

Use of endobronchial valves (EBVs) for high-flow bronchopleural fistulas in three patients with Covid-19 ARDS unresponsive to protective ventilation and extracorporeal respiratory support.

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Argomento: Insufficienza respiratoria acuta e ventilazione meccanica

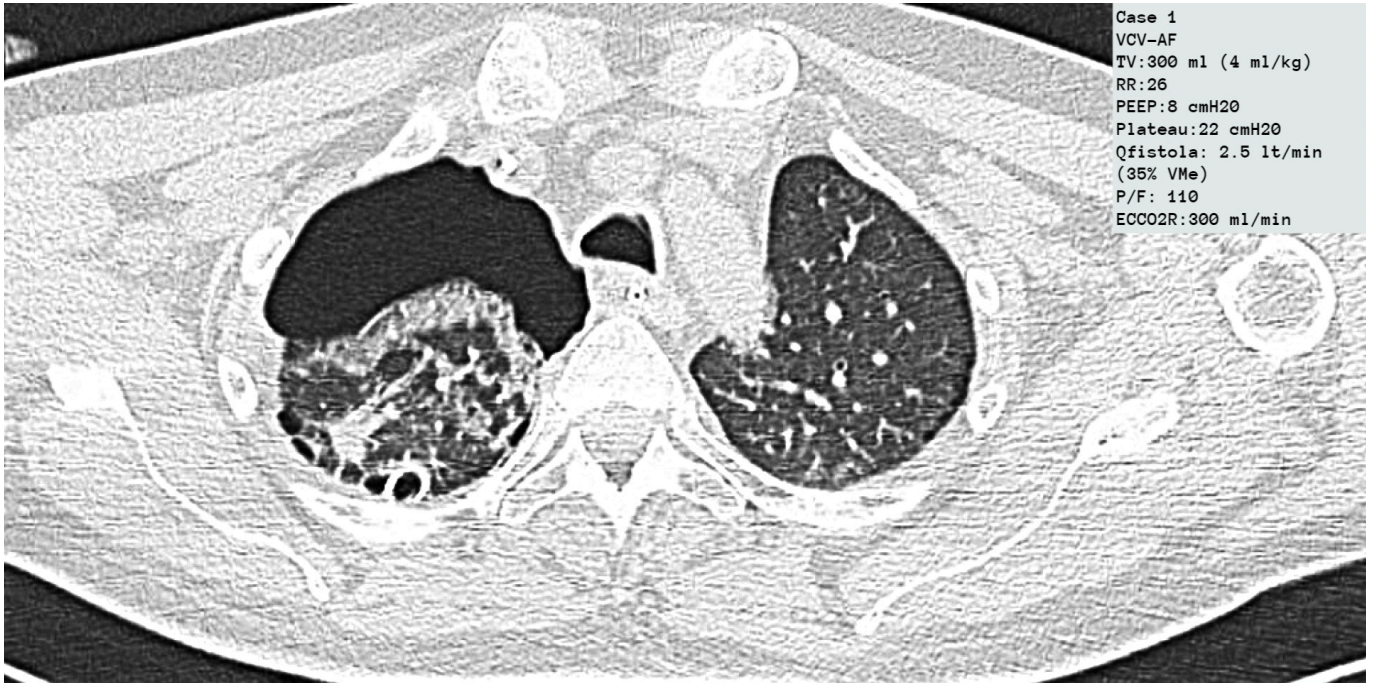
Use of endobronchial valves (EBVs) for high-flow bronchopleural fistulas in three patients with Covid-19 ARDS unresponsive to protective ventilation and extracorporeal respiratory support.

Case 1: 47 y/o, recent bilateral pulmonary metastasectomies from parotid cancer. Covid-19 ARDS with 60% lung parenchyma involvement at CT and restrictive syndrome (Crs 20 ml/cmH₂₀,). Clinical condition was complicated by onset of relapsing pneumothorax with high-flow bronchial fistula (2,5 L/min). Patient was managed with thoracic drainage, ECCO₂R, low Vt (4 ml/kg) and rescue placement of 4 EBVs (segmental branches of the right upper lobar bronchus) which led to leakage resolution, rapid weaning and discharge from ICU.

Case 2: 58 y/o, BMI 35. Covid-19 ARDS with 50% lung parenchyma involvement at CT. Respiratory worsening required VV ECMO support. Severe septic state due to pleural empyema related to pulmonary abscess complicated clinical condition. A high-flow bronchial fistula was detected with leakage at 60% of minute ventilation (3 lt/min). Patient was managed with selective lung ventilation and pleural drainage. Due to persistent leakage, 2 EBVs were placed (lower left basal pyramid bronchi), with leakage reduction to 4% of Vt. Nevertheless, a new septic shock with clinical worsening led to patient exitus.

Case 3: 57 y/o, kidney transplant. Covid-19 ARDS with 70% of lung parenchyma involvement at CT. After 6 day of ICU left pulmonary high flow-fistula (2 lt/ min) was detected. Chest drainage was placed and patient was ventilated with 4 ml/kg of Vt. 2 EBVs were placed (lateral and medial subsegmentary branch of the lingular segmental bronchus) with reduction of estimated leakage to less than 5%. Patient was discharged from ICU after 25 days.

Conclusion: Bronchopleural fistula is a high mortality disease during ARDS. Rescue application of EBVs in selected patients who failed conventional approach may play a significant role in the treatment of this complication.



Case 1
VCV-AF
TV:300 ml (4 ml/kg)
RR:26
PEEP:8 cmH2O
Plateau:22 cmH2O
Qfistola: 2.5 lt/min
(35% VMe)
P/F: 110
ECCO2R:300 ml/min



Case 1
VCV-AF
TV:300 ml (4 ml/kg)
RR:26
PEEP:8 cmH2O
Plateau:20 cmH2O
Qfistola: 0.4 lt/min
(6% VMe)
P/F: 150
ECCO2R:300 ml/min



SVS Unidirectional valve Olympus