

Spontaneous tension pyopneumopericardium – a case with recovery after surgery

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Summary: Tension pyopneumopericardium is a rare condition with a very high mortality. The majority of cases are due to perforation of oesophagus or bronchi into the pericardial cavity. We report a patient with spontaneous pyopneumopericardium who survived with antibiotic treatment and surgical drainage.

Introduction

Pneumopericardium, a collection of air in the pericardium, is a rare entity with a bad prognosis, especially if it is associated with cardiac tamponade. It is usually secondary to trauma and disease processes in adjacent organs. Pyopneumopericardium, the presence of air and pus in the pericardium, is a very rare condition of which only eleven cases, all fatal, have been described.¹

We report a patient with tension pyopneumopericardium who survived after prompt surgical drainage.

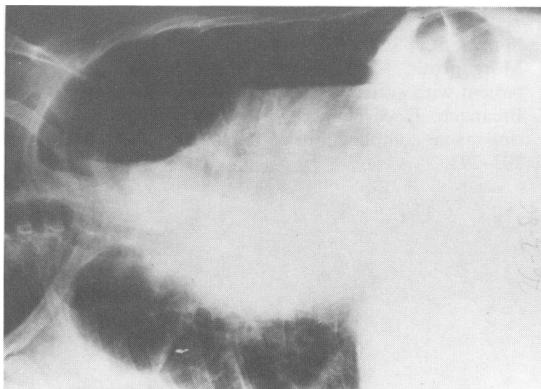


Figure 1 Right lateral decubitus posteroanterior chest roentgenogram shows pneumopericardium with an air-fluid level within the pericardial sac.

Case report

A 57 year old man was seen in the emergency room in February 1986 with a 7-day history of fever, chest pain and increasing dyspnoea. At the age of 22, he had pulmonary tuberculosis followed by chemotherapy for 18 months. Two years before admission, a Nissen antireflux surgical procedure was performed for hiatal hernia.

The patient was febrile and dyspnoeic with a paradoxical pulse of 15 mmHg. The neck veins were distended and the heart sounds were diminished. A mill-wheel murmur (bruit de moulin) was heard along the left sternal border. The posteroanterior chest roentgenogram showed hydro-pneumopericardium (Figure 1). An electrocardiogram showed changes consistent with pericarditis. No oesophago-pericardial fistula could be found by means of diatrizoate methylglucamine (Gastrografin) swallow (Figure 2). An echocardiographic examination confirmed the pericardial tamponade.

Thoracotomy was performed. It revealed a thickened and remarkably tense pericardial sac. As the pericardium was entered, an audible gush of air was released and 300 ml of purulent material were obtained. Cultures under aerobic and anaerobic conditions and in Lowenstein medium as well as Ziehl-Nielsen stain were negative. Microscopical examination of pericardial tissue did not disclose granulomas. The patient was given antibiotics which included anti-tuberculous drugs. Bronchography, ventilation scan, Gastrografin examinations and endoscopy failed to demonstrate any fistula between the pericardial sac and adjacent organs. The patient has remained well since.

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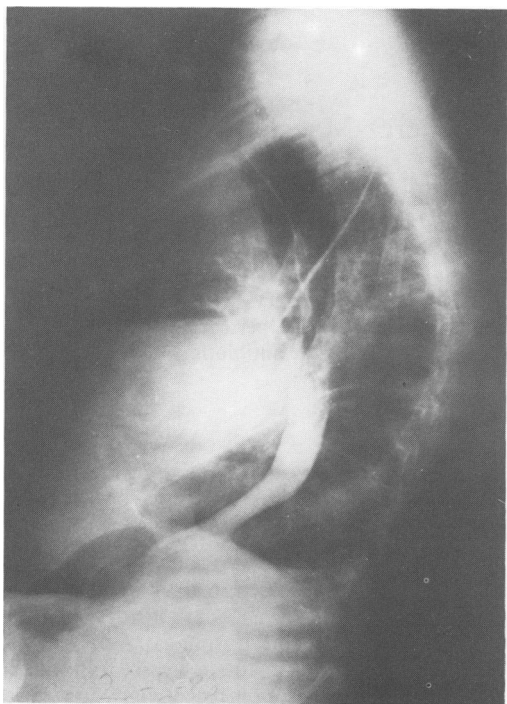


Figure 2 Lateral chest roentgenogram after ditrizoate methylglucamine (Gastrografin) swallow without evidence of fistula.

References

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Discussion

Pneumopericardium resulting in cardiac tamponade most frequently occurs in trauma patients or in newborn infants requiring positive pressure ventilation.¹ Pyopneumopericardium is usually secondary to perforation of oesophagus or bronchus. Pneumopericardium has been associated with gastric and oesophagus ulceration, hiatus hernia, achalasia, bronchopericardial fistula and bronchial carcinoma.¹⁻⁵ A case of *Escherichia coli* bacteraemia in a patient with leukaemia, with gas formation into the pericardium, has been described.¹ Our case is particularly unusual in that we found no fistula or gas-forming organisms.

The signs of pneumopericardium are very distinctive and include the characteristic auscultatory mill-wheel murmur (bruit de moulin), electrocardiographic and roentgenographic findings.^{1,2} The most common radiological features on chest roentgenogram are the presence of air and fluid surrounding the heart.¹

The development of pneumopericardium has a bad prognosis. Cummings *et al.*¹ found that 57% of patients died and the mortality reached 100% in the presence of pyopneumopericardium. Our patient survived probably due to prompt surgical drainage and adequate antibiotic treatment. We conclude that immediate surgical treatment and antibiotic therapy is required for patients with pyopneumopericardium for whom this represents the only real possibility of survival.