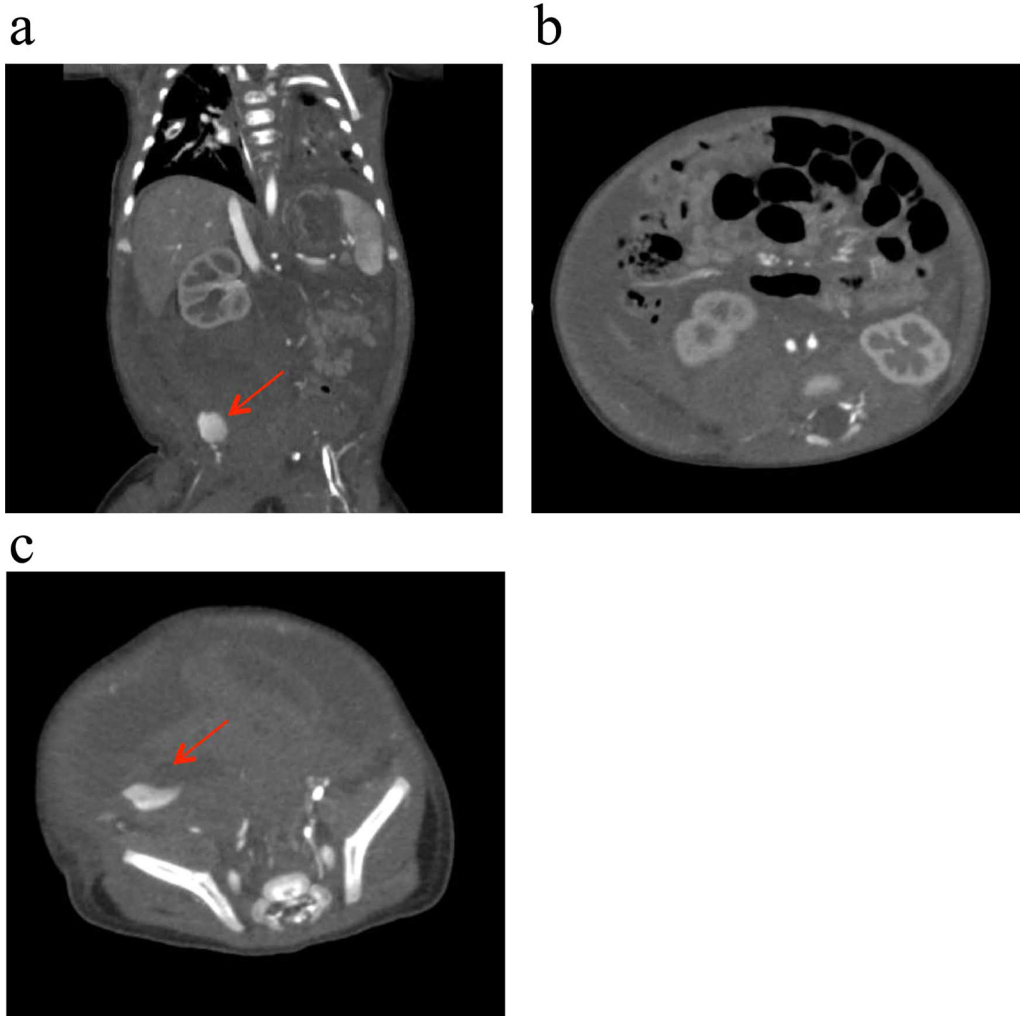


Fig. 1. Contrast computed tomography scan. A large amount of retroperitoneal hemorrhaging and a hematoma can be confirmed. The right kidney is compressed to the ventral wall (a, b). The arrows indicate extravasation of the contrast medium (a, c).

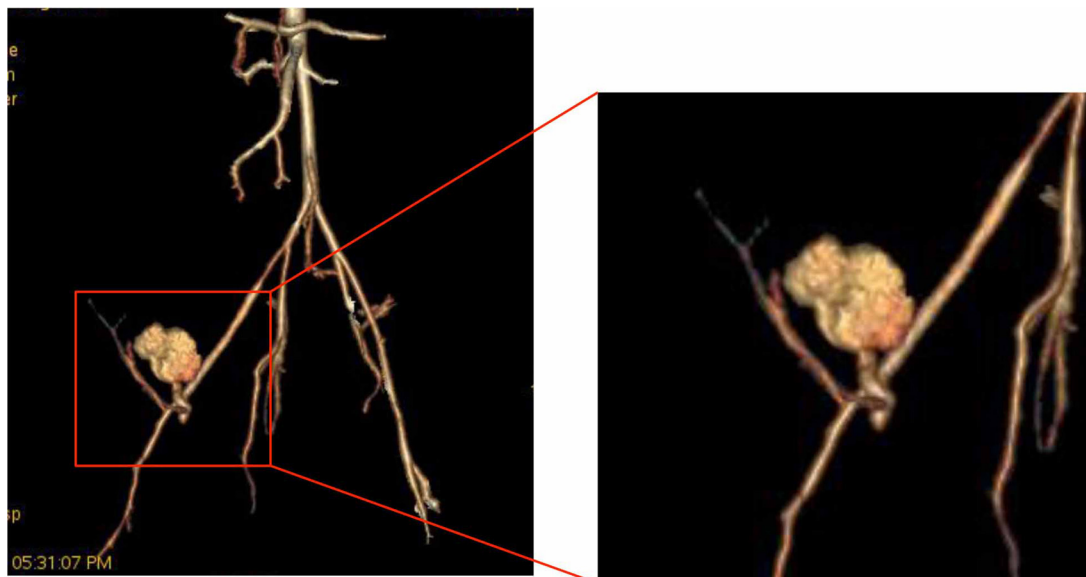


Fig. 2. 3D computed tomography image. Extravasation of the contrast medium from the right inferior epigastric artery is obvious.

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