

Case reports

Contribution of computed tomography with oral media contrast to the diagnosis of esophago-pericardial fistula

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Abstract

The esophago-pericardial fistula is a very rare and usually fatal complication of esophageal cancers. We report a case of a 56-year-old man who presented with chest pain 1 month after concurrent radiochemotherapy for squamous cell esophageal carcinoma. Thoracic computed tomography (CT) with oral iodinated media contrast revealed esophago-pericardial fistula visualizing the fistulous tract. We conclude that CT with oral contrast media may be the first imaging technique of choice to confirm the diagnosis of esophago-pleural fistula.

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1. Introduction

The esophago-pericardial fistula is a rare complication of both benign and malignant esophageal lesions. Only 10 cases of esophago-pericardial fistula of neoplastic origin have been reported so far. Upper gastrointestinal (GI) endoscopy and upper GI swallow radiographs using Gastrografin are both capable of visualizing the fistulous tract, whereas computed tomography (CT) without oral given contrast media only shows indirect signs of fistula such as hydropneumopericardium, pneumopericardium, pleural effusion, and mediastinitis. We report the first case of esophago-pericardial fistula in which CT with oral iodinated media contrast visualized the communication between the esophagus and the pericardium. This imaging technique might be very helpful to improve the manage-

ment of esophago-pleural fistula, a potentially life-threatening condition.

2. Case report

A 56-year-old man was admitted for a sudden chest pain 1 month after the end of a concomitant radiochemotherapy for a squamous esophageal carcinoma of the lower third. The patient had a temperature of 37.5°C and the physical examination was unremarkable, except for diminished respiratory sounds in the lower right lung field. Laboratory tests indicated marked inflammatory disease with a serum C-reactive protein elevated to 252 mg/L, but normal leukocyte count. Cardiac enzymes ruled out myocardial ischemia. The electrocardiogram was normal. Chest X-ray showed a pneumopericardium with air-fluid level and right pleural effusion (Fig. 1). Thoracic CT with oral iodinated contrast media confirmed pneumopericardium and bilateral-free pleural effusion, and revealed esophago-pericardial fistula (Fig. 2). The esophageal tumor

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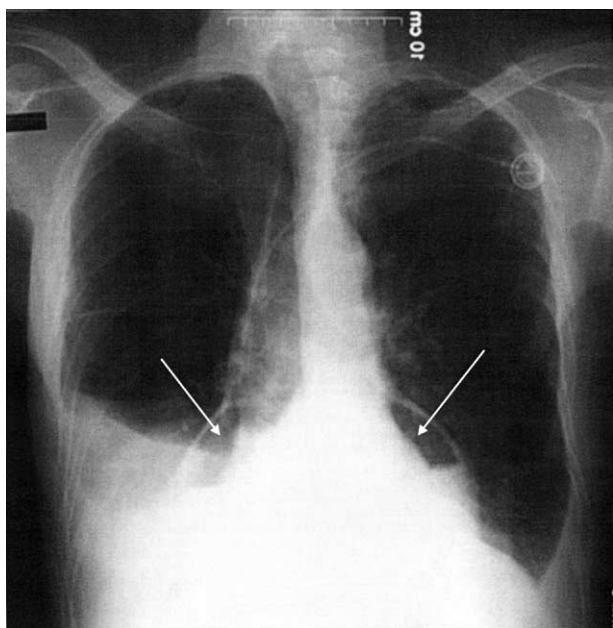


Fig. 1. Chest X-ray showing a pneumopericardium (arrows) with air-fluid level.

was not visible on CT, suggesting the efficacy of concomitant radiochemotherapy.

Total parenteral nutrition and combination antibiotic therapy with amoxicillin+clavulanic and ciprofloxacin were initiated. A thoracotomy was decided but the patient developed rapidly a severe right heart failure associated with fever (temperature of 39°C). Clinical examination revealed dyspnea, cough, hypotension of 80/60 mmHg, tachycardia with a pulse of 180 bpm, turgent jugular veins, and hepatojugular reflux with no edema of the lower limbs. Echocardiography showed pericardial effusion of approximately 500 ml. An emergency pericardial lavage drainage via a subxyphoid incision was performed. Histological examination of pericardial fluid confirmed purulent pericarditis, with no malignant cells. Despite pericardial drainage and antibiotic coverage, the patient died within hours from cardiac tamponade.

3. Discussion

The esophago-pericardial fistula is a rare complication of both benign and malignant esophageal lesions, with an in-hospital mortality of 83% [1–9]. To our knowledge, only 10 cases of esophago-pericardial fistula of neoplastic origin have been reported so far [1–10]. Anatomically, the esophagus is adjacent to the cardiovascular system from the level of T3 to T11. The clinical presentation of esophago-pericardial fistula depends on the level of the tumor in the esophagus. Mediastinitis can occur during the evolution of esophageal cancers of the upper third, whereas purulent pericarditis is a complication of tumors of the medium part and the lower third [9]. An esophageal carcinoma with fistula

should be included in the differential diagnosis of chest pain and purulent pericarditis, particularly among patients with tobacco use and alcohol consumption, even in the absence of dysphagia. Chest X-ray may show pleural effusion and cardiomegaly (pericarditis) and, in some cases, pneumopericardium with air-fluid level (fistula) [1,7].

In case of right heart failure, an echocardiography has to be performed to assess the severity of the pericardial effusion with its repercussions on the cardiac cavities and to guide surgical drainage. If the pericardial effusion is well tolerated, upper GI endoscopy or upper GI swallow radiographs using Gastrografin may visualize the fistula [4,7]. One might argue that these investigations should be performed after pericardial drainage because the risk of developing cardiac tamponade might be increased by passage of contrast media or air in the fistula. However, in the present case, as well as in the previous reports [4,9], contrast media ingestion did not lead to cardiac tamponade. The main advantage of upper GI endoscopy is to diagnose a malignant disease among patients with no history of esophageal lesions, when purulent pericarditis is the initial manifestation of esophageal carcinoma [4,5,7,9], and to provide histological examination. However, upper GI endoscopy visualizes neither the entire fistulous tract nor the pericardium and is thus of poor value in the diagnosis of esophago-pericardial fistula. Moreover, upper GI endoscopy is not always available in the emergency setting. Upper GI swallow radiographs using Gastrografin is an old technique that is able to show the internal opening of the fistulous tract [4], but not the communication with the pericardium [4,9].

Correct CT examination enables an accurate and timely diagnosis, which provides valuable indications for treatment. Furthermore, thoracic CT can visualize a mass in the esophagus [10] or suggest malignant tumor of the esophagus with spread to the surrounding lymph nodes and stagnation of food in the esophagus [7,9]. In our observa-

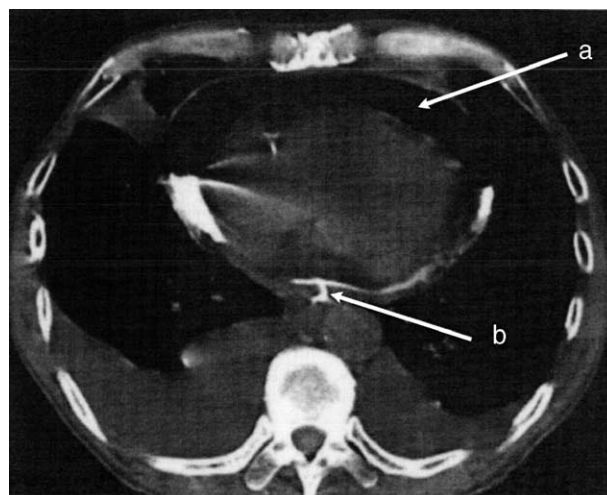


Fig. 2. Thoracic CT with oral iodinated contrast media confirmed pneumopericardium (a) and revealed esophago-pericardial fistula (b).

tion, CT with oral iodinated contrast media revealed esophago-pericardial fistula visualizing the fistulous tract (Fig. 2). Accordingly, this imaging technique should be preferred to CT without oral media contrast, which only shows indirect signs of esophago-pericardial fistula such as hydropneumopericardium, pneumopericardium, pleural effusion, and mediastinitis [8–10].

In conclusion, clinicians should be alert to the manifestations of esophago-pericardial fistula (chest pain, pericarditis, mediastinitis), particularly in smokers and alcoholic patients. The diagnosis of esophago-pericardial fistula must be as quick as possible to improve the clinical outcome. Therefore, emergency CT with oral contrast media might be the first imaging technique of choice to evaluate this rare complication of esophageal cancers. Recently, Pache et al. [11] reported that CT in combination with oral given contrast media was also the first imaging technique of choice to evaluate esophago-pleural fistula. Relevance of MRI in diagnosing esophago-pericardial fistula remains to be determined.

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