USE OF OXYGEN INSUFFLATION TO LOCALISE A PERSISTENT SMALL AIR-LEAK FOR DIRECTED ENDOBRONCHIAL VALVE PLACEMENT

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Background:
Endobronchial Valve (EBV) treatment is an option to manage persistent air-leak (PAL) in secondary spontaneous pneumothorax (SSP). Systematic and sequential bronchoscopic balloon occlusion can be used to localise air-leak. This case describes the technique of bronchoscopic oxygen insufflation during EBV placement to localise air-leak in a patient with PAL.

Case Report:
An 80-year-old man with a 50-pack-year smoking history and bullous emphysema presented with a third episode of right-sided SSP, all occurring within a six-month period. The first two episodes were managed with tube thoracostomy. On this occasion tube thoracostomy brought satisfactory lung expansion, but air-leak persisted. The patient was not a surgical candidate and EBV treatment was recommended. Ventilation scintigraphy did not localise a visceral pleural focus due to heterogenous tracer deposition due to severe bullous disease. At the time of bronchoscopy, air-leak measurement via a digital chest drainage system (DCDS) was up to 160mL/min. Sequential balloon occlusion of each lobe demonstrated no change in observed air-leak. Subsequent sequential oxygen insufflation via bronchoscope at 4L/min to each subsegment demonstrated increase in air-leak up to 1100mL/min when right lower lobe sub-segments (RB7+RB8) were targeted. EBV insertion to right lower lobe led to resolution of air-leak. Subsequent talc slurry pleurodesis was performed day two post EBV insertion. The patient was discharged eight days post procedure and remains stable at one month follow-up.

Discussion:
Bronchoscopic oxygen insufflation may assist in localising PAL when bronchial occlusion alone is inconclusive. Our case adds to the literature as the only additional report describing a similar technique by Ueno et al (2024).