Case Report: ER-REBOA™ Catheter Deployed to Support Open Repair of a Spontaneous Ruptured Splenic Artery Aneurysm

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Presentation

An otherwise healthy 65 year-old man presented to a rural hospital emergency department with acute onset of severe left upper quadrant abdominal pain. CT imaging demonstrated a ruptured 8 cm splenic artery aneurysm. (Fig. 1) The patient underwent central line placement and fluid resuscitation, but became hemodynamically unstable due to hemorrhagic shock. He received 30 minutes of cardiopulmonary resuscitation before being transported and received 8 units of packed red blood cells during transfer.

He arrived in the Emergency Department intubated, tachycardic, hypotensive, and mildly hypothermic with a firm and distended abdomen. Massive transfusion protocol was initiated and he was taken emergently to the OR for surgical control of intraperitoneal hemorrhage. Prior to laparotomy, the left common femoral artery was cannulated with a 7 Fr arterial introducer and an ER-REBOA™ (Prytime Medical, Boerne, TX) catheter was inserted. Upon inflation of the REBOA balloon, the patient's systolic blood pressure immediately improved from 80 mmHg to 120 mmHg.

At exploratory laparotomy 3 liters of blood were removed and a splenectomy was performed. The large ruptured splenic artery aneurysm was identified and proximally ligated (Fig. 2) No aortic clamp was placed during the laparotomy.

Patient's postoperative course was complicated by pneumonia, acute respiratory failure requiring prolonged mechanical ventilation, and acute renal injury. His renal injury resolved with supportive care and the patient was discharged to a long term care facility.

Splenic artery aneurysm is typically an incidental finding, but when rupture occurs is associated with substantial mortality. Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) is a minimally invasive technique using a balloon catheter to temporarily occlude the aorta (in zone 1 or 3) in support of hemorrhage control. It provides proactive management of life threatening, refractory, hemorrhagic shock in addition to maximal conventional therapy.

In this case, the ER-REBOA™ catheter provided proximal control of the aorta for maintenance of hemodynamics during emergency, decreasing bleeding while improving visualization during medial visceral mobilization and facilitated definitive proximal control of the splenic artery.

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**Discussion**

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