

Cardiac tamponade as the first clinical sign of gastric adenocarcinoma: a rare condition

Mide adenokarsinomunun ilk klinik bulgusu olarak kalp tamponadı: Nadir bir durum

Arif Arısoy, M.D., Kadriye Memiç, M.D., Yusuf Karavelioğlu, M.D., Fatma Şen, M.D.#

Department of Cardiology, Hitit University Corum Training and Research Hospital, Corum;

#Department of Oncology, Hitit University Corum Training and Research Hospital, Corum

Summary– Cardiac tamponade originating from a primary gastric cancer (GC) is a rare condition. Patients are generally asymptomatic until the disease is advanced. We report a rare patient with cardiac tamponade as the first manifestation of primary GC. A 46-year-old male was admitted with progressive dyspnea. Cardiac tamponade was diagnosed on two-dimensional ultrasonographic echocardiography. Pericardiocentesis yielded 1500 ml of bloody fluid. Pericardial cytologic examination was positive for malignant cells. The patient underwent abdominal computed tomography scan, which showed thickening of the gastric wall and several mesenteric lymph nodes. Endoscopic examination of the stomach disclosed malignant ulcer along the lesser curvature, and the biopsy showed diffuse type adenocarcinoma. Chemotherapy was initiated by the Oncology Department, and he had no pericardial effusion after six courses of systemic chemotherapy. In conclusion, this is a rare condition and difficult to diagnosis early. Thus, physicians should be aware of malignancy of the stomach when patients present with unexplained cardiac manifestations.

Özet– Primer mide kanserinden kaynaklanan kalp tamponadı nadir bir durumdur. Hastalar genellikle hastalık ilerleyinceye kadar semptomsuzdur. Bu yazıda primer mide kanserinin ilk belirtisi olarak kalp tamponadı gelişen bir olgu sunuldu. İlerleyici dispne şikayeti ile başvuran 46 yaşında erkek hastaya yapılan iki boyutlu ultrasonografik eko-kardiyografide kalp tamponadı tespit edildi. Perikardiyosentez yapılarak 1500 ml hemorajik sıvı boşaltıldı. Perikart sıvısından yapılan sitolojik incelemede kötü huylu hücreler görüldü. Karın bilgisayarlı tomografisinde mide duvar kalınlığında artış ve mezenter lenf düğümleri saptandı. Endoskopik incelemede küçük kurvatur boyunca uzanan ülser ve biyopside difüz tip adenokarsinom saptandı. Hastaya onkoloji kliniği tarafından kemoterapi başlandı ve altı kür kemoterapi sonrasında perikart sıvısı görülmedi. Sonuç olarak, bu klinik tablo erken tanısı zor ve nadir görülen bir durumdur. Bu yüzden doktorlar açıklanamayan kalbe ait bulgular ile başvuran hastalarda nadir görülse bile mide karsinomu konusunda uyanık olmalıdır.

Cardiac tamponade due to pericarditis and pericardial effusion originating from a primary gastric cancer (GC) is a rare condition. Patients are generally asymptomatic until the disease is advanced, and therefore, early diagnosis is difficult. Pericardial effusion is usually detected during the terminal stages of GC, and the prognosis is poor. There are several reports of cardiac tamponade as the first clinical sign due to GC, and these are mostly case reports.

Abbreviations:

CT Computed tomography
GC Gastric cancer

Here, we discuss a rare patient with cardiac tamponade as the first manifestation of primary GC. The remarkable aspect of the case is that there were no gastrointestinal symptoms until the onset of cardiac tamponade.

CASE REPORT

A 46-year-old male was admitted with progressive dyspnea, fatigue, and swelling of bilateral lower extremities. His medical history was unremarkable. His

Received: November 10, 2013 Accepted: November 29, 2013

Correspondence: Dr. Arif Arısoy. Hitit Üniversitesi, Çorum Eğitim ve Araştırma Hastanesi, Kardiyoloji Kliniği, 19100 Çorum.

Tel: +90 364 - 223 03 00 e-mail: arfarsy@hotmail.com

© 2014 Turkish Society of Cardiology



symptoms had worsened over the past two weeks. On physical examination, his blood pressure was 90/60 mmHg and heart rate was 120 beats/minute. He had orthopnea, tachypnea, jugular venous distension, distant heart sounds, and pulsus paradoxus sign. Sinus tachycardia, low QRS voltage and presence of ventricular electrical alternans were seen on electrocardiogram. Chest X-ray showed an increased cardiothoracic ratio and bilateral pleural effusion. An emergency two-dimensional ultrasonographic echocardiography disclosed massive pericardial effusion with right atrial and ventricular early diastolic collapse and presence of “swinging heart phenomenon” (Figures 1a, b). Cardiac tamponade was diagnosed, and emergent pericardiocentesis yielded 1500 ml of bloody fluid. Thoracic computed tomography (CT) scan demonstrated massive pleural effusion without any evidence of intrathoracic lymphadenopathy or malignancy. Thoracentesis yielded 700 ml of serous fluid. Laboratory studies showed that the serum level of carcinoembryonic antigen and carbohydrate anti-

gen 19-9 were elevated. Pericardial and pleural fluid was characterized by exudation. Pericardial cytologic examination was positive for malignant cells having features of carcinoma, and pleural cytologic analysis was negative. Abdominal CT scan showed thickening of the gastric wall and several mesenteric lymph nodes. Endoscopic examination of the stomach disclosed malignant ulcer along the lesser curvature, and the biopsy showed diffuse type adenocarcinoma. After pericardiocentesis and thoracentesis, the hemodynamically stable patient was transferred to the oncology department for chemotherapy. Combined cisplatin, 5-fluorouracil and docetaxel was initiated. He had no pericardial effusion after six courses of systemic chemotherapy.

DISCUSSION

Malignant pericardial effusion is a serious and potentially life-threatening illness that requires prompt evaluation, diagnosis and management. Various conditions may be associated with pericardial effusion and tamponade: infections (bacterial, viral, and fungal), chest trauma, collagen vascular diseases (rheumatoid arthritis, systemic lupus erythematosus), uremia, hypothyroidism, and malignancies. Among malignant tumors most frequently associated with pericardial metastases are carcinoma of the breast, melanoma and lymphoma.^[1,2] In the oncological patient, pericardial effusion may develop via several different mechanisms, namely by direct or metastatic spread of the primary process or as a complication of antineoplastic therapies. Secondary cardiac metastases most frequently arise from primary lung tumors. The most commonly reported of these include bronchial carcinoma, breast cancer, leukemia, Hodgkin's disease, non-Hodgkin's lymphoma, melanoma, and sarcomas. Primary GC rarely metastasizes to the heart, with 4.3-7.7% reported from autopsy investigations.^[3-5] Fraser et al.^[6] analyzed 22 cases of cardiac tamponade caused by extracardiac malignancy, and found only two to be caused by primary GC.

Pericardial effusion with cardiac tamponade is an unusual first presentation of GC, although cardiac involvement is often a late finding in widespread malignancy. With respect to the presenting symptoms of GC, patients may first complain of upper abdominal pain, anorexia or other gastrointestinal symptoms such as nausea, vomiting, bleeding, or melena. Some

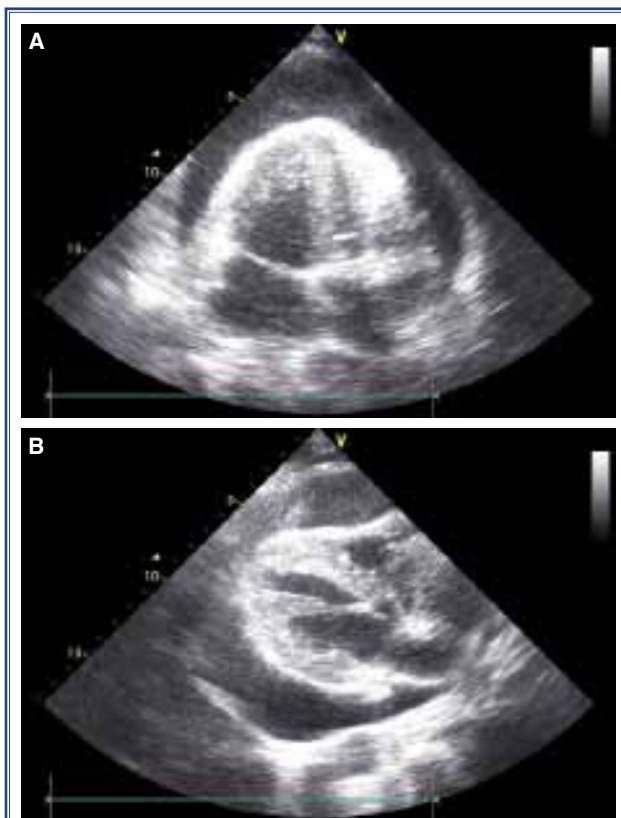


Figure 1. (A) Massive pericardial effusion in apical four-chamber view. (B) Massive pericardial effusion in parasternal long-axis view.

GCs have atypical symptoms. Metastatic tumors to the heart resulting in malignant pericardial effusion with cardiac tamponade as the initial clinical sign are not seen frequently.^[7-9] Kobayashi et al.^[10] reviewed the literature regarding 17 patients with cardiac tamponade presenting from GC. Our patient showed cardiac tamponade as the initial clinical sign of gastric adenocarcinoma.

The prognosis of cardiac tamponade caused by malignant pericarditis is grave, and survival is limited.^[10] Although no standard treatments for malignant pericardial effusion have yet been established, the effectiveness of pericardiocentesis and pericardial sclerotherapy has been reported.^[7] Pericardial effusion is often resistant to treatments; thus, it results in poor prognosis. Furthermore, it requires a repetitive administration of sclerosing reagents, and treatment-related complications are known.

In conclusion, cardiac tamponade may be the first clinical sign of primary gastric carcinoma. This is a rare condition and difficult to diagnosis early. Thus, physicians should be aware of malignancy of the stomach when patients present with unexplained cardiac manifestations.

Conflict-of-interest issues regarding the authorship or article: None declared.

***Supplementary video file associated with this article can be found in the online version of the journal.**

REFERENCES

- Zhang BL, Xu RL, Zheng X, Qin YW. A case with cardiac tamponade as the first sign of primary gastric signet-ring cell carcinoma treated with combination therapy. *Med Sci Monit* 2010;16:CS41-44.
- Bacic B, Mistic Z, Kovacic V, Sprung J. Gastric carcinoma presenting as pericardial tamponade during pregnancy. *Turk J Gastroenterol* 2009;20:276-8.
- Tabata Y, Nakato H, Nakamura Z, Sasaki A, Shoji K, Yokoyama H, et al. Metastatic cardiac tumors-clinicopathological evaluation of 64 autopsy cases. [Article in Japanese] *Kokyu To Junkan* 1983;31:569-73. [Abstract]
- Nakayama R, Yoneyama T, Takatani O, Kimura K. A study of metastatic tumors to the heart, pericardium and great vessels. I. Incidences of metastases to the heart, pericardium and great vessels. *Jpn Heart J* 1966;7:227-34. [CrossRef](#)
- Mukai K, Shinkai T, Tominaga K, Shimosato Y. The incidence of secondary tumors of the heart and pericardium: a 10-year study. *Jpn J Clin Oncol* 1988;18:195-201.
- Fraser RS, Vilorio JB, Wang NS. Cardiac tamponade as a presentation of extracardiac malignancy. *Cancer* 1980;45:1697-704. [CrossRef](#)
- Kusaba H, Fujihara M, Nagashima R, Kaji Y, Baba E, Nakano S. Systemic chemotherapy of TS-1 and cisplatin for gastric signet-ring cell carcinoma presenting as cardiac tamponade. *Med Oncol* 2008;25:241-4. [CrossRef](#)
- Varvarigos N, Kamaradou H, Kourti A, Papavasiliou ED, Papaioannou H, Migdalis IN, et al. Cardiac tamponade as the first manifestation of gastric cancer and remission after chemotherapy. *Dig Dis Sci* 2001;46:2333-5. [CrossRef](#)
- Sakai Y, Minouchi K, Ohta H, Annen Y, Sugimoto T. Cardiac tamponade originating from primary gastric signet ring cell carcinoma. *J Gastroenterol* 1999;34:250-2. [CrossRef](#)
- Kobayashi M, Okabayashi T, Okamoto K, Namikawa T, Araki K. Clinicopathological study of cardiac tamponade due to pericardial metastasis originating from gastric cancer. *World J Gastroenterol* 2005;11:6899-904.

Key words: Adenocarcinoma/diagnosis; cardiac tamponade; pericardial effusion/diagnosis; stomach neoplasms.

Anahtar sözcükler: Adenokarsinom/tanı; kalp tamponadı; perikart efüzyonu/tanı; mide kanseri.