

## Medical Image of the Week: Abdominal Compartment Syndrome Due to Massive Upper Gastrointestinal Hemorrhage



Figure 1. Coronal section demonstrating a section of the Minnesota Tube within the stomach (yellow arrow), severe dilatation of the stomach (green arrow) and small bowel (blue arrow) due to intraluminal filling from blood. There is markedly reduced lungs volumes due to superior displacement of the diaphragm.



Figure 2. Saggital section demonstration the Minnesota Tube in place within the esophagus and stomach (yellow arrow) surrounded with intraluminal blood. There is intraluminal filling of the small intestine as well (green arrow).

A 29 year old woman with history of a Whipple procedure for pancreatic cancer and nonalcoholic steatohepatitis cirrhosis presented with a massive upper gastrointestinal bleeding (UGIB) likely from esophageal varices and developed hemorrhagic shock.

Emergent upper endoscopy could not be performed due to hemodynamic instability. Therefore, a Minnesota Tube was placed emergently for balloon tamponade of the bleeding. A transjugular intrahepatic portosystemic shunt was also placed emergently to decrease bleeding by reducing portal pressure. By this time, the patient had received 4 liters of normal saline, 14 units of packed red blood cells, 6 units of platelets, and 4 units of fresh frozen plasma.

The Minnesota tube did control the bleeding somewhat, however, there was continued bloody drainage from the stomach port of the Minnesota tube. The patient's abdomen became remarkably distended and was dull to percussion throughout. A CT scan of the abdomen and pelvis revealed severe dilatation of the stomach and multiple loops of small bowel filled with mixed density blood (Figures 1 and 2). Intraabdominal bladder pressure was elevated to 34 mmHg. Given the radiographic findings, elevated bladder pressures, worsening lactic acid level and renal function, the patient was diagnosed with abdominal compartment syndrome. She was not a surgical candidate due to her grim prognosis. A large bore tube was placed into the abdominal cavity to drain ascitic fluid in effort to relieve the abdominal pressure.

Aggressive resuscitation including fluids, blood products, and four vasopressors was continued for the next several hours. However, due to patient's poor prognosis, a decision was made to proceed with comfort care and the patient shortly passed away.

Acute upper gastrointestinal bleeding is a frequently encountered condition in the intensive care unit . Initial management generally consists of airway protection, intravascular resuscitation, correction of any coagulopathies, and acid-suppressive therapy (1). For UGIB with hemodynamic compromise, immediate upper endoscopic evaluation is indicated. The upper endoscopy allows for determination of the specific etiology of UGIB and for interventional therapy. If endoscopy cannot be done, bleeding cannot be controlled with endoscopic interventions or the patient is hemodynamically unstable, balloon tamponade should be considered (2). It is important to note that balloon tamponade is considered a bridge to more definitive therapy. Lastly, a multidisciplinary approach for management of massive UGIB should always be utilized especially in difficult cases.

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## **References**

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2. Chen YI, Dorreen AP, Warshawsky PJ, Wyse JM. Sengstaken-Blakemore tube for non-variceal distal esophageal bleeding refractory to endoscopic treatment: a case report & review of the literature. Gastroenterol Rep (Oxf). 2014; Gastroenterol Rep (Oxf). 2014;2(4):313-5. [\[CrossRef\]](#) [\[PubMed\]](#)