

## Movement of Intravascular Air Bubble during Esophagectomy

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### Letter to Editor

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Esophageal cancers may be resected by thoracoscopic or laparoscopic esophagectomy, along with lymph node dissection. Care must be taken, however, during one-lung ventilation, patient position change (from prone to supine), and management of infusion, as each step carries a high risk of air embolism [1]. This report presents a video of a visible air bubble in a 70-year-old man who underwent thoracoscopic and laparoscopic esophagectomy, including three-field lymphadenectomy. Thoracoscopic esophagectomy required 4 hours and laparoscopic gastric tube reconstruction 4 hours. During subsequent lymphadenectomy, visible bubbles were detected in the right external jugular vein and the communicating vein (Figure 1, Video 1). The air bubble moved with the jugular pulse but stayed in the same vessels, and an attempt to suction it with a 22-G needle and 2.5-ml syringe was unsuccessful. The patient's vital signs were stable and the patient was extubated the next day. His postoperative course was uneventful. Air visible on transesophageal echocardiography during open heart operations frequently moves in parallel with blood flow. However, mobile air in this patient remained in the same vessels, indicating that the timing of posture change and the volume of infusion were critical. Intravenous air can flow unexpectedly into the pulmonary arteries [2], with more than 0.5 ml/kg of air causing critical status [1].

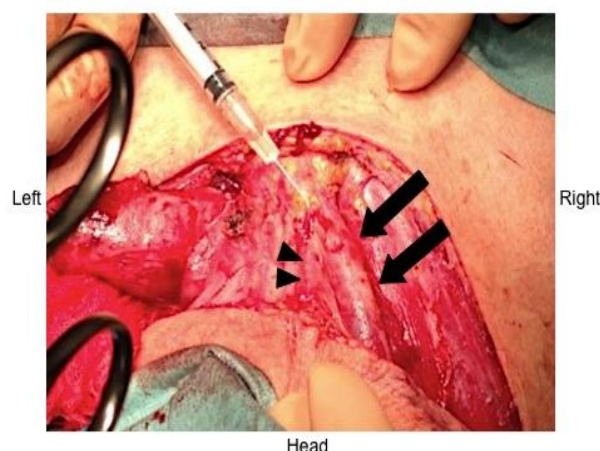
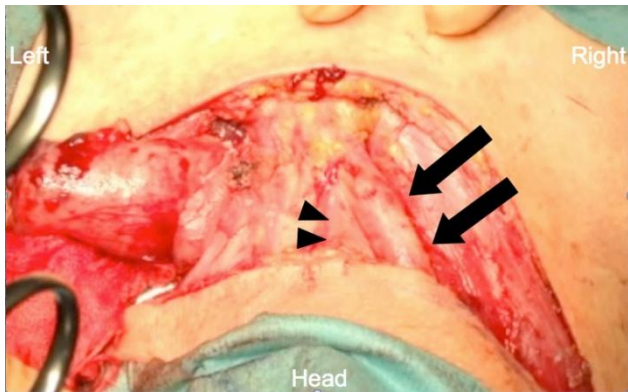


Figure 1: Presence of air bubble movement in the right external jugular vein. The arrows indicate the right external jugular vein and the arrowheads indicate a communicating vein.

Physicians should be aware of this important complication and take steps to prevent it.



Video 1

## References

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