

Gastropericardial Fistula: A Surgical Emergency

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Citation

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Abstract

Gastropericardial fistula is a rare sequel of transdiaphragmatic perforation of a gastric ulcer or carcinoma.

We report a case of a 38-year-old male presenting with severe dyspnoea and abdominal pain along with evidence of severe cardiac tamponade secondary to a gastropericardial fistula following a benign gastric ulcer in the fundus. The life of the patient could not be saved in spite of pericardial decompression in the form of pericardiocentesis and intensive care.

A high index of suspicion, early diagnosis and prompt surgical intervention may result in a favorable outcome in this otherwise uniformly fatal condition.

INTRODUCTION

Pneumopericardium or hydropneumopericardium is a rare but well recognized entity.

Fifteen per cent of the cases of pneumopericardium or hydropneumopericardium are due to an abnormal communication between stomach and pericardium resulting in a gastropericardial fistula. ¹

CASE REPORT

A 38-year-old man presented to our hospital with the history of severe dyspnoea and upper abdominal pain for one day. On admission his vital parameters showed a pulse rate of 129/min, a blood pressure of 90/70 mm Hg and a respiratory rate of 33/min. On examination, the neck veins were distended and tenderness and guarding was present in the upper abdomen.

Auscultation revealed diminished breath sounds on the left chest base. The heart sounds were distant with shifting precordial tympany and a succussion splash synchronous with the heart sound.

Blood investigation revealed a hemoglobin of 11.5gm/dl, a white cell count of 18410/cu mm and a differential count of 90% neutrophils, 9% lymphocytes and 1% eosinophils. Liver function tests and renal function tests were within normal limits.

Figure 1

Figure 1: Chest radiography showed air interactions within the pericardium, suggesting a pneumopericardium. Electrocardiogram showed a low voltage QRS complex.



After chest radiography and electrocardiogram, a provisional diagnosis of pneumopericardium was made and the patient was subjected to CECT of the abdomen and lower chest, which revealed a suspicious transdiaphragmatic communication between the fundus of stomach and the pericardium, and air within the pericardium suggesting a gastropericardial fistula along with an associated pneumopericardium.

Figure 2

Figure 2: After stabilizing, an Upper GI endoscopy was done which showed a necrotizing ulcer in the fundus of the stomach with a central perforation, revealing an underlying pulsating, bile stained myocardium, confirming a gastropericardial fistula. A biopsy specimen of the margin of the ulcer was taken during the diagnostic procedure.



The patient was shifted to the intensive care unit, pericardial decompression in the form of pericardiocentesis was done by a subxiphoid approach under local anesthesia and about 250 ml of bilio-purulent fluid were aspirated. The condition of the patient stabilized temporarily after pericardial decompression; however, it deteriorated and the patient could not be saved in spite of best care. The biopsy of the margins of the ulcer later showed inflammatory changes, suggesting a benign ulceration.

DISCUSSION

Gastropericardial fistula is an abnormal fistulous communication between stomach and pericardium.

In cases of gastropericardial fistula, the stomach is usually intra-thoracic, either as hiatus or diaphragmatic hernia, or after oesophagectomy with gastric pull-up. However, trans-diaphragmatic perforation of a gastric carcinoma or ulcer into the pericardium, particularly in Zollinger-Ellison Syndrome, may also occur with an intra-abdominal stomach.

1, 2, 3, 4

Gastropericardial fistula presents classically with referred pain in the left shoulder, probably due to diaphragmatic irritation or pericardial irritation along with evidence of pneumopericardium or hydropneumopericardium.¹

ECG may show changes of pericarditis or cardiac tamponade.⁵ Plain chest radiography will show air or an air fluid level in the pericardial cavity and contrast radiography may visualize the gastropericardial fistula. Contrast tomography is helpful if the cause is not evident in contrast radiography.¹ Upper GI endoscopy may be helpful in establishing the diagnosis but should be done with caution as air insufflation may exacerbate the cardiac tamponade.⁶

Successful outcome of a gastropericardial fistula depends on early and definitive management. Surgery is the definite treatment as patients rarely survive with conservative management. Emergency management includes early detection of cardiac tamponade and pericardial decompression. Definitive management includes resection of the fistula, repair of the diaphragmatic defect and dealing with the primary pathology of stomach. Adequate exposure and effective repair of the diaphragmatic defect may require splenectomy.^{1, 3, 5, 7} However, the overall mortality of this disease is 85%.⁸

CONCLUSION

Gastropericardial fistula is a rare and uniformly fatal condition, which requires a high index of suspicion, early diagnosis and prompt surgical intervention for a favorable outcome.

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References

1. Grandhi TM, Rawlings D and Morran CG. Gastropericardial fistula: a case report and review of literature. *Emerg Med J* 2004; 21:644-645.
2. Monro JL, Nicholls RJ, Hatley W, et al. Gastropericardial fistula - a complication of hiatus hernia. *Br J Surg* 1974; 61:445-7.
3. Gabor S, Woltsche M, Maier A, Smolle-Juttner FM. Pneumopericardium due to intrapericardial perforation of gastric ulcer. *Eur J Cardiothoracic Surg* 2003; 23:131-133.
4. Cramm RE, Robinson FW. Pneumopericardium associated with gastric cancer. Report of a case and literature review. *Gastroenterology* 1971; 60:311-5.
5. Hall MN, Little JM Jr. Penetration of the pericardium by a gastric ulcer - survival after pericardiocentesis. *J Am Board Fam Pract* 1990; 3:289-91.
6. Simice P, Zwirowich CV. Gastropericardial fistula complicating benign gastric ulcer: case report. *Can Assoc Radiol J* 2000; 51:244-7.
7. Ghahremani GG, Yaghmai I, Brooks JW, et al. Pneumopericardium due to trans-diaphragmatic perforation of a gastric ulcer. *Dig Dis* 1976; 21:586-91.

8. Letoquart JP, Fasquel JL, L'Huillier JP, Babatasi G, Gruel Y, Lauvin R, Mambrini A. Gastropericardial fistula. Review

of the literature apropos of an original case. J Chir (Paris). 1990; 127:6-12.

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