

## *General Discussion on Present the Knowledge Concerning Small Airways*

### 1. Ultra Thin Fiberscopic Findings of Pulmonary Emphysema

Takaaki TSUCHIDA, Mitsuru TANAKA, Tetsuya OKUNAKA, Shin NAKAJIMA,  
Ryu NAKAJIMA, Chimori KONAKA and Harubumi KATO

Department of Surgery, Tokyo Medical University

With conventional fiberoptic or videoendoscope we can observe central bronchus however we can not observe peripheral bronchus, as the diameter is more than 3~4 mm. Using an ultra thin fiberoptic, with a diameter less than 2.8 mm, we can observe peripheral bronchus. In this presentation I will present some of our findings using the ultra thin fiberoptic in peripheral bronchi of emphysema patients.

We used Olympus ultra thin fiberoptics with a diameter of 2.8 mm and 2.2 mm. This fiberoptic has a working channel. Olympus ultra thin fiberoptics were equipped with a working channel of a conventional bronchofiberoptic. The 2.65 mm fiberoptic was equipped directly without a conventional fiberoptic. Using this equipment we were able to observe the peripheral bronchus in patients with emphysema.

We observed stenosis of the peripheral bronchus and checkerboard destruction of the peripheral bronchus in the 5th branch of the segmented bronchus. Bronchography of this patient showed obstruction of the peripheral bronchus. In a patient with more severe emphysema we observed stenosis with accompanying destruction of the bronchial wall compared to the patient with just stenosis or obstruction. This bronchogram of the same patient showed the 'Christmas Tree' pattern mentioned by Professor Hogg. And here we see that the destruction of the bronchial wall appears to have progressed.

This bronchogram of the same patient shows pooling of the bronchogram material indicating destruction of the peripheral structure. This slide shows stenosis with destruction, very similar to the previous case and this is also observed in the bronchogram. Here we have destruction of the bronchial wall in the absence of stenosis and in the bronchogram from the same patient pooling is not significant but dilatation of the peripheral bronchus can be seen.

This shows a non emphysema patient. Later Dr Ichinose may present findings relevant to this case. This was seen in a diffuse panbronchiolitis patient however the pattern is very similar to that sometimes seen in emphysema, but no obstruction can be seen. But I don't think this is a typical pattern. These findings were also seen in diffuse panbronchiolitis cases but this is a more typical pattern. Bronchial obstruction can be seen but obstruction is caused by secretion from bronchioli.

This bronchogram of the same patient shows pooling with dilatation of bronchi can be seen. Similar findings can be observed in some emphysema cases. In conclusion, some ultra thin fiberoptic findings of pulmonary emphysema have been shown. Stenosis, obstruction and destruction of peripheral bronchial wall can be seen in emphysema cases. The findings in diffuse bronchiolitis cases were similar to some of those in emphysema cases. Pathological findings in these cases were not assessed however this data should be analysed and compared with the findings using the ultra thin fiberoptic.