Spontaneous intracardiac contrast in a case with intestinal pneumatosis

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DESCRIPTION

A 4-year-old girl, treated with immunosuppressive medication due to relapse of haemophagocytic lymphohistiocytosis, developed gastroenteritis with norovirus. She showed clinical improvement initially, but her symptoms and shedding of norovirus RNA persisted for many weeks. On day 19, she had increasing reports of stomach cramps, an episode of vomiting and episodes of blood in her stool. On examination, she had persisting tachycardia (heart rate 140 bpm), her blood pressure fell (80/45 mm Hg), but central capillary refill time remained normal. Her stomach was painful on deep palpation, but soft and with normal bowel sounds. Laboratory findings revealed a slight increase in c-reactive protein (11 mg/L), a drop in sodium (128 mmol/L) and persistent pancytopenia (haemoglobin 93 g/L, white cell count $0.9 \times 10^9/L$, neutrophil granulocytes $0.73 \times 10^9/L$, thrombocytes $19 \times 10^9/L$).

Due to the drop in blood pressure and in order to guide fluid managements, an echocardiogram was performed ([video 1](#)).

The echocardiogram revealed massive amounts of air bubbles in the right atrium and right ventricle, and, furthermore, a noticeable amount of air bubbles in the left heart. Gaseous embolisation from the intestines was suspected. The following abdominal X-ray revealed pneumatosis and possible intrahepatic air. The patient's symptoms progressed rapidly with respiratory and circulatory deterioration. She was therefore rushed to the operating theatre where laparotomy confirmed pneumatosis in the entire colon and distal ileum ([figure 1](#)). Surgical colectomy and ileostomy to remove the source of air embolisation were performed. Histology showed pseudomembranous colitis-like changes with large

Figure 1 Pneumatosis of the colon.

amounts of air in the mucosa and submucosa. A second look laparotomy 1 day after the colectomy showed viable and well-perfused remaining intestines. A period of challenging intensive care was followed. She had large amounts of hypersecretion from remaining intestine and fluid loss consistent with short bowel syndrome. Three months after the embolisation, a successful allogeneic stem cell transplantation was performed. The patient survived and is doing well today.

Gaseous embolisation from the intestines is rare.¹ This case demonstrates that echocardiography is an ideal imaging modality for rapid assessment of the circulation in critically ill patients.^{2,3} In this case, echocardiography guided the clinician to the right diagnosis.

Learning points

- ▶ Echocardiography is an essential diagnostic tool in the critically ill patient's assessment.
- ▶ Gaseous embolisation from intestines is rare but severe and requires immediate attention.
- ▶ Immunocompromised patients with norovirus-gastroenteritis can experience a prolonged and more severe illness.

Video 1 Echocardiogram—parasternal long axis reveals massive amounts of air bubbles in the right ventricle and air bubbles in the left heart.

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Images in...

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