

# Clinical Quiz

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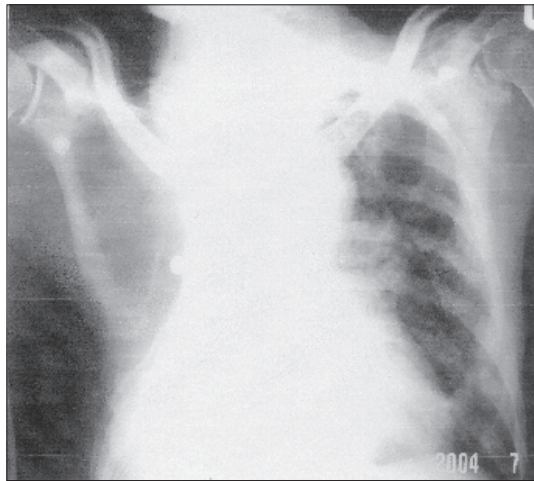
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## Chest deformity in a patient with old tuberculosis

### Clinical Presentation

A 67-year-old man presented to the emergency department with shortness of breath and productive cough. He was diagnosed with pulmonary tuberculosis (TB) 40 years ago. Therapy with drugs and chest operation led to cure from TB. Chest x-ray was performed (**Figure 1**).



**Figure 1** - Chest deformity in a patient with old tuberculosis.

## Questions

1. Describe the image.
2. Based on history and radiological findings what is the mechanism/process which lead to chest deformity?

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## Answers

1. Chest x-ray shows chest deformity due to absence of ribs in the right hemithorax.
2. Chest deformity is due to removal of several ribs for lung compression; an operation called thoracoplasty to snatch the patient with advance pulmonary TB from the grave.

## Discussion

Thoracoplasty represents the resection of ribs or their replacement with an inward convexity device intended to decrease thoracic volume.<sup>1</sup> The only current use of the procedure is closure of a persistent pleural space, but prior to the 1950s, this procedure was performed as collapse therapy for cavitary TB. The perioperative mortality was high. Survivors had a reasonable life expectancy, though their mortality was still higher than that of control subjects. Thoracoplasty results in a restrictive ventilatory defect with decreases in total lung capacity and vital capacity, and preserved residual volume. This restrictive defect is likely resulting from diminished volume from chest wall distortion, and perhaps from concomitant pulmonary fibrosis secondary to TB. The diffusing capacity is usually normal when corrected for alveolar volume. Patients also may have an obstructive ventilatory defect that worsens with age and may be due to either TB or the effects of cigarette smoking.<sup>2</sup> This feature is fairly unique amongst chest wall diseases. Exercise capacity is limited due to diminished ventilatory capacity.<sup>3</sup> Treatment is primarily supportive, with use of noninvasive ventilation in a fashion similar to that for kyphoscoliosis. An associated obstructive ventilatory component, when present, should be treated with bronchodilators. A course of pulmonary rehabilitation may be helpful in improving symptoms and increasing 6 minutes walk distances for these patients.<sup>4</sup>

## References

1. McCool FD, Rochester DF. Chest wall diseases. In: Murray JF, Nadel JA, editors. Textbook of Respiratory Medicine. 2nd ed. Philadelphia (PA), WB Saunders Co. 1994. p. 2524-2543.
2. Phillips MS, Miller MR, Kinnear WJ, Gough SE, Shneerson JM. Importance of airflow obstruction after thoracoplasty. *Thorax* 1987; 42: 348-352.
3. Phillips MS, Kinnear WJ, Shaw D, Shneerson JM. Exercise responses in patients treated for pulmonary tuberculosis by thoracoplasty. *Thorax* 1989; 44: 268-274.
4. Ando M, Mori A, Esaki H, Shiraki T, Uemura H, Okazawa M, et al. The effect of pulmonary rehabilitation in patients with post-tuberculosis lung disorder. *Chest* 2003; 123: 1988-1995.