



Acute respiratory failure caused by pulmonary, pericardium and mediastinum infection due to esophageal fistula subsequent a chicken bone ingestion: V-V ECMO as rescue therapy A Case Report

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Background:

Veno-Venous Extra Corporeal Membrane oxygenation (VV-ECMO) is a last line therapy used to support patients in the most severe, acute respiratory failure.³ Multiple studies have evaluated the effect of ECMO on mortality in patients with severe acute respiratory failure.^{1,2}

Case Report:

A 62-year-old man was admitted to his living town ER for sensation of foreign body in the esophagus, after a possible accidental chicken bone ingestion, rapidly discharged with indication of ear-nose-throat specialist (ENT) evaluation. Few days later he came back at the same ER with sore throat, fever and, once evaluated by ENT, he was discharged with antibiotic therapy. In the following days, due to a worsening of symptoms, he had been admitted several times to the ER with fever, dyspnea and a CXR showing a right inferior lobe consolidation, but always discharged with an escalation of antimicrobial therapy. Lastly, he was admitted again with acute respiratory failure and worsening of pulmonary consolidation, thus had been intubated and admitted to ICU. During his staying in ICU the P/F ratio had got progressively worse, therefore it had been performed a chest CT scan showing a hepatization of right medium and inferior lobe with atelectasis, an initial hepatization of left inferior lobe, right air-fluid collection close to hearth. He underwent to esophagogastroduodenoscopy (EGD) the following day, removing a foreign body (chicken bone) from esophagus (at 17 cm from teeth) with evidence of 8 mm fistula. Afterwards the patient was conducted in operatory theater where corpuscular pleural fluid had been evacuated and, considering fibrotic tissue enveloping pericardium, a pericardial tube had been positioned draining abundant purulent fluid. Considering a further worsening of hypoxemic and hypercapnic respiratory failure (P/F 50, PaCO₂ 95 mmHg), our center had been contacted asking for veno-venous (VV) ECMO support evaluation.

Once evaluated, the patient needed high vasoconstrictor dose support to cope the septic shock, a V-V ECMO was positioned (21 F and 23 F canulae) with no periprocedural complications, starting extracorporeal assistance with blood flow 3,7 L/min, FiO₂ 100 % and concomitant protective native lung ventilation. The two thoracic tubes, previously positioned, showed an important air-leak. Hemodynamic instability needed an increase of norepinephrine up to 0.25 mcg/kg/min. The antimicrobial therapy was escalated introducing vancomycin and meropenem. The following days an esophageal prosthesis was positioned by our endoscopist, who documented a partial healing of the esophageal scar. During ECMO assistance the patient had been placed in prone position three times to allow dorsal lung portion recruitment and contextually several bronchoscopies had been performed removing mucus secretions and collecting samples for microbiology tests. A lung US evaluation had been daily performed, monitoring the lung consolidation evolution.

During following days the ECMO support had been gradually decreased, encouraging native lung ventilation, initially in a controlled modality and then in assisted modality, observing an improvement of oxygenation and CO₂ clearing.

After two positive test-off trials, the ECMO support was successfully removed after 15 days of assistance.

The ICU stay in following days was complicated by pulmonary and CVC KPC infection successfully treated with meropenem-vaborbactam antibiotic therapy.

After a powerful physiotherapy to face the important asthenia and gradual weaning from mechanical ventilation, the patient was extubated and two days later discharged from ICU and admitted to Infectious Disease ward, after 27 days of ICU stay.

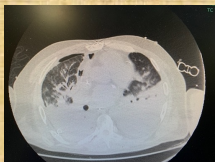


Fig. 1 TC scan at admission in our ICU performed

Conclusion:

In conclusion, when foreign body ingestions suspected, rapid and accurate diagnostic confirmation is necessary. An aggressive multimodal therapy, including extracorporeal assistance, performed in a skill hub center, should not be delayed, to avoid dramatic multi-organ failure.

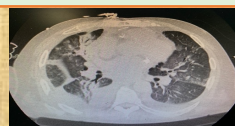


Fig. 2 TC Scan after removal of V-V ECMO



Fig. 3 Chicken bone during removed EGD

References:

1. Hemmila MR, Rowe SA, Boules TN, et al. Extracorporeal life support for severe acute respiratory distress syndrome in adults. *Ann Surg* 2004; 240:595.
- Robba C, Ortu A, Bilotta F, et al. Extracorporeal membrane oxygenation for adult respiratory distress syndrome in trauma patients: A case series and systematic literature review