Cough Induced Rib Fracture: A Very Rare Case

Öksürüğe Bağlı Kaburga Kırığı: Çok Nadir Bir Olgu

Öksürüğe Bağlı Kaburga Kırığı / Cough Induced Rib Fracture

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To the Editor:

Coughing is a crucial defense mechanism for keeping foreign bodies out of the tracheobronchial tree,[1] usually self limited and uncomplicated but sometimes can be with complications, especially when chronic. One of these complications is rib fracture.[2] In this report, we present a case of unusual cough related stress injuries to the ribs.

A 32 year old man presented to our emergency department with sudden pain in the left lower chest wall after strong paroxysmal coughing due to aggravation of chronic obstructive pulmonary disease symptoms associated. On physical evaluation, he had seriously tenderness over his left lower chest wall. There was no history of any thoracic trauma, osteoporosis due to chronic renal disease, or any metabolic disease. He was use corticosteroid management because of the chronic obstructive pulmonary disease during last five years. A chest x-ray and chest computed tomography revealed spontaneous fracture of the left eighth and ninth rib (Figure 1, 2a, 2b). The patient was admitted to the hospital for observation and management of acute asthmatic attack. There were no complications during follow-up, the patients were discharged without any complication, and treatment with oral nonsteroidal antiinflammatory drugs and medical advice for chronic obstructive pulmonary disease.

The most common cause of rib fracture is trauma. Pathological fractures may be encountered secondary to malignancy, osteoporosis caused by older age, renal failure, pregnancy, chronic steroid use, mechanical ventilation, and radiation therapy.[1] In our case, the patient's risk factors included chronic obstructive pulmonary disease, chronic coughing and chronic steroid use. Cough fracture is a specific and less common type of stress fracture.[1] Chronic cough was associated more commonly with rib fractures compared with acute cough.[2] It is probable that repetitive mechanical stress on the ribs, high intrathoracic pressure due to coughing, and the diaphragm may take on a role of an expiratory muscle. It attaches to the lower 6 ribs and their cartilages. The remaining expiratory muscles, the abdominal muscles, attach to the fourth through tenth ribs at the midaxillary line. The inspiratory muscles attach at the same line. The opposing actions of these muscles on the ribs may result in cough fractures.[1-3] Chest roentgenograms are the most frequently used radiological procedures in the diagnosis of cough induced fractures of the rib. In addition radionuclide bone scan and computed tomography can use.[1,2] Even though Hanak V et al. reported bone densitometry were in the osteopenic or osteoporotic range in their study, but cough induced rib fractures can occur in persons with normal bone density.[2] In our case bone density was normal. Pharmacological treatment and clinical observation are the management processes. On the other hand surgical intervention may be indicated in the presence of some complications such as a large hematoma, diaphragmatic rupture, and lung hernia.[1,4]

In conclusion; Cough induced rib fractures is a rare complication. Repetitive mechanical stress on the ribs, high intrathoracic pressure due to coughing, chronic obstructive pulmonary disease, chronic coughing and steroid use may be reasons and risk factors. Pharmacological treatment and clinical observation are the management processes. Severe coughing and sudden onset chest pain should be considered cough induced rib fracture. Early diagnosis and treatment may prevent the complications.

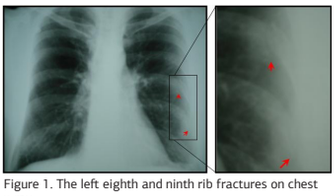


Figure 1. The left eighth and ninth rib fractures on chest x-ray.

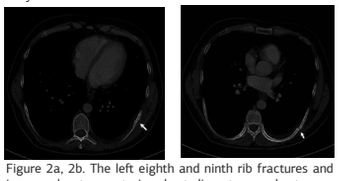


Figure 2a, 2b. The left eighth and ninth rib fractures and increased anteroposterior chest diameter on chest computed tomography.

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