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Delayed colopericardial fistula and pyopneumopericardium

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Sir: A 54-year-old patient was referred for epigastric pain and dyspnoea of 1-week duration. Physical examination evidenced cyanosis and tachypnea, as well as hypotension and tachycardia with a *pulsus paradoxus*. The patient was obese, with body mass index above 35 kg/m². Heteroanamnesis revealed that she had been involved 10 months earlier in a motor vehicle accident (MVA), with

left pneumo- and hemothorax which required selective embolization of the ipsilateral sixth intercostal artery. However, no specific complaint or symptom had been expressed after discharge.

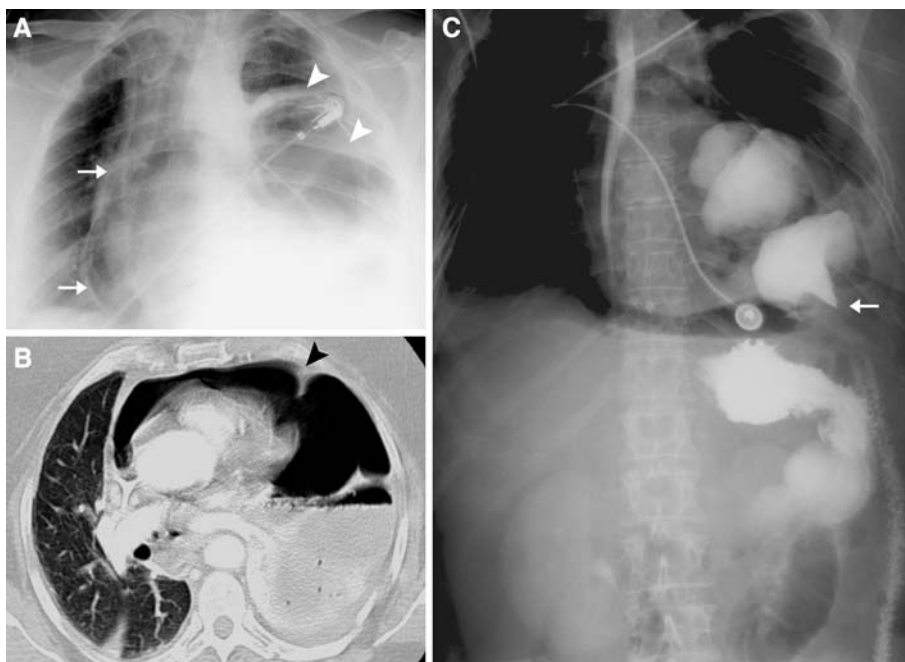
Arterial blood gas analyses performed under spontaneous ventilation with a nonrebreather mask showed: pH, 7.45; pO₂, 97 mmHg; pCO₂, 37 mmHg; HCO₃⁻, 28 mM; total haemoglobin, 13.2 g/dl. Chest X-rays revealed presence of air in the mediastinum surrounding the heart (Fig. 1a, arrows), as well as left paracardiac bowel haustrations (Fig. 1a, arrowheads) associated with a right shift of the trachea. The pertinent laboratory data were: C-reactive protein, 57 mg/dl; neutrophil white blood cells, 12,000/mm³; creatinine, 2.25 mg/dl; urea, 69 mg/dl; Na⁺, 129 mM; K⁺, 3.2 mM. Thorax computed tomography showed a complete pyopneumopericardium (Fig. 1b, arrowhead) in direct communication with perforated bowel structures with a net hydroaeric level and subsequent lung atelectasis. Pre-operative gastrografen imaging further

demonstrated colon hernia and twisting into the left hemithorax (Fig. 1c, arrow). No oesophageal lesion was observed.

Surgical exploration found a diffusely necrotic left colon through a tiny diaphragmatic hernia, with intestine wall rupture and direct fistulization into the pericardium. Ischemic bowel was removed, and discharge colostomies performed. The pericardium was cleansed with rifamycine and sealed. Histological examination confirmed the ischemic origin of the perforation. Pericardial liquid cultures revealed polymicrobial infection. Further medical management essentially included antibiotherapy (amoxycilline/clavulanic acid). A drain was kept in the left hemithorax for 5 days. Enteral feeding was initiated 7 days post intervention and the patient was discharged on day 12. Clinical and biological parameters, as well as control echocardiography, were unremarkable 6 months after surgery.

Colopericardial fistula is a rare clinical entity that can present as cardiac tamponade,

Fig. 1 **a** Thoracic conventional radiography showing a pneumopericardium (arrows), as well as bowel structures in the left hemithorax (arrowheads). **b** Thoracic computed tomography demonstrating a complete pyopneumopericardium in direct communication with bowel structures (arrowhead). **c** Imaging after gastrografen ingestion and anal injection evidencing colon hernia and volvulus (arrow) in the left hemithorax. No lesion of the oesophagus is observed



pneumopericardium, pyopneumopericardium or pericarditis [1]. In most cases, it occurs after colon interposition following oesophagus resection, and is mainly due to gastrocolic reflux, bowel ischemia, and/or adjuvant radiochemotherapy for oesophageal cancer [2, 3]. Here, colon hernia into the mediastinum was most probably favored by restricted diaphragm rupture at the time of MVA in an overweight patient, with persistent elevated intra-abdominal pressure [4]. The responsibility of the sixth intercostal artery embolization in diaphragm necrosis and rupture is unlikely given that diaphragmatic vascularization mostly depends on superior and inferior phrenic arteries, with minor participation of the lower five intercostal arteries. The patient remained asymptomatic for almost a year. Then, intrathoracic volvulus of colon hernia caused acute bowel ischemia,

with wall-to-wall perforation into the pericardium and clinical manifestations of pyopneumopericardium and cardiac tamponade.

The management of colopericardial fistula depends on the clinical circumstances. However, irrespective of its presentation, rapid surgical exploration is warranted to resolve cardiac compression, decontaminate the pericardium, and remove necrotic intestinal tissues.

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