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Case Report

Breaking barriers in Boerhaave syndrome: a case of successful non-surgical treatment

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ABSTRACT

Boerhaave syndrome is a rare and life-threatening condition characterized by spontaneous esophageal rupture, commonly resulting from severe vomiting. It carries a high mortality rate if untreated, particularly in delayed presentations. This report details a 44-year-old male with symptoms of breathlessness, chest pain, and vomiting after binge drinking. Initial management included nasogastric and intercostal drainage, antibiotics, and total parenteral nutrition. Diagnostic imaging revealed a left-sided esophageal tear with a fistula to the pleural cavity. Conservative treatment combined endoluminal vacuum therapy with other supportive measures, successfully reducing the esophageal defect and associated complications. The patient recovered without requiring additional surgical intervention, highlighting the potential of conservative approaches in carefully selected cases of Boerhaave syndrome. This case underscores the importance of timely diagnosis, multidisciplinary management, and advanced endoscopic therapies in achieving positive outcomes for a condition traditionally managed surgically.

Keywords: Boerhaave syndrome, Esophageal perforation, Mediastinitis, Endoluminal vacuum therapy, Esophageopleural fistula

INTRODUCTION

Boerhaave syndrome, 1st described by Herman Boerhaave in 1724, is characterized by spontaneous rupture of the esophagus due to severe vomiting.[1,2] Although rare, it is associated with high mortality if not diagnosed and treated early.[3,4] The tear usually occurs in the distal esophagus, with patients often presenting with chest pain, vomiting, and subcutaneous emphysema.[5] This syndrome affects approximately 0.0003% of the population, mostly middle-aged males with a history of heavy alcohol use.

CASE REPORT

A 44-year-old male was brought to the hospital with breathlessness, chest and abdominal pain, and fever. He was unable to lie down and had difficulty breathing. Seven days prior, he had consumed alcohol heavily, followed by severe vomiting and hoarseness. There was no history of blood in his vomit, stool, or coughing, and he had no other known health issues.

He had been previously admitted to a district hospital, where a left-sided intercostal drainage (ICD) tube was placed due to fluid buildup in his chest. A nasogastric tube and catheter were also inserted, and he was given antibiotics and painkillers. Then referred to this institution after 7 days on examination, his oxygen levels were low (SpO_2 86%), but he showed no signs of pallor, cyanosis, or swelling. He had decreased movement on the left side of his chest, and his ICD was draining pus.

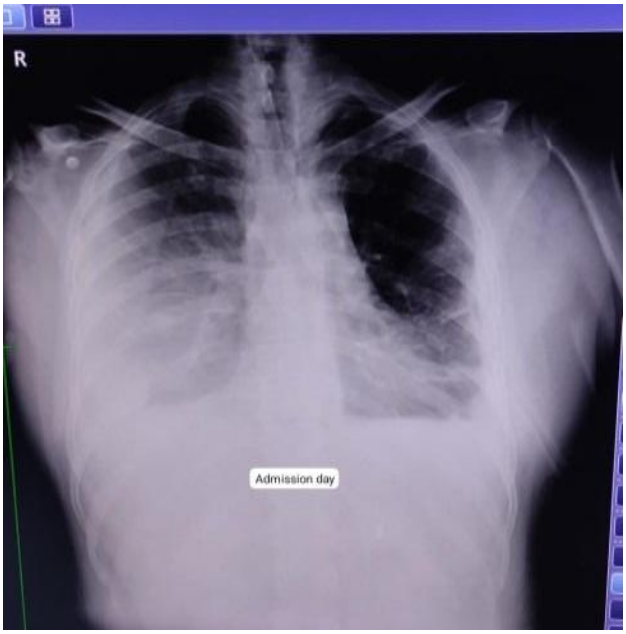

Figure 1: Initial chest X-ray of left-sided hydropneumothorax and right-sided pleural effusion.

Imaging and initial diagnosis

A chest X-ray showed fluid and air in his left lung (hydropneumothorax), and there was fluid in the right lung as well. A CT scan confirmed the findings and showed leakage from the lower part of the esophagus into the pleural cavity (around 4.7 cm above the gastroesophageal junction), suggesting a possible esophageal-pleural fistula.

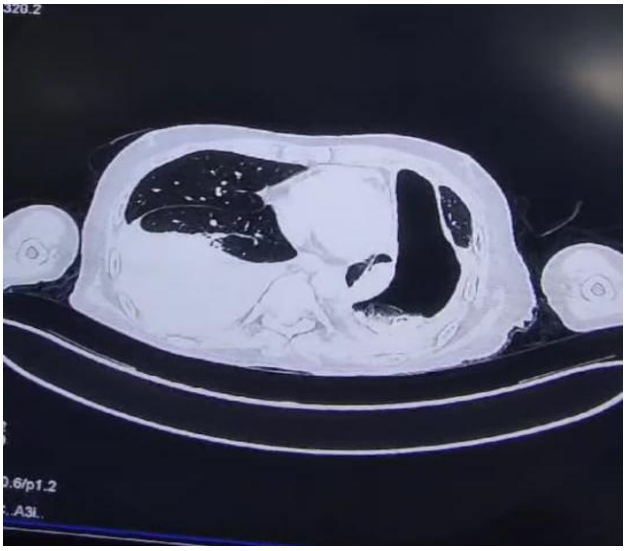

Figure 2: CT scan revealing fluid and air in the left pleural cavity along with right-sided pleural effusion.

The patient was treated with antibiotics, painkillers, and breathing exercises. A fluoroscopic dye studies the following day revealed a 1.2 cm tear in the lower esophagus with leakage into the left pleural cavity.

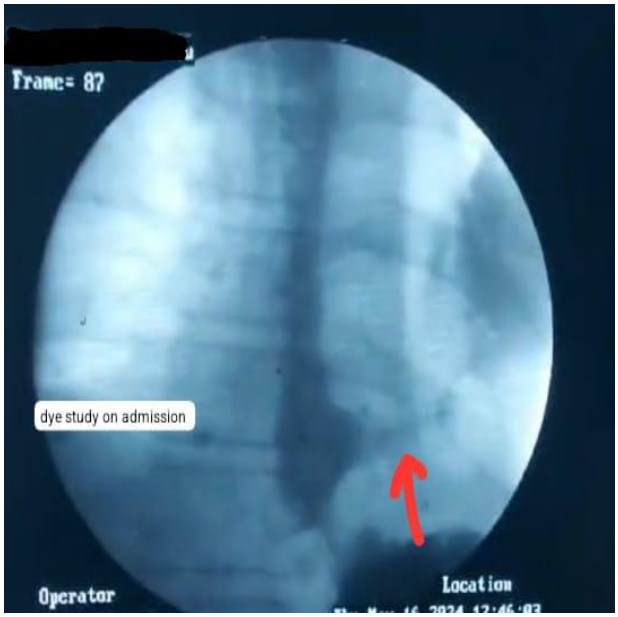

Figure 3: Fluoroscopic dye study showing esophageal-pleural fistula.

Esophagogastroduodenoscopy

Revealed a 1.2 cm perforation in the esophagus at 40 cm from the upper incisors. The scope could pass through the defect into the pleural cavity, which was infected.

Surgical intervention and complications

Five days after admission, as the patient's condition was not improving, video-assisted thoracoscopic surgery (VATS) with decortication (removal of infected tissue) of the pleural cavity and feeding jejunostomy (feeding tube insertion) was performed. Post-surgery, the patient's condition stabilized, and he was kept on mechanical ventilation for 12 hours. While his chest movements improved and he tolerated feeding through the jejunostomy, oral feeding through the nasogastric tube was not successful, as food particles were seen in the ICD tube, indicating ongoing leakage.

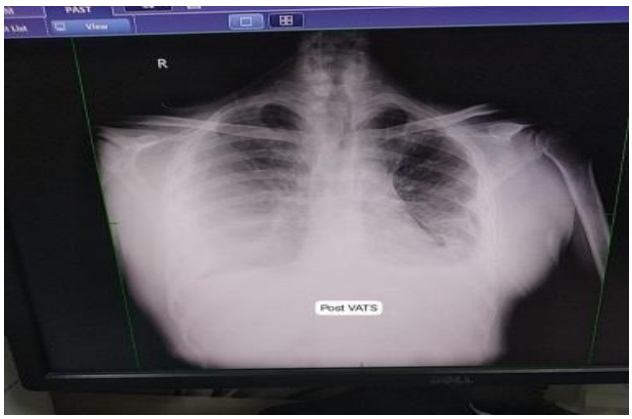

Figure 4: Post-VATS chest X-ray showing improved chest movement and decreased effusion.

Lab investigations showed normal blood counts, liver and kidney function, and pleural fluid analysis confirmed an exudative (infected) pleural effusion. Despite antibiotic treatment, the ICD output remained high, with purulent material and food particles being drained.

Endoscopic and vacuum therapy

An EGD on the 15th day revealed a 1.2 cm perforation in the esophagus at 40 cm from the upper incisors. The scope could pass through the defect into the pleural cavity, which was infected. The defect's edges were friable, making clipping impossible, so endoluminal vacuum therapy was thought of. A Ryle tube with granulofoam was placed over the defect, with a vacuum pressure of less than 50 mmHg. After five days, follow-up imaging showed the tear had reduced to 0.6 cm, and the ICD drainage had significantly decreased.

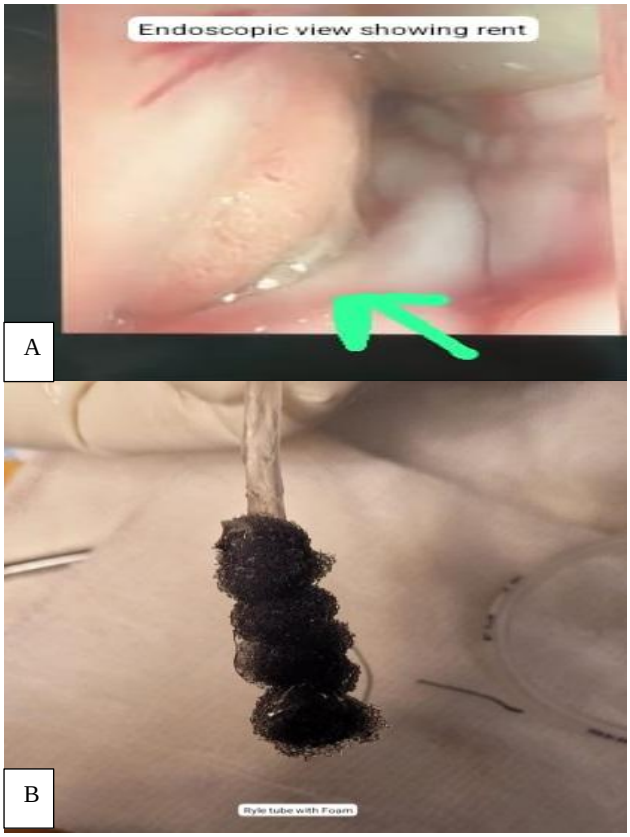

Figure 5 (A and B): Endoscopic image showing the esophageal perforation and endoluminal vacuum therapy setup.

Outcome

The patient underwent a second endoscopic vacuum procedure, which further reduced the tear to 0.3 cm. His condition continued to improve, and he tolerated oral sips without an increase in ICD drainage. Serial chest X-rays showed reduced effusion on both sides. He was started on oral liquids, followed by semisolids, and was discharged with the ICD tube still in place.

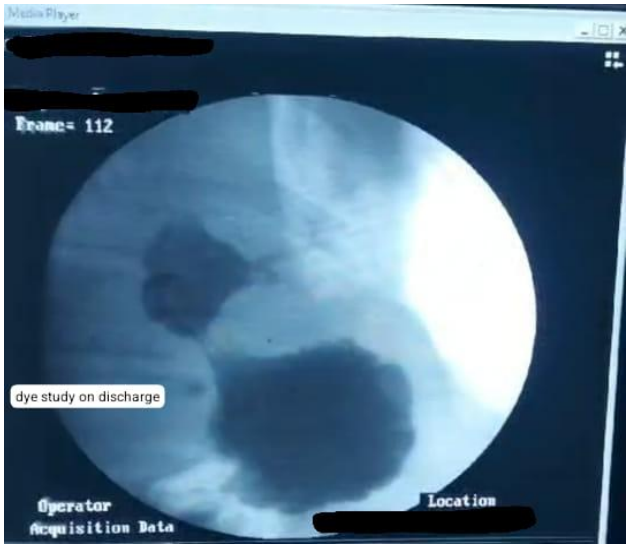

Figure 6: Post-second vacuum procedure showing a reduced esophageal tear on follow-up fluoroscopy.

One month later, a follow-up chest X-ray showed significant improvement, and the ICD tube was removed. The patient remained stable, under observation and discharged on full diet.

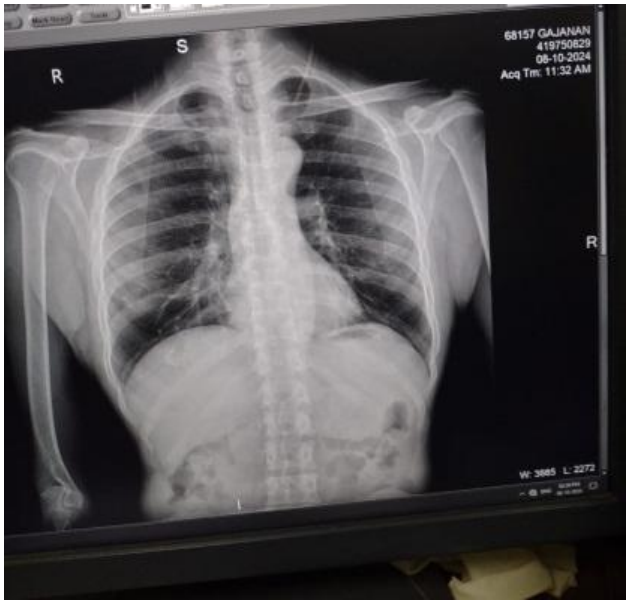

Figure 7: Final chest X-ray after recovery, showing resolved hydropneumothorax.

DISCUSSION

Boerhaave syndrome, though rare, is a severe condition requiring prompt diagnosis and treatment immediately surgical intervention are known to give good results. Delayed presentation often complicates management, increasing the risk of morbidity and mortality.[6-8] Diagnosis is usually confirmed through imaging, such as CT and contrast esophagography, and treatment is typically surgical if detected early. However,

conservative management, including endoluminal vacuum therapy, can be successful in cases where surgery poses a higher risk or in patients presenting after 48 hours.[9,10]

Mortality and prognosis

Boerhaave syndrome has a mortality rate ranging from 20% to 60%, depending on the time of intervention.[11] Without treatment, the mortality approaches 100%. Conservative treatment, as shown in this case, can be lifesaving when surgical risks are high or when the patient presents late.[12,13] This case supports the use of endoluminal vacuum therapy as a viable option in managing esophageal perforations.[14,15]

CONCLUSION

Boerhaave syndrome, though uncommon, requires high clinical suspicion for diagnosis, especially in patients with a history of alcohol abuse and vomiting**.** Early intervention is crucial for survival. Conservative approaches, including endoluminal vacuum therapy, can be effective in carefully selected cases, particularly when surgery is not immediately feasible**.**

This case underscores the importance of multidisciplinary care and timely radiological follow-up in managing such patients. Despite the high mortality associated with this syndrome, conservative management can lead to positive outcomes when employed judiciously.

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Ethical approval: Not required

REFERENCES

1. Derbes VJ, Mitchell RE Jr, Hermann Boerhaave's Atrocis, nec descripti prius, morbi historia, the first translation of the classic case report of rupture of the esophagus, with annotations. Bull Med Libr Assoc. 1955;43(2):217-40.
2. Cadogan M. Boerhaave syndrome. LITFL Medical Eponym Library. 2023. Available at: https://litfl.com/boerhaave-syndrome. Accessed on 21 December 2024.
3. Neff C, Lawson DW. Boerhaave syndrome: Interventional Radiologic Management. Am J Roentgenol. 1985;145(4):819-20.
4. Jones T, Smith A. Endoluminal Vacuum Therapy in Esophageal Perforations. Brit J Surg. 2022;109(6):S301.
5. Soussi D, Alharahsheh BHA, Boshier PR, Hoare J, Direkze N, Thomas R, et al. Endoluminal Vacuum Therapy in the Management of Boerhaave Syndrome: A Case Series. Brit J Surg. 2022;109(6):402-11.
6. Michailidou S, Konstantinos F, Stamatia M, Nikolaos B, Christos P. Early Diagnosis and Surgical Management of Boerhaave Syndrome: A Case Report. Cureus. 2023;15(10):e47596.
7. White A. Anchoring' The Diagnosis: A Case of Boerhaave Syndrome Complicated by Persistent Esophageal Leak. CHEST. 2023;164(4):A2324.
8. Al-Zahir AA, Al Saif OH, Al Naimi MM, Almomen SAM, Meshikhes AWN. Boerhaave's Syndrome: Delayed Management Using Over-the-Scope Clip. Am J Case Rep. 2019:20:816-21.
9. Neff C, Lawson DW. Boerhaave syndrome: Interventional Radiologic Management. Am J Roentgenol. 1985;145(4):819-20.
10. Rivera Nájera SK, Solís EIH, Cruz EJG. Endoscopic Management of Boerhaave Syndrome: A Comprehensive Review. Int Surg J. 2024;11(10):1725-30.
11. Brauer RB, Liebermann-Meffert D, Stein HJ, Bartels H, Siewert JR. Boerhaave's Syndrome: Analysis of the Literature and Report of 18 New Cases. Dis Esophagus. 1997;10(1):64-8.
12. Dickinson KJ, Buttar N, Wong Kee Song LM, Gostout CJ, Cassivi SD, et al. Utility of Endoscopic Therapy in the Management of Boerhaave Syndrome. Endoscopy Int Open. 2016;4(11):E1146-50.
13. Vyslouzil K, Král V, Neoral C, Klementa I, Blahut L, Konecný M. Surgical Treatment of Spontaneous Esophageal Perforation-Boerhaave Syndrome. Rozhl Chir. 2000;79(11):521-3.
14. Ivey TD, Simonowitz DA, Dillard DH, Miller Jr DW. Boerhaave Syndrome: Successful Conservative Management in Three Patients with Late Presentation. Am J Surg. 1981;141(5):531-3.
15. Sulpice L, Dileon S, Rayar M, Badic B, Boudjema K, Bail JP, et al. Conservative Surgical Management of Boerhaave's Syndrome. Int J Surg. 2013;11(1):64-7.

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