



Medical Imagery

Intestinal Ischemia Diagnosed by Bedside Abdominal Ultrasonography

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ARTICLE INFO

Accepted 22 January 2021

A 91-year-old woman with a past medical history of strangulated inguinal hernia and small bowel obstruction, underwent exploratory laparotomy with segmental resection of the small intestine and end-to-end anastomosis, and was taken to the emergency department for abdominal pain, nausea, and vomiting which lasted for 1 day. On presentation, the patient was hypotensive, desaturated, and confused. Her abdominal examination was positive for right lower quarter tenderness and decreased bowel sounds. The emergency physician immediately performed bedside abdominal ultrasonography which demonstrated pneumatosis intestinalis and the presence of hepatic portal venous gas (Figure 1A). Abdominal computed tomography showed segmental continuous small intestine dilatation corresponding to the findings of the bedside ultrasound results (Figure 1B). It raised the suspicion for pneumatosis intestinalis or portal venous gas in the liver caused by intestinal ischemia. However, the family decided on palliative treatment and declined any surgical interventions. As a result, the patient died due to septic shock and multiple organ failures.

Early diagnosis of intestinal ischemia is important since potential clinical complications can be disastrous, including sepsis, mesenteric infarction, and death. Point-of-care ultrasonography (POCUS) may accelerate the diagnostic process. The typical presentations on ultrasonography include thin linear intramural air with thickening of the bowel wall or a circle within the circumference of the bowel, called the “circle sign”,¹ and punctate echogenicity within the portal venous branches in the liver. Pneumatosis intestinalis and the presence of portal venous gas are significant clues that indicate the presence of intestinal ischemia with consequent mesenteric necrosis and a high risk of morbidity and mortality.^{2,3}

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Figure 1. (A) Point-of-care ultrasonography of right lower quadrant showing thin linear intramural air (white arrow) with thickening of the bowel wall and punctate echogenicity within the portal venous branches in the liver parenchyma (white arrowhead). (B) Computed tomography of the abdomen showing segmental continuous small intestine dilatation with pneumatosis intestinalis (white arrow) and gaseous infiltration of the portal venous system and the liver parenchyma (white arrows).

References

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