Unique Lung Abnormality in a Healthy, Collegiate Female

Kurzec MK*, Meyer HE†, Scifers JR‡: St. Luke’s University Health Network*, Bethlehem, PA, College of Charleston, Charleston, SC†, Moravian College, Bethlehem, PA‡

Background:
Spontaneous pneumothorax is defined as the presence of air in the pleural space without a known mechanism.¹ This condition is most common in tall, thin men between the ages 20 to 40; with an incidence of 7.4-18 cases/100,000 men and 1.2-6 cases/100,000 women.² Spontaneous pneumothorax occurs most commonly at rest. Symptoms include ipsilateral chest pain and mild dyspnea which typically resolve within 24 hours. In most cases, physical examination, including breath sounds, tactile fremitus and percussion, appears normal.² Treatment guidelines trend toward safer, less-invasive management strategies.³

Case Presentation:

Patient (P): The patient is a 20-year-old female college student who sustained a spontaneous pneumothorax while performing yoga. The patient experienced a sudden pulling feeling on the right side of her chest and immediately experienced wheezing while coughing. Approximately 28 hours following the onset, she experienced progressive worsening of her symptoms. The patient was subsequently referred to the Emergency Department (ED) for further evaluation. Six weeks after being medically cleared, the patient experienced similar symptoms while forward flexing to pick up an object. Over the next two weeks, the patient experienced three more similar episodes.

Intervention (I): During the first visit to the ED, the patient was treated for a complete collapse of her right lung, with a tube thoracotomy at the intercostal space of the 2nd and 3rd rib at the mid-clavicular line followed by a chest tube that would remain in place for 48 hours. On the second visit to the ED, the patient was treated for a 40% collapse of her right lung. An additional tube thoracotomy was employed and remained in place for one week with activity restrictions, consisting of performing only activities of daily living. The third collapse caused the patient to be hospitalized for 10 days and the chest tube was attached to suction until a fourth collapse occurred 4 days later. The fourth collapse caused the patient to undergo emergency surgery due to atelectasis. The affected section of the right lung’s lower lobe was stapled off and a congenital cyst was removed. The patient remained in the hospital for five days with a chest tube in place following surgery.

Comparative Outcome (CO):
The patient was released from the hospital three days following her emergency surgery. She had a follow-up visit four weeks later for re-evaluation and suture removal. At this time, the patient was cleared for full activity with no restrictions. Prognosis for this condition is excellent, with less than 5% chance of recurrence. Although the final patient outcome and prognosis are consistent with the majority of spontaneous pneumothorax cases, the course of multiple invasive interventions is quite unusual with non-traumatic pneumothorax.

Conclusion:
This case varied greatly from the typical patient presentation and clinical course seen with spontaneous pneumothorax. The pathology occurring in a short-statured, collegiate female during activity, the failure of symptoms to spontaneously resolve and the need for multiple invasive medical procedures all make this case unique. The surgeon determined the cause of this patient’s pathology was related to a congenital cyst that had ruptured the right lung’s lower lobe and had created a small hole in the lung wall. Ten percent of congenital lung disorders are diagnosed at birth with another 14 percent diagnosed by age 15. Lung cysts are more common in males and most cysts originate in the upper lobes.²

Clinical Bottom Line:
Spontaneous Pneumothorax can be a potentially fatal condition if not managed appropriately. This case reinforces the need for a thorough examination when symptoms such as dyspnea, wheezing cough and chest pain are present and the need for referral when the clinical course is atypical.  Word Count: 598