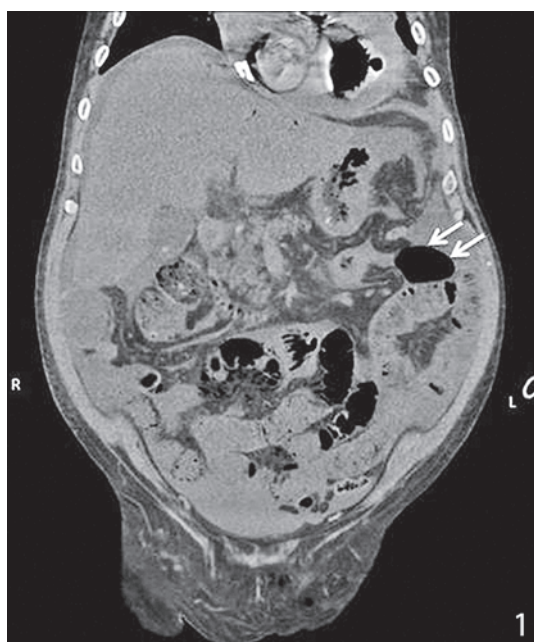


# Pneumatosis Intestinalis from Thromboembolism: a Fatal Complication in a Patient with Total Artificial Heart

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A 62-year-old man with a history of non-ischemic dilated cardiomyopathy which had been managed with a left ventricular assist device (LVAD) for 1 year presented to the hospital with 4-week history of worsening shortness of breath, and was diagnosed with severe right sided heart failure. He underwent LVAD removal and a total artificial heart (TAH) was placed. Unfortunately, the patient had acute kidney injury during operation secondary to acute tubular necrosis requiring renal replacement therapy. The patient had been on TAH for 4 months waiting for his heart and kidney transplantation. He had been on chronic anticoagulation for TAH with warfarin, and his international normalized ratio (INR) levels were within therapeutic ranges of 2-3. During hospitalization, the patient developed sudden onset abdominal pain. His abdominal examination revealed diffuse tenderness to light palpation with rebound tenderness and guarding. Bowel sounds were absent.

Computed tomography (CT) without contrast of the abdomen/pelvis was performed (Fig. 1, coronal view) and demonstrated a large amount of predominantly small bowel pneumatosis most marked in the ileum with associated dissection of gas into the mesentery. His lactic acid level was 10 mmol/L (reference ranges, 0.6-2.3 mmol/L). These findings

raised the concern for pneumatosis intestinalis from bowel ischemia. Empiric broad-spectrum antibiotics, i.v. vancomycin and piperacillin-tazobactam were initiated. After warfarin reversal with transfusion of 2 units of fresh frozen plasma (FFP), the patient underwent emergent exploratory laparotomy. Operative findings were consistent with small bowel ischemia from thromboembolism. The ischemic ileum was resected. The patient was then transferred to the critical care unit requiring vasopressors for septic shock. Heparin infusion was started for anticoagulation.

Artificial heart transplant devices now provide viable treatment options for severe heart failure patients by functioning as a bridge to transplantation or destination therapy. TAH is an artificial heart device used for biventricular support with a one-year survival rate of 70 % and a 79 % rate of survival to cardiac transplantation [1]. However, with TAH, inherent complications can occur. Infection and bleeding are leading complications, (77% and 62%, respectively) [2].

Formation of intra-prosthesis thromboemboli is also a potential serious complication; therefore, the patients with artificial heart devices require chronic anticoagulation [3]. Despite anticoagulation, peripheral thromboembolism occurs in 14% of patients with TAH leading to strokes, limb ischemia, pulmonary embolism or intestinal ischemia [2] as in our patient. In the new era of artificial heart devices, sudden onset of severe abdominal pain in patients with TAH should raise the suspicion of intestinal ischemia from thromboembolism.

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**Conflicts of interest:** None to declare.

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