Malignant Pericardial Tamponade in a Case of Signet Cell Gastric Carcinoma

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Abstract
We report a case of gastric signet cell carcinoma, presenting as cardiac tamponade, in a young male patient. The diagnosis of gastric signet cell carcinoma was confirmed by immunohistochemistry of the lymph node specimen in our patient.

Introduction
Malignant involvement of the pericardium is detected in 1 - 20 percent of cancer cases in autopsy studies.¹ Direct involvement of the myocardium is much less frequent, either by metastatic or primary tumors. The most common metastatic tumor involving the pericardium is lung cancer; others include breast and esophageal cancer, melanoma, lymphoma, and leukemia. Primary gastric signet-ring cell carcinoma is a rare cause of malignant pericardial effusion, especially when cardiac tamponade is the first clinical manifestation.²³ We report one such rare case of gastric signet cell carcinoma presenting as cardiac tamponade in a young male patient. The diagnosis of gastric signet cell carcinoma was confirmed by immunohistochemistry of the lymph node specimen in our patient.

Case Report
A 28 year old male patient was admitted with breathlessness which worsened over two days. He became symptomatic at rest. Patient had dry cough associated with breathlessness. No history of fever, chest pain associated with breathlessness. Physical examination revealed PR 100/min and BP 80/60 mm Hg. Other physical findings were cervical lymphadenopathy, elevated JVP, pulsus paradoxus, muffled heart sounds, bilateral absent breath sounds with stony dullness.

Chest X ray showed cardiomegaly with bilateral pleural effusion. Possibility of cardiac tamponade was considered and an emergency echocardiogram was done, which confirmed the same. Pericardiocentesis was done and around 250 ml of fluid was drained. Ultrasound abdomen revealed moderate ascites but failed to show any mass lesion. Lymph node biopsy revealed signet cell metastases with possible primaries from stomach, pancreas, lung. CT chest and abdomen failed to show any lesion in the lungs or intra-abdominal organs except for sub-centimetric mesenteric and mediastinal lymphadenopathy. CA 19-9 was elevated (>1200 U). Other tumor markers like CEA, PSA, LDH, AFP were negative. Stool occult blood was negative. Upper and lower GI endoscopy were essentially normal. Endoscopic biopsies of apparently normal stomach (2 samples) were done which was also negative. Immunohistochemistry of the lymph node sample suggested that possible site of origin of the metastases was stomach with CK – 7 and CK – 20 positive. Final diagnosis of cardiac tamponade due to gastric signet cell metastases was made.

Discussion
The interesting aspects in our case are primary gastric signet cell carcinoma presenting as cardiac tamponade as the initial manifestation, young age of our patient, and a normal endoscopy. The primary malignancy was confirmed by immunohistochemistry in our patient. A search of the MEDLINE database revealed 9 cases of primary gastric carcinoma presenting as cardiac tamponade reported in the literature between 1982 and 2013. To the best of our knowledge, this is the first such report from India. In these reports, only 4 out of 9 cases had signet-ring carcinoma. All the cases reported previously were more than forty five years whereas our patient was only 28 years old.

In the four cases reported previously, endoscopy revealed a lesion in the stomach in three patients and in the fourth patient the diagnosis was made by autopsy.² Endoscopy and endoscopic biopsy (2 samples) were negative for malignancy. Missed esophageal and gastric cancers are not infrequent in patients who have undergone previous endoscopy. Raftopoulos et al.⁷ reported an upper gastrointestinal cancer missed rate of up to 6.7% in a cohort of 28,000 patients who underwent OGD at a hospital-based endoscopy unit in Perth, Western Australia. Of the missed esophageal and gastric cancers, 80% of patients had alarm symptoms and in 73% abnormalities were reported at the time of OGD. The cause of failure was that missed cancers either were not seen, or were seen but were not biopsied, or they were biopsied inadequately, or were interpreted incorrectly by the pathologist. Only two biopsy specimens were collected in our patient. It might be possible that the diagnosis might have been missed due to inadequate biopsy samples.

Cardiac metastases commonly travel from primary tumors through one of these following routes: (1) direct extension; (2) lymphatic spread; (3) hematogenous spread; and (4) any combination of the above. In the present case, the probable route of metastases was lymphatic.⁸

To conclude, making a diagnosis of gastric carcinoma in a patient presenting with cardiac tamponade is very difficult. This case enlightens us with the fact that primary gastric carcinoma can present as cardiac tamponade as the initial manifestation even in young patients and so medical practitioners should consider the

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possibility of gastric malignancy when patients present with unexplained cardiac manifestations.

References