

## **Multimodal rehabilitative approach to atelectasis in scoliosis patient : a Case report**

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### **Introduction**

We experienced one case of atelectasis due to bronchial obstruction after pneumonia and the curve of scoliosis seems to have deteriorated. The Boston brace and the respiratory rehabilitation applied to improve the pneumonia and atelectasis.

### **Case description**

A 20 - year - old female patient with fever and dyspnea was referred for respiratory rehabilitation in order to relieve the obstruction of bronchus. At the time of admission, the body temperature was 38 ° C, oxygen saturation was 92%, white blood cell count was  $16.1 \times 10^9$  cells/L, and C-reactive protein (CRP) was 22.17 mg/L. Chest CT showed compressing of bronchus by thoracic spine with scoliosis, focal obstruction at right bronchus intermedius, and atelectasis of RML and RLL. A large amount of secretion and near total obstruction were detected in the bronchoscopy toward the right bronchus intermedius. The chest and orthopedic surgeons recommended surgery. Right apex of thoracic curve is 58.2° and left apex of lumbar curve is 24.7° in the Cobb's angle. We performed an External High Frequency Chest Wall Oscillation (HFCWO) with pressing her right apex of scoliosis and made her body to decubitus position to widen right bronchus narrowed by severe scoliosis for facilitating secretion release. And the Boston brace was immediately applied to maintain the open state of the right bronchus. The thoracic curve changed from 58.2° to 53.7° and the lumbar curve was similar after applying Boston brace. Sputum was relieved and the atelectasis of RML and RLL was rapidly improved. After 3 days, WBC was stabilized and 10 days later CRP was stabilized to normal range. After 22 days, pneumonia has been completely resolved.

### **Conclusion**

Personalized rehabilitation approaches, which are pulmonary rehabilitation therapy and brace, are needed for atelectasis with scoliosis patient.



Fig 1. Chest CT 2018.04.16

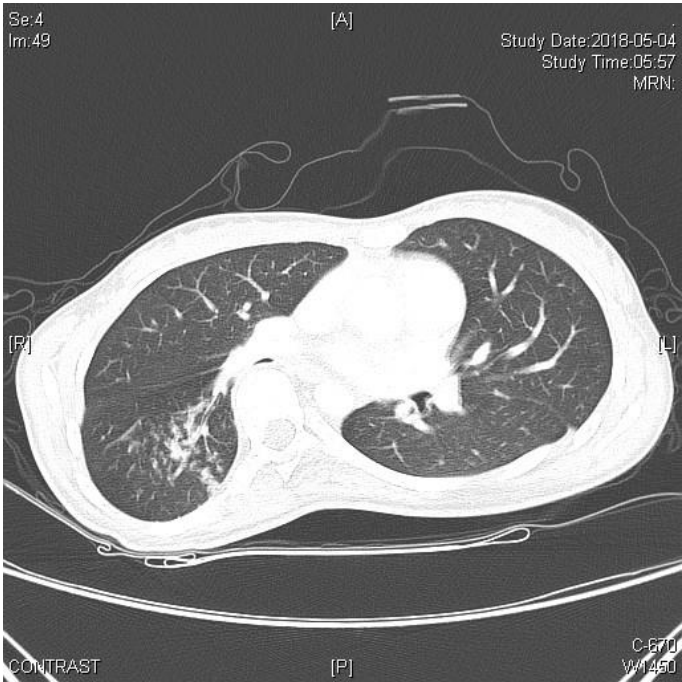


Fig 2. Chest CT 2018.05.04

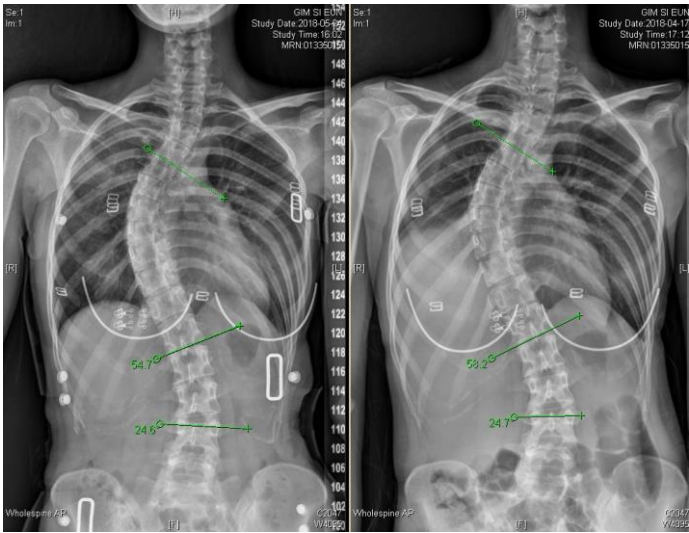


Fig 3. Left) 2018.05.24 Scannogram, Right) 2018.04.17 Scannogram