Title: Massive Air Embolism: ECMO is not always the culprit

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Abstract:

**Background:** Air embolism is a known complication of Extracorporeal Membrane Oxygenator (ECMO) insertion. Meticulous insertion and vigilance can help avoid this event and prevent mortality and morbidity.

**Introduction:** Here we describe a case of Venoarterial ECMO insertion done for acute cardiopulmonary decompensation in a patient with pneumonia and sepsis post laser treatment for subglottic stenosis. The procedure was complicated by Massive Air embolism.

**Methods:** We initiated VA ECMO by inserting 17fr (outflow) cannula in Right Femoral artery and 25 Fr (inflow) multi-hole cannula in Left Femoral vein. The tip of this multi-hole cannula was positioned in the SVC. Cannula position was checked by X-ray. Following initiation of VA ECMO at an outside hospital she was successfully transported to our hospital.

**Result:** A brief time after arrival we noticed large amount of air in the ECMO circuit and soon the ECMO had to be shut off due to air lock. We noticed that the stopcock of the central venous access line in the left from the left Internal Jugular vein was open through which medications were been given. We urgently changed the ECMO circuit and sealed the ports of the central venous access and resumed VA ECMO. On the CXR it was noticed that the tip of the 20 cm central venous access was in close proximity to the inflow venous cannula and air was sucked into circuit of ECMO when the port of central venous access was open to air. The patient however suffered irreversible neurological damage and ECMO support was withdrawn after discussing with family of there being no meaningful outcome.

**Conclusion:** We have since decided to implement using only a using 16 cm central venous access with sufficient gap between the tip of inflow cannula and central venous line tip. Also securing all the stopcocks can be straightforward way to prevent such complications. This case demonstrates simple measures to be taken to provide safe patient care and prevent catastrophic outcome from massive air embolism.