

Case Report

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Awake ECMO to Manage Acute Stridor Due to Severe Tracheal Compression from EBV-Positive Hodgkin Lymphoma: A Case Report

Sarah Moniri*, Andreas Walczok, Braun Lambur and Philippe Federspil

Department of Otorhinolaryngology & Head and Neck Surgery (ENT), Westpfalz Hospital, Hellmut-Hartert-Straße 1, 67655 Kaiserslautern, Germany

*Corresponding author

Sarah Moniri, Department of Otorhinolaryngology & Head and Neck Surgery (ENT), Westpfalz Hospital, Hellmut-Hartert-Straße 1, 67655 Kaiserslautern, Germany.

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Introduction

Acute upper airway obstruction is a medical emergency that typically requires prompt airway stabilization via intubation or tracheotomy. However, in cases of large mediastinal or cervical tumors causing significant tracheal compression, these conventional airway strategies may fail or be contraindicated due to the risk of complete airway collapse. In such rare, high-risk cases, extracorporeal membrane oxygenation (ECMO) may serve as a bridge to secure oxygenation and initiate definitive treatment.

This report highlights the use of awake ECMO in a 21-year-old patient with severe tracheal compression secondary to EBV-positive classical Hodgkin lymphoma (nodular sclerosis subtype), where traditional airway approaches were not viable.

Case Presentation

A 21-year-old previously healthy male noticed a progressive, painless swelling on the right side of his neck in December 2023. He initially presented to the emergency department, where thyroiditis was suspected. He was discharged on non-steroidal anti-inflammatory drugs (NSAIDs), without symptom resolution. In January 2024, a general physician ordered a thyroid scintigraphy and prescribed oral corticosteroids.

Emergency Presentation

In February 2024, the patient presented to our department with acute inspiratory stridor and progressive cervical swelling. Despite his severe dyspnea, the patient remained hemodynamically stable and maintained normal oxygen saturation on room air. Laboratory investigations revealed CRP level of 120 mg/L and a white blood cell count of 10,000/ μ L. Flexible nasoendoscopic examination demonstrated normal mobility of both vocal cords, and the glottic area was free, ruling out laryngeal involvement as the source of stridor. A CT scan of the neck and thorax revealed a large, well-circumscribed mass extending from the cervical region into the upper mediastinum. The mass encased the trachea circumferentially, narrowing the tracheal lumen to approximately 3–5 mm. There was clear displacement of adjacent mediastinal structures. Given the severity of tracheal compression, the unknown resistance of the mass and the risk of complete airway

collapse, both oral intubation and tracheotomy were considered unsafe. The decision was made to initiate awake veno-venous ECMO under local anesthesia as an emergency measure [1-4].

Management and Clinical Course

06.02.2024

- **Awake ECMO** was initiated successfully under local anesthesia within 10 minutes.
- Once stable oxygenation was achieved, the patient was intubated safely.
- A biopsy confirmed the diagnosis: EBV-positive classical Hodgkin lymphoma, nodular sclerosis subtype, Stage IIA.

06–09.02.2024

- The first cycle of BrECADD chemotherapy was administered in the ICU.
- ECMO was discontinued on 09.02.2024 after tracheal dimensions slightly improved.

12–14.02.2024

- Follow-up CT on 14.02.2024 showed minimal tumor size reduction, with the tracheal lumen expanded to 1.4 cm.

22–28.02.2024

- **22.02.2024:** Tracheal stent implanted under renewed ECMO protection.
- **24.02.2024:** Extubation achieved successfully.
- **26.02.2024:** ECMO was discontinued.
- **28.02.2024:** Patient transferred hemodynamically stable to the general ward.

The tracheal stent remained in place for four weeks. The patient completed **six cycles of BrECADD chemotherapy**, and **follow-up FDG-PET/CT** in July 2024 demonstrated complete metabolic remission.

Discussion

Severe airway compression due to mediastinal tumors, particularly in young patients with Hodgkin lymphoma, poses a significant risk for acute respiratory failure. In this case, the tumor caused nearly

complete encasement of the trachea, rendering both intubation and tracheotomy unsafe. Despite being compensated, the patient's condition carried a high risk of sudden decompensation.

Awake veno-venous ECMO offered a life-saving alternative by enabling oxygenation without compromising the airway. Initiated under local anesthesia, ECMO allowed for safe intubation and immediate initiation of chemotherapy.

This case highlights the critical role of awake ECMO as a bridge to treatment in high-risk airway obstruction, particularly when conventional airway strategies are not feasible. In selected cases, it can be the key to preventing airway catastrophe and enabling curative oncologic therapy.

Conclusion

This case underscores the utility of awake ECMO in managing critical upper airway obstruction from mediastinal tumors when conventional methods pose unacceptable risks.

References

1. Lang G, Ghanim B, Hotzenecker K, Klikovits T, Matilla JR, et al. (2015) Extracorporeal membrane oxygenation support for complex tracheo-bronchial procedures. *Eur J Cardiothorac Surg* 47: 250-255.
2. Yousem SA, Weiss LM, Warnke RA (1987) Mediastinal Hodgkin's disease. A clinicopathologic study of 52 cases. *Cancer* 60: 2629-2637.
3. Gaudio C, Aversa S, Strano S (2022) Tracheobronchial Stenting in Malignant Airway Obstruction: Role of the Interventional Pulmonologist. *Cancers (Basel)* 14: 890.
4. Wang Y, Li M, Cheng Y (2024) ECMO support for endoscopic resection of postpneumonectomy critical central airway obstruction: A case report and literature review. *Thorac Cancer* 15: 211-215.