Life Saving Positioning in Patients with Air Embolism

Abstract:

Sir,

Air embolism is an uncommon, but potentially catastrophic, event that occurs as a consequence of the entry of air into the vasculature. The following illustrates such a case; an 82 year old lady, COPD with an FEV1 of 0.6 L (40%) was admitted following an exacerbation of her COPD. Her CXR showed a right sided density and her CT thorax confirmed a 4 x 3 cm mass in the right upper lobe. She was booked for a CT core biopsy. Patient was initially scanned in the prone position but was turned into the left lateral decubitus position as it was felt that this was a better access into the mass. Under aseptic technique and CT fluoroscopic guidance, core biopsy was obtained using an 18 gauge core biopsy needle. 3-4 samples were sent to pathology.

Upon removal of the needle the patient was fully coherent. After a couple of minutes, the patient appeared to be confused and dysarthric. A scan was performed of the entire chest to exclude a pneumothorax. No pneumothorax was seen. However there was a large amount of intra cardiac air pocket in the left atrium. Based on this, the patient was positioned in the left lateral decubitus position with the right side up and the head tilted down. The patients sedation was reversed and after a few minutes patient began more coherent and lucid with no residual deficit. Patients was put under observation and repeat CT thorax one day later showed complete resorption of the intracardiac air. Patient made a full recovery without any sequela.

There has always been a debate about the correct positioning of patient during such event. As arterial air embolisation is of concern in lung biopsies, the use of right lateral decubitus position is used because this maintains air in the superior aspect of the left ventricle away from the left ventricular outflow tract. However this only applies if the air pocket is in the left ventricle. In our case the biopsy was performed in the left decubitus position. As the air bubble pocket was found to confined to the left atrium, a left lateral decubitus position was used with head-down angulation to prevent systemic embolization. Reflecting on the above case, recognition of the symptoms by the interventional radiologist and positioning the patient in the left decubitus position was certainly a big contribution for the full recovery of the patient. Air embolism has a reported incidence of 0.02% - 0.07% and can be associated with major morbidity and mortality. Early recognition and prompt initial management such as 100% high flow oxygen and the correct position can save the patients life by preventing air embolisation into the cerebral circulation. Early hyperbaric oxygen therapy if available can also be used as it promotes exchange of oxygen for nitrogen in the air bubbles.

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References