Gastropleural fistula: an unusual sequel of gunshot injury to the chest

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Abstract

Background: Gastropleural fistula is an uncommon condition; with prompt surgical treatment crucial for a good outcome.
Methods: We reviewed the records of a 35 year old man who was passing particulate matter draining from the chest tube following gunshot injury to the chest.
Results: Exploratory laparotomy showed three perforations on fundus of the stomach measuring 12cm by 4cm, 4cm by 2cm and 2cm by 1cm which were adhered to the diaphragm and communicating with the left pleural cavity through a diaphragmatic laceration measuring 14cm by 4cm associated with soilage of the left pleural cavity. Perforations and diaphragmatic laceration were repaired. However, patient died a few days afterwards.
Conclusion: Gastropleural fistula is uncommon. Prompt recognition is important so that surgery can be offered without delay.

Key words: Gastropleural fistula; Gunshot injury

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Introduction

Gastropleural fistula is an uncommon condition as very few cases have been reported. Early recognition and prompt surgical treatment are important for a good outcome. Most cases have been reported following gastric perforation from gastric ulcer, hiatal hernia, traumatic diaphragmatic hernia, lung resection, gastrectomies, gastric bypass surgeries and subprhrenic abscess. We report a case of gastropleural fistula following a gunshot injury to the chest illustrating a different cause of this rare condition.

Case Report

A 35 year old male, diabetic presented to our emergency department with a 3 hour history of gunshot injury to the left side of the chest after he was shot at close range with a locally made dane gun. Clinical and radiological features confirmed left haemothorax; abdominal examination was unremarkable. Subsequently after resuscitation he had a left thoracostomy tube drainage with findings of 4cm diameter gunshot wound below the left nipple and massive haemothorax with an initial drainage of 2.5 litres.

Five days post injury particulate matter was noticed to be draining from the chest tube and he also had features of septic shock necessitating a request for the surgeons to review. Abdominal examination was still unremarkable and a diagnosis of sub-phrenic abscess was considered. However thoraco-abdominal computed tomography scan revealed left haemopneumothorax and no intra- peritoneal spillage of contrast or ascites.

Patient had exploratory laparotomy with findings of 3 perforations on fundus of the stomach measuring 12cm by 4cm, 4cm by 2cm and 2cm by 1cm which were adhered to the diaphragm and communicating with the left pleural cavity through a diaphragmatic laceration measuring 14cm by 4cm associated with soilage of the left pleural cavity. There was no ascites or peritoneal soilage. The perforations were repaired and he was admitted to the critical care unit for mechanical ventilation and ionotropic support because he had features of septic shock with multiple organ dysfunction. His post-operative period was however turbulent and he suffered a cardiac arrest nine days post injury which he did not recover from despite cardiopulmonary resuscitation.

Discussion

The authors have reported here an unusual cause of gastropleural fistula in our patient: following gunshot injury to the chest, with no abdominal symptom or sign.

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Gastropleural fistula is an uncommon condition and authors have described various causes; which include gastric perforation from gastric ulcer, intrathoracic perforation of the stomach in hiatal hernia and traumatic diaphragmatic hernia. Other causes include complications of lung surgeries, gastrectomies, oesophagastrectomies, gastric bypass surgeries for morbid obesity and subphrenic abscess.

The diagnosis is usually made with contrast study and endoscopy; in our patient we confirmed the diagnosis with a contrast-enhanced computed tomography scan. Like in our patient many early reports prefer laparotomy to thoracotomy as the surgical approach, however there are recent reports of a successful treatment through thoracoscopy and another through endoscopy.

In the index patient the fistula developed most probably from penetrating injury to the chest, with direct penetration to the diaphragm and adjacent stomach which is an unusual cause of this rare condition. Despite the fact that the patient presented died we are of the opinion that early recognition of this condition and prompt surgery will reduce morbidity and mortality.

Conclusion

This case emphasizes that gastropleural fistula can occur in a gunshot injury with no clinical or radiological evidence of peritonitis.

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