

위암 환자 급성 심막염에 NSAID 사용 후 발생한 위심막루에 의한 심낭기종

¹서울대학교 의과대학 서울대학교병원 내과, 국립암센터 ²순환기내과, ³간암센터

김영기¹ · 김학진² · 박경선¹ · 홍아람¹ · 이상진¹ · 우상명³

Pneumopericardium Caused by Gastropericardial Fistula after Use of NSAIDs in a Patient with Acute Pericarditis and Gastric Cancer

Yeong Gi Kim¹, Hak Jin Kim², Kyeong Seon Park¹, A Ram Hong¹, Sang Jin Lee¹, and Sang Myung Woo³

¹Department of Internal Medicine, Seoul National University Hospital, Seoul National University College of Medicine, Seoul;

²Department of Cardiology and ³Center for Liver Cancer, National Cancer Center, Goyang, Korea

Here, we report a case of gastropericardial fistula associated with the treatment of acute pericarditis using non-steroidal anti-inflammatory drugs (NSAIDs) in the presence of gastric cancer. The patient presented with acute pericarditis with pericardial effusion that had progressed into definite gastropericardial fistula with pneumopericardium after the administration of NSAIDs. The patient improved after conservative management. Based on the current case, we advise caution when using NSAIDs to treat acute pericarditis in the presence of gastric cancer or possible gastropericardial fistula. (Korean J Med 2014;86:489-493)

Keywords: Pneumopericardium; Pericarditis; Stomach neoplasms; Fistula

INTRODUCTION

Gastropericardial fistula was first described by Bricheteau [1] in 1884, but has since been reported only rarely. The major causes of gastropericardial fistula are surgery or trauma, and the mortality rate is extremely high [2,3]. Recently, we experienced a case of gastropericardial fistula that was worsened by the use of non-steroidal anti-inflammatory drugs (NSAIDs) to treat acute

pericarditis.

CASE REPORT

A 60-year-old male was diagnosed with cholangiocarcinoma and underwent hemihepatectomy with cholecystectomy. He had been treated with adjuvant gemcitabine chemotherapy, but a follow-up computed tomography (CT) scan revealed the new

Received: 2013. 4. 18

Revised: 2013. 5. 29

Accepted: 2013. 6. 26

Correspondence to Sang Myung Woo, M.D.

Center for Liver Cancer, National Cancer Center, 111 Jungbalsan-ro, Ilsandong-gu, Goyang 410-769, Korea

Tel: +82-31-920-1733, Fax: +82-31-920-2798, E-mail: wsm@ncc.re.kr

Copyright © 2014 The Korean Association of Internal Medicine

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0/>) which permits unrestricted noncommercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

appearance of multiple hematogenous pulmonary metastases. After performing palliative chemotherapy with two cycles of capecitabine with cisplatin, the patient refused further chemotherapy. Two months later, he presented with a vague epigastric abdominal pain. A large ulcerofungating lesion was found during esophagogastro-duodenoscopy on the high body of his stomach. An endoscopic biopsy of the lesion was consistent with double primary gastric adenocarcinoma. He was then treated with proton pump inhibitors.

One month later, he visited our hospital with resting chest pain. He described the pain as like “being pricked with a needle”, and reported that it was aggravated with inspiration, and associated with dyspnea on exertion. His vital signs were as

follows: blood pressure 99/64 mmHg, heart rate 104/min, respiratory rate 20/min, and body temperature 36.2°C. His cardiac sounds were decreased in auscultation. Laboratory findings revealed leukocytosis with a left shift, and an elevated erythrocyte sedimentation rate: white blood cell count 14,450 / μ L (79.6% segment neutrophils), and erythrocyte sedimentation rate 94 mm/hr. His cardiac enzymes were within the normal range. Diffuse ST segment elevation and PR segment depression, except for lead aVR, were detected in an electrocardiogram (Fig. 1A), which was consistent with acute pericarditis. An initial CT scan (Fig. 1B) and 2D-echocardiography (Fig. 1C) showed a moderate amount of pericardial effusion without tamponade physiology. We started the patient on 600 mg ibuprofen three times a day for

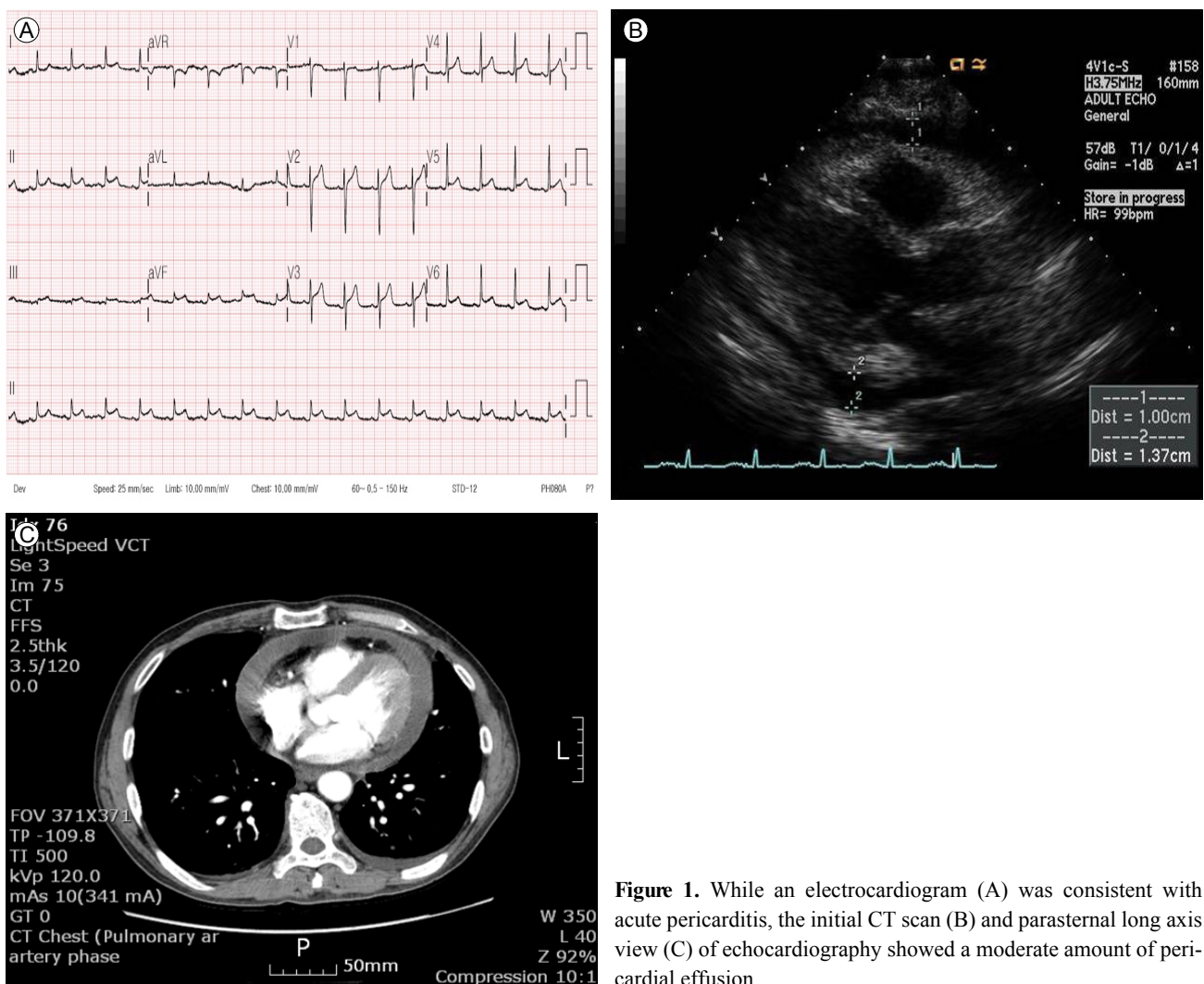


Figure 1. While an electrocardiogram (A) was consistent with acute pericarditis, the initial CT scan (B) and parasternal long axis view (C) of echocardiography showed a moderate amount of pericardial effusion.

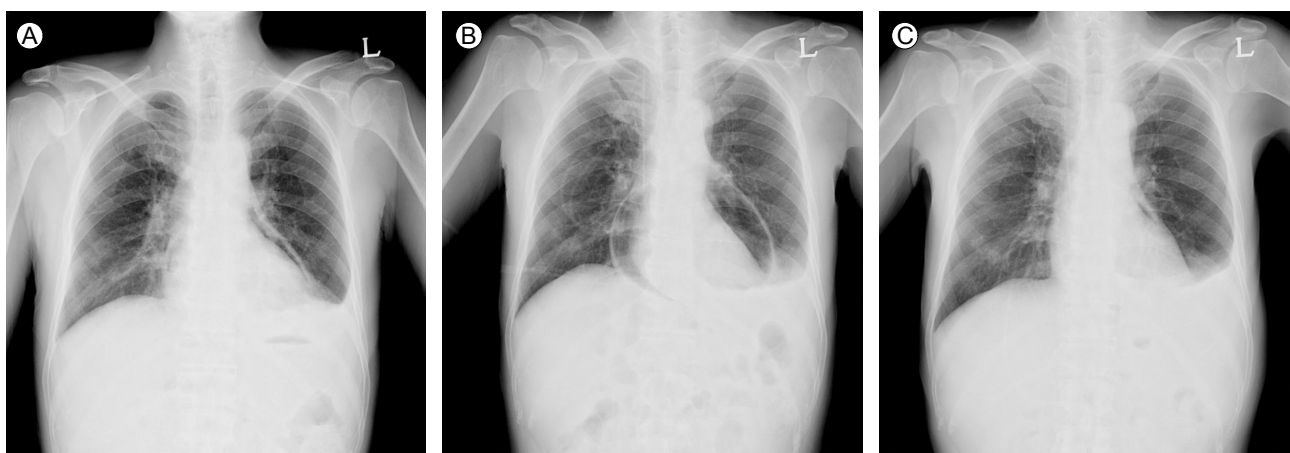


Figure 2. Chest X-ray on hospitalization days 7 (A), 14 (B), and 28 (C).

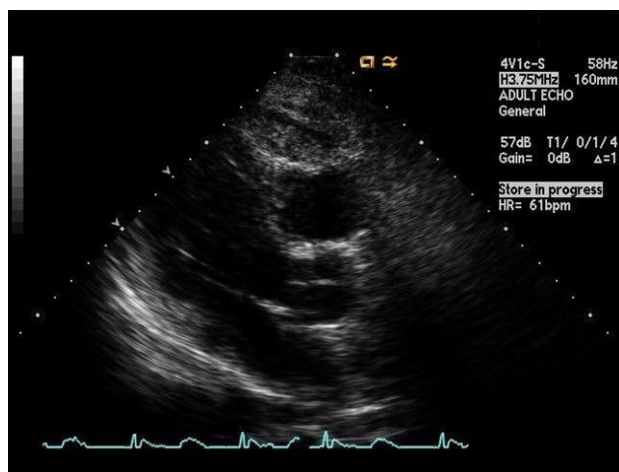


Figure 3. Parasternal long axis view of echocardiography on day 7.

7 days. A follow-up echocardiography was performed during day 4 of his hospitalization, which revealed abnormal ventricular septal motion (septal bouncing) in the pericardial effusion, consistent with effusive-constrictive pericarditis. His anterior chest pain was relieved by day 4 of hospitalization.

On day 7, the patient complained of nausea, vomiting that produced a black-colored material, and dizziness. His blood pressure had fallen to 88/44 mmHg. Complete blood count profiling revealed aggravated leukocytosis. A chest X-ray showed double contour signs on both sides of the heart, suggesting a perforated pericardium (Fig. 2A). Echocardiography (Fig. 3) showed a significantly decreased amount of pericardial effusion

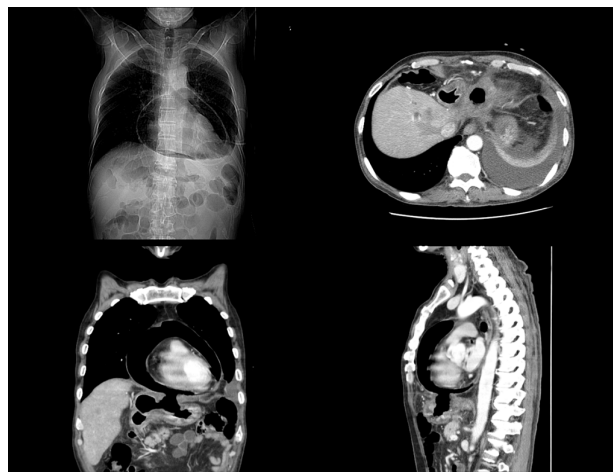


Figure 4. CT scan on day 14 revealed pneumopericardium with fistula communication in to the gastric cavity.

compared with on day 4. Because of the possibility of combined infection, broad-spectrum antibiotics were administered empirically, and *Enterobacter cloaca* grew in blood culture bottles. He was then instructed to be nil per os. Ibuprofen was stopped immediately, and he was treated with an initial bolus of 80 mg pantoprazole followed by continuous infusion of 8 mg/hr for three days. On day 14, a follow-up chest CT scan revealed a large perforation connecting the pericardial and gastric cavities (Fig. 4), and the volume of free air in the pericardium was maximized (Fig. 2B). Since then, the volume of free air decreased progressively (Fig. 2C). During the nil per os period, the patient was supported by central total parenteral nutrition. The antibiotic

imipenem was administered until day 28 because the first negative conversion blood culture study appeared on day 15. Thereafter, the patient was transferred to a hospital designed for hospice care.

DISCUSSION

Surgical closure is the treatment that results in the best outcome in patients with gastropericardial fistula [3]. However, a recent report by Chauhan et al. [4] suggested that a tailored approach should be considered for each individual regarding the risk and benefit, which could result in a positive outcome for conservative treatment with nasojejunal feeding. In the present case, we did not operate on the patient because of limited life expectancy. During the course of treatment, the size of his pneumopericardium was maximized on hospital day 14, and decreased thereafter. Bacteremia and septic shock were resolved by antibiotic treatment. After 2 months of supportive care with nil per os and total parenteral nutrition, he was discharged from our hospital alive into hospice care.

Most cases of gastropericardial fistula are caused by surgery or trauma, and the mortality rate is extremely high [2,3]. In South Korea, all of the four reported gastropericardial fistula cases were related to surgery [5-8]. Intra-abdominal stomach pathologies such as trans-diaphragmatic perforation of gastric cancer or an ulcer into the pericardium can also result in gastropericardial fistula [2]. In the current case, gastric cancer might have been the cause of gastropericardial fistula and acute pericarditis. It is also possible that a small pre-existing gastropericardial fistula was worsened during the treatment of acute pericarditis. If so, this would be the first case report of gastropericardial fistula that was aggravated by the use of NSAIDs. Although the acute pericarditis treatment might also be the cause of gastropericardial fistula in the presence of gastric cancer, the former assumption is more acceptable.

The common causes of acute pericarditis are as follows: neoplastic (35%), autoimmune (23%), viral (21%), bacterial (6%), uremia (6%), tuberculosis (4%), idiopathic (4%), and others [9]. NSAIDs such as ibuprofen are the mainstay of treatment for

acute pericarditis. NSAIDs alone or in combination with colchicine are effective to treat the initial occurrence and prevent recurrence, whereas systemic corticosteroid administration is restricted to connective tissue disorders, and autoimmune or uremic pericarditis [10]. In the present case, although we could not determine the exact etiology of acute pericarditis, it is possible that an ulcerofungative mass on the high body of the stomach formed a small gastropericardial fistula with subsequent acute pericarditis. However, because we did not suspect a gastropericardial fistula, NSAID therapy might have aggravated the fistula, resulting in pericardial effusion into the gastric cavity and subsequent pneumopericardium. Although conclusive recommendations cannot be made on such a small number of cases, the possibility of gastropericardial fistula might be considered before using NSAIDs in patients with acute pericarditis and the presence of gastric malignancy. Despite the severity of this condition, the patient showed great improvement after treatment. Although the fistula was not cured, conservative management was beneficial for the patient.

중심 단어: 심낭기종; 심막염; 위암; 누공

REFERENCES

1. Shackelford RT. Hydropneumopericardium. JAMA 1931; 96:187-191.
2. Grandhi TM, Rawlings D, Morran CG. Gastropericardial fistula: a case report and review of literature. Emerg Med J 2004;21:644-645.
3. West AB, Nolan N, O'Briain DS. Benign peptic ulcers penetrating pericardium and heart: clinicopathological features and factors favoring survival. Gastroenterology 1988; 94:1478-1487.
4. Chauhan A, Perry I, Veitch A, Li P, Rattehalli D, Brookes MJ. Gastropericardial fistula: a potential role for conservative treatment. Eur J Gastroenterol Hepatol 2012;24:1341-1343.
5. Kim TG, Kang JH, Chung WS, et al. Gastropericardial fistula as a late complication after esophagectomy with esophagogastrostomy: a case report. Korean J Thorac Cardiovasc Surg 2002;35:248-250.
6. Son DK, Kim JK, Chung JS, et al. A case of gastropericardial fistula as a complication after esophagectomy with esophagogastrostomy for esophageal cancer. Korean J Gastrointest Endosc 2004;29:13-16.

7. Park S, Kim JH, Lee YC, Chung JB. Gastropericardial fistula as a complication in a refractory gastric ulcer after esophagogastrostomy with gastric pull-up. *Yonsei Med J* 2010;51:270-272.
8. Kim WJ, Choi EJ, Oh YW, Kim KT, Kim CW. Gastropericardial fistula-induced pyopneumopericardium after esophagectomy with esophagogastrrectomy. *Ann Thorac Surg* 2011;91:e10-11.
9. Maisch B, Ristić AD. The classification of pericardial disease in the age of modern medicine. *Curr Cardiol Rep* 2002;4:13-21.
10. Maisch B, Seferović PM, Ristić AD, et al. Guidelines on the diagnosis and management of pericardial diseases executive summary; the task force on the diagnosis and management of pericardial diseases of the European society of cardiology. *Eur Heart J* 2004;25:587-610.