



Complicated Boerhaave's Syndrome Managed by Conservative Treatment

**S. D. Peter^{1*}, A. H. Shitta¹, J. M. Njem¹, E. O. Igoh², A. F. Ale¹, M. W. Isichei¹,
E. O. Ojo¹, M. A. Misauno¹ and B. T. Ugwu¹**

¹Department of Surgery, Jos University Teaching Hospital, Jos, Nigeria.
²Department of Radiology, Jos University Teaching Hospital, Jos, Nigeria.

Authors' contributions

This work was carried out in collaboration among all authors. Authors SDP, MWI and BTU designed the study, wrote the protocol and wrote the first draft of the manuscript. Authors AHS, JMN, AFA, EOO, MAM and BTU managed the analyses of the study. Author EOI managed the radiological aspect and with author BTU managed the literature searches. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Boerhaave's syndrome is a full-thickness perforation of oesophagus associated with vomiting and/or severe straining. It is a severe condition with high morbidity and mortality; the outcome is dependent on early recognition, prompt and effective intervention. It commonly presents early with mediastinitis or pleural effusion. Though uncommon, it can present late with severe chest complications which are usually managed aggressively. The present study reports a 41-year old Nigerian man with Boerhaave's syndrome who presented with left pneumohydrothorax who was successfully managed with chest tube thoracostomy drainage and parenteral nutrition.

Keywords: *Boerhaave's syndrome; pneumohydrothorax; pneumopyothorax; conservative.*

1. INTRODUCTION

Boerhaave's syndrome is a full-thickness perforation or tear of the oesophagus associated with vomiting and or severe straining. It occurs as a result of vomiting that is uncoordinated with diaphragmatic contraction leading to a sudden increase intraoesophageal pressure from contraction of cricopharyngeus muscle and closure of pyloric sphincter[1]. It is sometimes described as spontaneous rupture of the oesophagus, effort perforation of oesophagus or oesophageal apoplexy. However, because it is usually associated with vomiting, it is not truly spontaneous, but the term is useful to differentiate it from iatrogenic oesophageal perforation which accounts for 85-90% cases of oesophageal perforation [2-4].

It is named after Hermann Boerhaave, a Dutch Physician, who first described it in 1724. It is an uncommon condition frequently associated with severe retching and vomiting often associated with alcoholism ; it has an estimated incidence of 3.1 per 1,000,000 per year[5]. It is usually recognized immediately it occurs, presenting with the typical Mackler's triad of chest pain, vomiting and subcutaneous emphysema [6-9]. However, in few cases, this triad may not be complete, or may be missed and thus present late with complications [10-14]. These complications could be localized or systemic. Local complications could involve the mediastinum, pleurae or abdomen when the perforation involves abdominal portion of the oesophagus[15,16]. The syndrome has a very high mortality, untreated it is 100%, with surgical intervention in first 24 hours it is about 50%, and 75% if operated later.

We present a case of Boerhaave's syndrome that presented with pneumopyothorax and managed conservatively.

2. CASE REPORT

A 41-year old man presented to the Accident and Emergency Unit of Jos University Teaching Hospital, Jos, Nigeria, with a progressively worsening difficulty in breathing, chest pain and fever of 4 days duration. He had a single episode of haematemesis and brief retrosternal pain after an alcoholic binge 2 weeks prior to presentation, but there were no symptoms of mediastinitis and no significant past medical history of note. He was febrile with a temperature of 38.6°C, not pale, with a respiratory rate of 36 cpm, stony dull

percussion notes and absent breath sound over the left hemi thorax. There was no subcutaneous emphysema. A chest X-ray showed features consistent with left pneumohydrothorax and collapsed left lung with mediastinal shift to the right (Fig. 1). He was promptly resuscitated and had left tube thoracostomy which drained 2.6litres of purulent collection over a 12-hour period. The pus yielded a heavy growth of *Staphylococcus aureus*, sensitive to ceftriaxone which he was on with metronidazole. The next day, the chest tube was noticed to be draining ingested food particles, necessitating cessation of oral intake. Barium swallow done after dilute gastrograffin cleared the mediastinum, showed leakage from the left lower oesophagus into the left pleural cavity (Fig. 2). He had parenteral nutrition for a period of 12 days, at which time a repeat barium swallow showed out-pouching of the lower oesophagus without leak into the pleural space (Fig. 3). He commenced oral intake on the 12th day, starting with clear fluids, and subsequently low residue diets. Chest tube drainage reduced to 50mls of serous fluid on the 10th day and remained so for 3 consecutive days at which time it was removed when a chest X-ray showed well expanded lungs without pleural collection. A check oesophagoscopy before removal of the chest tube showed a normal looking oesophagus. Patient has remained symptom free with normal chest radiographs after 9 months follow-up.

3. DISCUSSION

Boerhaave's syndrome as a cause of oesophageal perforation is uncommon, accounting for 15% of oesophageal perforations [17]. Regardless of the cause of oesophageal perforation, immediate intervention is required because it is potentially life threatening[12], and Boerhaave syndrome is believed by some authors to be the most lethal of all oesophageal perforations[13,14].

Perforation of the thoracic oesophagus almost always requires surgical intervention [1,3]. Our patient presented late with pyothorax which needed immediate drainage. The oesophageal perforation itself was an "incidental" finding after drainage of the pyothorax, which is not an uncommon mode of presentation of Boerhaave's syndrome [6,8]. A conservative, non-operative management of the perforation was opted for, as symptoms improved with drainage of the pyothorax. Generally, decision to use an aggressive or conservative approach depends on

the time between onset of symptoms and diagnosis, extent of perforation and overall medical condition of the patient [18-20]. Our patient presented 2 weeks after perforation with improving overall clinical condition after drainage of pyothorax.



Fig. 1. Chest radiograph showing massive left hydropneumothorax with mediastinal shift to the contra lateral side



Fig. 2. Barium swallow showing contrast leak into left pleural space



Fig. 3. Barium swallow showing left sided oesophageal out-pouching

Other options of treatment of the oesophageal perforation were both endoscopic, laparoscopic or open operative repair of the perforation, with or without oesophageal exclusion by cervical oesophagostomy and feeding gastrostomy[21]. However, major risks of an immediate endoscopic approach of the already friable oesophagus, either diagnostic or therapeutic include worsening the size of the oesophageal tear during the necessary air insufflations for adequate visualization, as well as the possibility of creating a false passage by the endoscope [22]. At endoscopy, oesophageal clips may be applied or insertion of expandable oesophageal stents. These options are however expensive in our environment [23,24].

In the absence of endoscopic repair or its failure, open repair should be performed, in which the most favored approach is via a left thoracotomy[25,26]. A laparotomy or laparoscopy may be needed if the rupture or tear extend into the abdominal portion. Omental flaps may be used to support the primary repair.

4. CONCLUSION

This case is unique as it described a late presentation of Boerhaave's syndrome presenting with pneumopyomothorax that was managed conservatively. This allowed mediastinal toileting and healing of the oesophageal perforation with clinical and radiological resolution of the pneumopyothorax. This reiterates the importance of conservative management of late presentation of oesophageal perforation.

CONSENT AND ETHICAL APPROVAL

As per university standard guideline, participant consent and ethical approval have been collected and preserved by the authors

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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