

Images for diagnosis

A jejunopericardial fistula 14 years after surgery for gastric cancer

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A fistula between pericardium and its adjacent structures is an extremely rare and usually fatal complication with the esophagus and stomach most frequently involved. In this report, we present the rare case of a patient who developed a jejunopericardial fistula after surgery for gastric cancer and intraperitoneal chemotherapy with placement of Port-A-Cath 14 years ago.

CASE REPORT

A 61-year-old man who underwent total gastrectomy and splenectomy for gastric cancer was placed a Port-A-Cath through the anterior abdominal wall just lateral to the rectus muscle in the right upper quadrant for intraperitoneal chemotherapy 14 years ago. He recovered well after the surgery and chemotherapy. The Port-A-Cath was left *in situ* for 14 years. The patient's course was uncomplicated until approximately one year ago, when he presented with recurrent redness, swelling and pain around the subcutaneous port. The symptoms were alleviated after antibiotic treatment and the Port-A-Cath was removed in the local hospital. Three days later, rigor and fever with recordings of a 40 degrees Celsius body temperature occurred. The patient was thus admitted to the local hospital. Two days later, he developed abdominal distension and a cankerous sore at the site of the operative incision. The wound healed after local application of gentamycin and frequent wound dressing changes, yet 7 days later, the patient experienced the same symptoms of rigor and fever with a temperature of 40 degrees Celsius. After the administration of several antibiotics and glucocorticoids, his body temperature hovered between 37.5 and 38.0 degrees Celsius prompting admittance to our university hospital. Laboratory tests revealed leukocytosis ($11.0 \times 10^9/L$), with a neutrophilic percentage of 78.7% and an elevated C-reactive protein (CRP) of 69 mg/L. The thoracic computed tomography (CT) showed slight bilateral pleural effusion, pericardial effusion and mild mediasternal pneumatosis while ultrasound tests confirmed the pleural effusion and revealed a small quantity of ascites. With time, antibiotics ceased to have an effect on the patient's symptoms and he gradually developed dyspnea, palpitation and orthopnea with a body temperature of 39 degrees Celsius. A chest X-ray eventually showed pericardial pneumatosis (Figure 1)

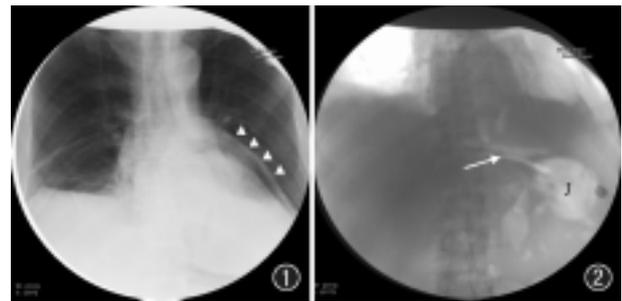


Figure 1. Chest X-ray showing the pneumopericardium (white arrows).

Figure 2. Gastricintesttinography showing a passage (arrow) between the pericardium and the jejunum (represented as J in figure), about 5 centimeters away from the esophagojejunal anastomosis.

while thoracic CT scan revealed the presence of a progressively increasing volume of gas in the pericardial cavity with a high density lamellar shadow at the bottom of the pericardium. The existence of the intestinopericardial fistula was taken into consideration but gastric endoscopy displayed double cavities in the efferent loop, one of which appeared to be blocked off. Finally, intesttinography (using Meglumine-Diatrizoate) displayed a passage between the pericardium and jejunum, 5 centimeters away from the esophagojejunal anastomosis, which proved the existence of a jejunal-pericardial fistula (Figure 2).

Purulence in pericardium was cleaned in surgery yet the fistula could not be sutured as anatomic structures around it were indistinct due to adhesions. An ileostomy was however performed, as well as pericardial tube drainage. Despite extensive surgery, the patient's condition progressively worsened and 8 days later, he died of infective shock combined with acute renal failure.

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DISCUSSION

Pneumopericardium may be caused by a variety of reasons, including trauma, iatrogenic injuries and others. Cozart et al¹ reviewed 249 cases of pneumopericardium with 25% of cases resulting from an infective fistula between contiguous organs and pericardium, and with the stomach and esophagus representing the most commonly involved organs.

It is important to underline that gastropericardial fistula resulting from the perforation of the gastrointestinal tract is a rare complication with a high mortality of about 50 percent.² Therefore, early diagnosis and operation are essential for effective management of this condition. In many cases, the patient has had a history of gastrointestinal disease or surgery and has usually complained of acute or chronic retrosternal pain. Shortly after, symptoms of pericardial tamponade will gradually appear and progressively worsen. Some scholars believe that the mechanism of unidirectional valve between the gastrointestinal tract and pericardial sac plays a role in this condition with fluid and gas flowing into the pericardium forming tensive pneumopericardium or hydropericardium.³ In terms of diagnosis, gastrointestinal contrast investigation combined with computed tomography plays a significant role in confirming the presence of a gastro-intestinopericardial fistula as the location and size of the fistula can be identified.¹ Gastrointestinal endoscopy is also an essential investigation for diagnosis and treatment if the patient can tolerate it.

We wish to note that the development of a jejunopericardial fistula after operation for gastric cancer is a rare occurrence and has not been reported before. The patient had used the intraperitoneal catheter for chemotherapy in the early stages of his treatment and it then remained idle for almost 14 years. The possible reason for its creation, in this case, is the catheter eroding into the jejunum. Maybe the end of the catheter was

placed quite close to the jejunum around the hiatus. Then the catheter eroded into the jejunum, which caused the infection of the catheter port. Although intraperitoneal catheter had removed immediately, a jejunal fistula developed, leading to an abscess. Due to adhesion around it, the abscess can but spread into pericardium through the hiatus and finally result in a jejunopericardial fistula. Indeed, Wakefield et al⁴ once reported a case that chemotherapy catheter corroded the colon after colonic cancer operation. In Almadrones and Yerys's study, the overall rate of serious infection in 137 patients with subcutaneous port and intraperitoneal catheter was 8.5%.⁵ Thus, it should be required that the intraperitoneal catheter is removed as soon as possible while in condition of useless.

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