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Atypical Esophageal Perforation: Clinical Vigilance and Nutritional Management – Case Report

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1. Abstract

Boerhaave syndrome is a rare, life-threatening condition. Symptoms are often atypical, so early diagnosis is crucial for prompt treatment. This case report describes a 55-year-old male with atypical Boerhaave syndrome and a free medical history, without subcutaneous emphysema, and discusses its diagnosis, surgical treatment and nutritional support. It highlights the importance of combining clinical assessment, timely diagnostics, surgical expertise and personalised nutrition in the management of esophageal perforation.

2. Introduction

Boerhaave syndrome represents a full-thickness rupture of the esophageal wall, typically following forceful vomiting. The classic triad, vomiting, chest pain, and subcutaneous emphysema is present in only a minority of cases, complicating early recognition [1,2]. Prompt diagnosis is critical, as delayed intervention significantly increases morbidity and mortality [3]. Criteria for diagnosis include sudden onset chest pain, history of emesis, imaging evidence of esophageal perforation, and pleural or mediastinal involvement [4]. This report describes an atypical presentation without subcutaneous emphysema, emphasizing the importance of clinical suspicion, timely imaging, and individualized nutritional management.

3. Case Presentation

A 55-year-old man attended the Emergency Department after experiencing two episodes of forceful vomiting following a meal. He reported severe that radiated retrosternal pain. His vital signs on arrival were as follows: SpO_2: 93%; heart rate: 130 bpm; blood pressure: 130/90 mmHg. Clinical examination revealed no subcutaneous emphysema. His medical history was free and his body structure did not predispose him to rupture, as his body mass index was 24.4 kg/m² (weight 79 kg, height 1.80 m) Immediate thoracic CT demonstrated mediastinal air without pleural effusion, confirming esophageal perforation (Figure 1). Given the longitudinal nature of the rupture urgent surgery was indicated.

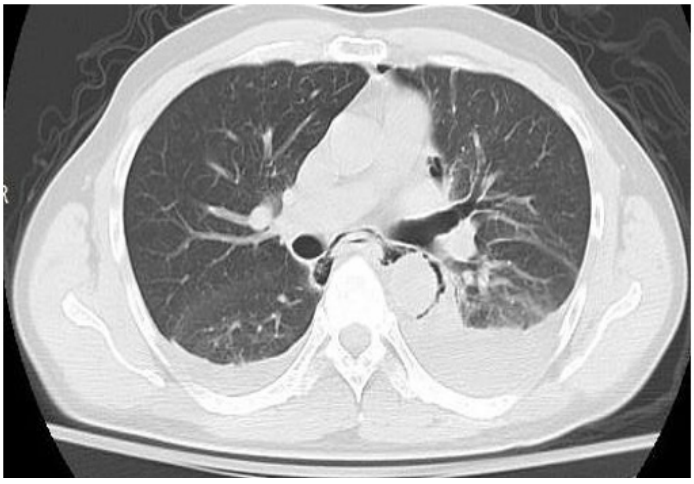

Figure 1: Thoracic CT demonstrated mediastinal air without pleural effusion.

3.1. Surgical Technique and Nutritional Treatment

The CT scan revealed dilatation of the mediastinum. However, the location of the rupture could not be identified. Assuming a thoracotomy would be necessary if the rupture were not in the final third of the esophagus, an incision was made above the umbilicus to gain access. Ultimately, this was not the case. The rupture was longitudinal and located in the final third of the oesophagus. The ruptured area was sutured and a Dor fundoplication was performed to reinforce the suture. Additionally, a feeding jejunostomy was performed. Postoperative management included transfusion of two units of fresh frozen plasma to address perioperative coagulopathy and optimize clotting after surgical repair [5]. Given the patient's hemodynamic stability, transfer was made to the surgical high-dependency unit, for monitoring rather than the intensive care unit. Moreover, triple antibiotic therapy with piperacillin was initiated intraoperatively and continued in the clinic. The patient did not develop fever throughout his postoperative course. Nutritional management commenced on postoperative day 2 with total parenteral nutrition due to nil per os status. By postoperative day 5, contrast esophagography confirmed the absence of leak (Figure 2). On postoperative day six, enteral feeding via jejunostomy with a polymeric formula was gradually initiated. However, the patient experienced gastrointestinal discomfort and poor tolerance of the polymeric formula. Consequently, a blended diet was introduced via the jejunostomy, a strategy supported by recent evidence demonstrating that blended tube feeding improves gastrointestinal tolerance, enhances patient satisfaction, and maintains nutritional adequacy [6,7]. Oral feeding commenced on the eleventh day after surgery, once safe swallowing had been confirmed. The textures of the food and drinks were determined using the International Dysphagia Diet Standardisation Initiative (IDDSI) scale. Initially, it consisted of clear liquids, followed by non-clear liquids, before progressing to soft, non-irritating foods. The enteral feeding via jejunostomy tube was maintained to avoid calorie and protein deficits.

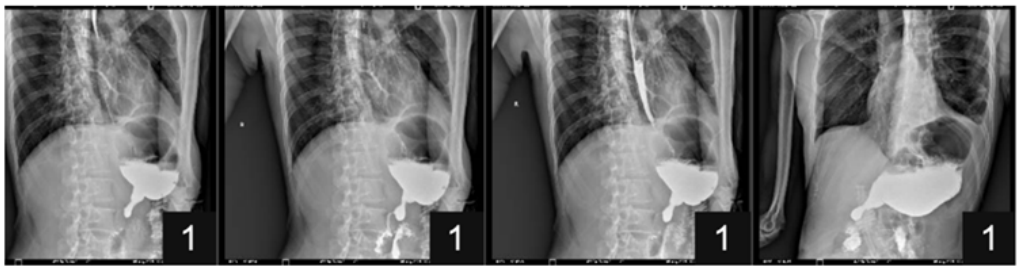

Figure 2: Esophagography showing the absence of leak.

3.2. Follow-up and Outcome

One month postoperatively, upper gastrointestinal endoscopy revealed no pathological findings, confirming complete healing of the esophageal repair and absence of stricture formation [8,9]. The patient tolerated oral intake well thereafter.

4. Discussion

Boerhaave syndrome still remains a diagnostic challenge due to its nonspecific presentation and rarity. The absence of subcutaneous emphysema in this case highlights that Mackler's triad is not always present, emphasizing the need for a high index of suspicion [10]. CT imaging is the diagnostic modality of choice, demonstrating mediastinal air or fluid collections [11]. Surgical repair with primary closure and reinforcement, as performed here, is preferred in early diagnosed cases without extensive mediastinal contamination [12]. The addition of a Dor fundoplication aids in protecting and reinforcing the repair, while jejunostomy feeding ensures early enteral nutrition, which improves outcomes [13]. Nutritional support is crucial, as patients with esophageal perforation are often catabolic and at high risk for malnutrition and infection [14]. Early initiation of TPN followed by enteral feeding aligns with best practice guidelines and promotes mucosal healing and immune competence. Gradual oral refeeding under strict monitoring reduces the risk of re-rupture and aspiration. Recent studies emphasize multidisciplinary management including surgical, nutritional, and critical care teams to optimize recovery. Despite advances, morbidity remains significant, underscoring the need for prompt diagnosis and tailored therapy. This case highlights several critical considerations in the management of Boerhaave syndrome. The patient's atypical presentation, characterized by the absence of subcutaneous emphysema, underscores the importance of maintaining a high index of clinical suspicion in individuals with postemetic chest pain. Early CT imaging enabled prompt surgical intervention; a factor strongly correlated with improved patient outcomes. Furthermore, individualized nutritional support through blended diets administered via feeding jejunostomy offered a practical alternative for patients unable to tolerate standard polymeric formulas, aligning with current evidence-based recommendations for personalized enteral nutrition.

5. Conclusions

Even in hemodynamically stable patients with atypical presentations of Boerhaave Syndrom, early recognition and intervention are critical. Clinical vigilance, rapid imaging, and individualized postoperative nutritional strategies are the predominal keys to optimal recovery. This case underscores the importance of combining clinical assessment, timely diagnostics, surgical expertise, and personalized nutrition in the management of esophageal perforation.

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