

CASE REPORT

Emergency Esophagoscopy for Denture Impaction in an Adult with Pulmonary Atresia with Ventricular Septal Defect and Suspected Pneumonia: A Case Report

Adhitya Sakti Nugraha✉*, Eko Setijanto**

Article Info :

Submitted :

07-08-2024

Accepted :

19-10-2026

Published :

31-10-2026

[https://doi.org/10.20961/](https://doi.org/10.20961/sojaV6i2.91909)

[sojaV6i2.91909](https://doi.org/10.20961/sojaV6i2.91909)

Authors' affiliations:

*Anesthesiology and Intensive Therapy Resident, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia

**Staff of Anesthesiology and Intensive Therapy, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia.

✉Correspondence:

adit.sakti88@gmail.com

ABSTRACT

Background : Esophageal denture impaction requires timely assessment because delayed removal can cause mucosal injury, perforation, and aspiration. Urgent intervention becomes more difficult when complex congenital cardiac anatomy, respiratory infection, and anticoagulation coexist. This report examines the perioperative challenges in a patient with pulmonary atresia with ventricular septal defect and suspected bacterial pneumonia who required emergency esophagoscopy.

Case Illustration :

A 51-year-old man developed throat pain and neck fullness after swallowing a denture. Cervical radiography showed an irregular opacity at C4–C5. His cardiac history included pulmonary atresia with ventricular septal defect, major aortopulmonary collateral arteries, patent ductus arteriosus, and moderate aortic regurgitation. Echocardiography reported a cardiac output of 2.9 L/min and a cardiac index of 1.86 L/min/m². Earlier chest imaging showed cardiomegaly and pulmonary edema, and the clinical assessment also identified suspected bacterial pneumonia. His recorded medications included furosemide, digoxin, lansoprazole, warfarin, bisoprolol, and spironolactone. Nebulized ipratropium and salbutamol were included in preoperative management.

Conclusion

This case illustrates the interaction between urgent foreign body management and complex congenital cardiac physiology. Perioperative assessment should integrate the pulmonary blood supply, cardiac reserve, respiratory disease, and anticoagulation exposure. Individualized multidisciplinary planning provides a coherent framework for balancing procedural urgency with cardiopulmonary and bleeding risks.

Keywords: Anesthesia; Denture impaction; Esophageal foreign body; Major aortopulmonary collateral arteries; Pneumonia; Pulmonary atresia with ventricular septal defect.

INTRODUCTION

Esophageal foreign body impaction is a significant clinical problem that requires prompt and effective management to prevent serious complications. It is an important indication for emergency endoscopy in children and adults, including adults with underlying esophageal abnormalities or motility disorders.^{1,2} Impaction often occurs at anatomical narrowings, including the upper esophageal sphincter, the level of the aortic arch, and the lower esophageal sphincter.¹ Dentures are particularly concerning when irregular edges or clasps may become embedded in the esophageal wall. Endoscopic assessment provides a route for diagnosis and retrieval.¹⁻³

In adults, common ingested foreign bodies include food-related items such as meat boluses and bones; in children, coins, batteries, and small toy components are frequently encountered.^{1,4} Clinical manifestations range from minimal symptoms to dysphagia, odynophagia, hypersalivation, and respiratory compromise.^{5,6} The case reported by Çetin and Kocaöz illustrates that unusual respiratory presentations may also occur.⁶ These differences support assessment of both esophageal symptoms

and respiratory status rather than reliance on a single classic presentation. In the present patient, throat pain and neck fullness prompted imaging despite the absence of a choking sensation.

The perioperative challenge extends beyond object retrieval in patients with complex adult congenital heart disease. Pulmonary atresia with ventricular septal defect, major aortopulmonary collateral arteries, and a patent ductus arteriosus create an unusual pulmonary blood supply. Associated aortic regurgitation, low measured cardiac output, respiratory infection or congestion, and warfarin exposure further complicate assessment. Contemporary guidance emphasizes congenital cardiology involvement and individualized planning for noncardiac procedures in this population.⁷

Endoscopic intervention is a principal treatment for retained esophageal foreign bodies, especially when spontaneous passage is unlikely or complications are suspected.^{1,2} Available approaches include retrieval with appropriate devices; gentle advancement into the stomach is a technique for selected food boluses and should not be extrapolated to an impacted denture.^{1,3,6} Object characteristics and complications

determine urgency, particularly for sharp objects and batteries.^{3,6}

For an upper esophageal denture, the need to prevent local injury must be weighed against the risks of anesthetic induction, airway manipulation, ventilation, and bleeding. Rigid esophagoscopy may be considered for selected upper esophageal foreign bodies, whereas flexible endoscopy remains a principal therapeutic approach.³

This report examines perioperative assessment and planning for urgent esophagoscopy in an adult with complex congenital heart disease and suspected pneumonia. It focuses on the implications of the cardiac anatomy, the rationale for airway protection, the significance of anticoagulation exposure, and the need for postoperative critical care surveillance. The case is discussed in relation to contemporary guidance to identify clinically relevant considerations for similar urgent noncardiac procedures.

CASE ILLUSTRATION

A 51-year-old man was assessed on May 2, 2024, after reportedly swallowing a denture earlier that day. He described throat pain and neck fullness without a choking sensation. The recorded heart rate was 63 beats/min, blood pressure 105/60 mmHg, respiratory rate

20 breaths/min, and peripheral oxygen saturation 94% on room air. Occasional coughing and shortness of breath were reported.

Cervical radiography showed an irregular opacity at the C4–C5 vertebral level, suggesting a retained foreign body. A chest radiograph dated April 26, 2024, had shown cardiomegaly, a cardiothoracic ratio of 75%, and pulmonary edema. The pulmonology assessment described suspected bacterial pneumonia, with *Klebsiella pneumoniae* considered a possible pathogen. Vesicular breath sounds with occasional rhonchi and crackles were reported. Pneumonia is described as a clinical suspicion because microbiological confirmation was unavailable.

The cardiac history included pulmonary atresia with ventricular septal defect, major aortopulmonary collateral arteries, patent ductus arteriosus, and moderate aortic regurgitation. Echocardiography dated May 1, 2024, reported cardiac output of 2.9 L/min and cardiac index of 1.86 L/min/m². Cyanosis, digital clubbing, and a continuous murmur were described.

These findings suggest limited circulatory reserve, but do not independently establish ventricular ejection fraction, pulmonary arterial pressure,

collateral distribution, or current shunt direction.

Clinical timeline April 26, 2024: chest radiography documented cardiomegaly and pulmonary edema. May 1, 2024: echocardiography documented the congenital cardiac lesions and low cardiac output. May 2, 2024: denture ingestion and assessment were reported. The first two investigations predate the ingestion event.

A multidisciplinary team prepared emergency esophagoscopy

under general anesthesia with endotracheal intubation. Preoperative treatment included nebulized Combivent (ipratropium and salbutamol). The recorded medication list comprised furosemide, digoxin, lansoprazole, warfarin, bisoprolol, and spironolactone. The denture extraction is illustrated in Figure 1.

The combination of cardiac disease, respiratory symptoms, and anticoagulation exposure informed the perioperative risk assessment.

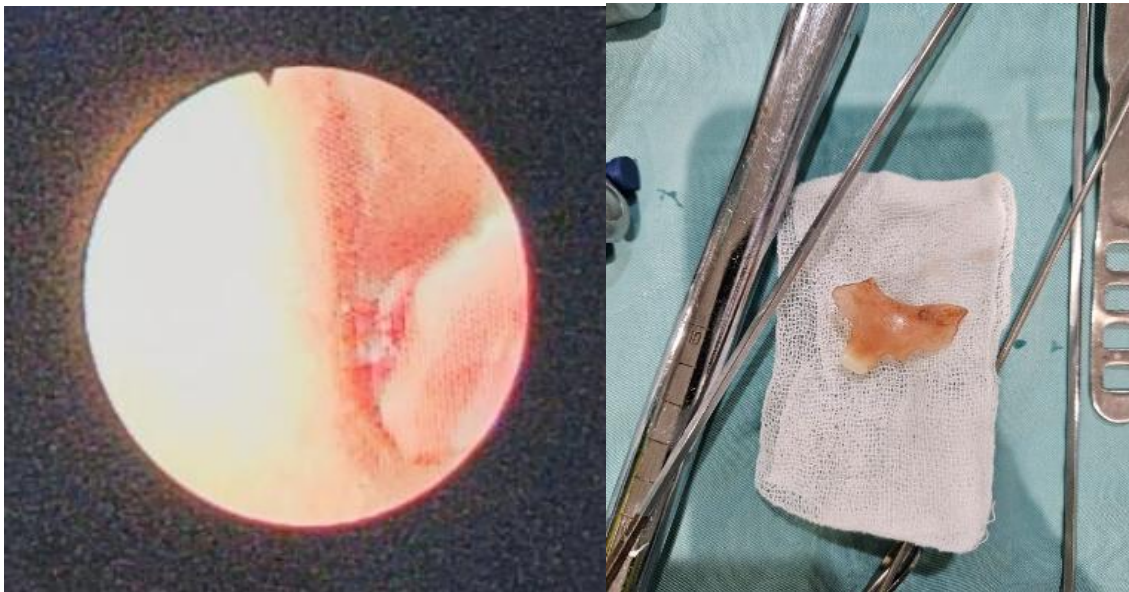


Figure 1. Extraction of Denture

Postoperative ICU admission was planned, with blood products kept available because of anticoagulation exposure and possible procedural bleeding. This arrangement reflected concern about both respiratory deterioration and circulatory instability.

Blood-product availability was a precaution and is not evidence of transfusion. The case description is limited to the available presentation, investigations, and perioperative plan; detailed intraoperative observations and postoperative follow-up were unavailable

DISCUSSION

The distinctive feature of this case is the convergence of an upper esophageal denture, complex pulmonary blood supply, low measured cardiac output, respiratory disease, and warfarin exposure. Each problem affects the others: delaying retrieval may increase local injury, whereas induction and positive-pressure ventilation may destabilize a patient with limited cardiopulmonary reserve. Accordingly, the central clinical question is how to coordinate timely removal with an assessment of the risks that can be modified before and during anesthesia.

The radiographic opacity at C4–C5 supported the suspicion of an upper esophageal foreign body. Absence of choking does not exclude impaction. Imaging can identify a radiopaque component, but cannot by itself define all denture edges or mucosal damage. When perforation or another complication is suspected, computed tomography can guide assessment. Selection of endoscopic technique should reflect the object and location rather than assuming that all esophageal foreign bodies require the same approach.^{1,3} The published case report also describes the diagnostic and therapeutic role of endoscopic

management in an esophageal foreign body presentation.⁸

Recent clinical experience includes the retrospective analysis of 275 adult cases by Liu B et al.⁹ and the 10-year experience in 586 adults reported by Liu Q et al.¹⁰ These reports provide clinical context for esophageal foreign body management, and current procedural considerations are further supported by the WSES guideline.³ Their general foreign body experience does not establish an anesthetic strategy for this patient's particular congenital cardiac anatomy. For that question, contemporary adult congenital heart disease guidance is more directly relevant.^{7,11}

General anesthesia with endotracheal intubation was the documented plan. In an upper esophageal procedure, airway protection and procedural immobility are relevant concerns. Intubation provides a means of securing the airway and controlling ventilation during instrumentation, although it does not eliminate aspiration risk. In this patient, these anticipated benefits had to be weighed against induction-related hypotension and the circulatory effects of positive-pressure ventilation. Contemporary consensus emphasizes matching the anesthetic approach to the congenital lesion and

physiological state rather than assuming that one technique is preferable for every adult with congenital heart disease.¹¹

In pulmonary atresia, conventional antegrade pulmonary flow is obstructed, making the documented collateral and ductal pathways important to interpretation of pulmonary perfusion. The supplied findings do not establish their relative contributions or whether pulmonary vascular disease was present. Moderate aortic regurgitation and low cardiac index add concerns about effective forward flow. It would therefore be inappropriate to assume Eisenmenger physiology or prescribe a universal shunt target from the diagnosis alone. Congenital cardiology review should clarify anatomy, prior interventions, and the current physiological state.⁷

Contemporary expert consensus advises tailoring anesthesia to the lesion and hemodynamic state. For right-to-left shunting, abrupt reductions in systemic vascular resistance and increases in pulmonary vascular resistance may be harmful. Ventilation and drug selection should therefore be considered alongside oxygenation, carbon dioxide, and acid–base status.¹¹ In this patient, pulmonary edema makes indiscriminate fluid loading problematic, while low cardiac output

makes hypovolemia concerning. Maintaining adequate preload consequently requires attention to both congestion and effective circulation. These physiological considerations explain the need for individualized planning without implying that a specific intervention or target was achieved.

Warfarin exposure introduces competing concerns about procedural bleeding and thrombosis. The indication for anticoagulation cannot be inferred from the congenital diagnosis alone. Current expert consensus recommends an individualized anticoagulation plan that balances bleeding and thromboembolic risks.¹¹ In this case, blood-product standby demonstrates anticipation of possible bleeding, but does not establish reversal or transfusion. The available information does not permit evaluation of a particular interruption or resumption strategy.

Pneumonia and pulmonary edema may both reduce respiratory reserve, while their coexistence makes the cause of dyspnea and abnormal breath sounds harder to distinguish. For this patient, respiratory symptoms and radiographic congestion added to the concern generated by the low cardiac index. Postoperative ICU planning was therefore clinically relevant to surveillance for hypoxemia,

worsening congestion, arrhythmia, or circulatory instability. These are potential complications that justify observation, rather than documented postoperative events. The appropriate intensity and duration of respiratory and hemodynamic monitoring depend on the patient's status after the procedure.^{7,11}

The principal limitation is the absence of detailed anesthetic observations, coagulation results, and postoperative follow-up. Consequently, this report cannot determine the frequency of complications, establish uncomplicated recovery, or assess the safety of a specific anesthetic regimen. The photograph illustrates extraction but cannot establish the subsequent clinical course. The educational contribution is therefore the analysis of competing perioperative risks and the rationale for coordinated planning. A single case cannot establish the comparative effectiveness of a management approach Click or tap here to enter text.

CONCLUSION

An upper esophageal denture in a patient with pulmonary atresia with ventricular septal defect requires consideration of both local injury and systemic perioperative vulnerability.

Collateral and ductal pulmonary blood supply, moderate aortic regurgitation, low cardiac index, suspected pneumonia, pulmonary edema, and warfarin exposure made individualized assessment particularly relevant.

The documented plan incorporated general anesthesia with endotracheal intubation, multidisciplinary input, blood-product availability, and postoperative ICU surveillance. The principal lesson is to integrate procedural urgency with the patient's cardiac physiology and respiratory and bleeding risks. Conclusions about postoperative recovery remain limited by the available clinical information.

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