

Bronchoscopic Lung Volume Reduction for the treatment of pulmonary emphysema

The first case of Bronchoscopic Lung Volume Reduction for the treatment of pulmonary emphysema (aka COPD or chronic obstructive pulmonary disease) was preformed recently in Singapore. This was achieved by implanting in the major airways, a novel device known as endobronchial valve (EBV) [Zephyr™ Endobronchial Valve System](#)

This procedure has been developed to supplant the need for Lung Volume Reduction Surgery (LVRS), a major surgery that is presently performed for patients with severe emphysema, as this form of surgery is associated with significant morbidity and mortality. Recent studies have shown that significant benefits in improvement of symptoms, lung function, exercise capacity and quality-of-life that can be achieved in COPD patients undergoing LVRS can now be achieved in a minimally-invasive way without the need for surgery.

The Zephyr™ Endobronchial Valve (EBV) can be implanted in the bronchi (major airways) of the lungs using flexible bronchoscopy (see figures 1 and 2). Immediately after placement of the EBV, air that was previously trapped in the lungs (aka hyperinflation) is allowed to escape and the degree of hyperinflation is reduced.



Figure 1

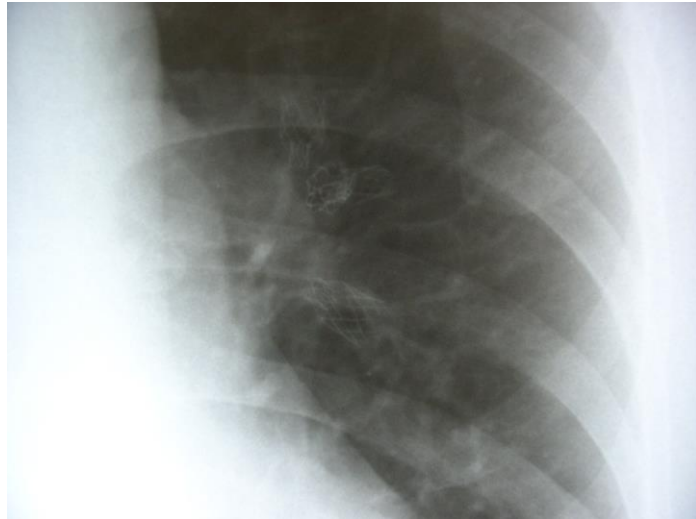


Figure 2

Hyperinflation of the lungs is a major cause of breathlessness and reduced exercise tolerance in patients with COPD. With the reduction of trapped air in the lungs, the respiratory muscles can work better and patients can feel less breathless with activity. Figure 3 shows the diaphragm (major muscle for breathing) on the left side is depressed in a COPD patient with hyperinflation. After implantation of EBV using bronchoscopy in the left upper lung, the diaphragm is now elevated and able to perform its normal function again (Figure 4).



Figure 3



Figure 4