

New plug technique for Endobronchial Watanabe Spigot (EWS): Side heel kick method

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Background:

Bronchial occlusion using Endobronchial Watanabe Spigot (EWS) is reported to be useful for the management of persistent pulmonary air leaks.

Many patients with persistent pulmonary air leaks have respiratory disability and poor general condition. These patients need minimally invasive therapies, such as bronchial occlusion, however, difficulties in plugging EWS at target bronchus is still debated.

Recently, grasping forceps (FG-14P-1 OLYMPUS) have been recommended for controlling EWS. However, we found that by grasping the edge of EWS then using rotational forceps (FB-19CR-1, OLYMPUS) to maneuver the spigot make it simple to plug the EWS into the target bronchus. Since this method increases the variable angle making it possible to fix and rotate using a large angle, we have named this method the 'Side heel kick'.

Objective:

The aim of this study is to evaluate the effectiveness of this method for easy plugging EWS.

Methods:

First, on the tabletop, we measured the variable angle of EWS by conventional method, then by side heel kick method.

Next, we measured the time to plug the EWS for the conventional and side heel kick methods using a lung model (LM-092 KOKEN).

Results:

The variable angle in the conventional method was 45 degrees and that in the side heel kick method was 90 degrees.

The time to plug the EWS using the side heel kick method was significantly shorter than the conventional method.

Conclusion:

Side heel kick method significantly reduced the time in plugging EWS.

The superior lobe bronchus is notoriously difficult to plug, however, the side heel kick method was easily able to plug the target bronchus.