

Case report: Pneumothorax and asthma

Anthony D. D'Urzo, MD, MSC, CCFP Deborah K. D'Urzo, MSC Kenneth R. Chapman, MD, MSC, FRCP, FACP

A secondary spontaneous pneumothorax (SSP) is defined as a spontaneous pneumothorax in a person with underlying lung disease. Although the association between SSP and chronic obstructive pulmonary disease (COPD) is well-known, an association between SSP and asthma is less commonly known. Because the clinical presentation of SSP might be similar to that of worsening asthma, diagnosis of pneumothorax might be delayed or missed.

Case description

A 29-year-old man presented with shortness of breath that continually got worse over 3 days. His usual inhaled medications provided no relief. Several hours before he arrived at the clinic, he began experiencing pain on the left side of his chest that radiated to his left shoulder with deep inspiration. Medical history was unremarkable except for his asthma. Medications included an inhaled short-acting β_2 -agonist and an inhaled corticosteroid.

Physical examination revealed a young man in no acute distress. Vital signs were normal. Chest examination revealed decreased air entry at the left apex. The trachea was displaced to the right. Results of cardiovascular examination were normal. Chest x-ray examination confirmed presence of a pneumothorax on the left side, which, on expiration, occupied 60% of the space within the pleura (**Figure 1**). The pneumothorax was treated with a left tube thoracostomy.

Discussion

A MEDLINE search dating back to 1975 identified relevant articles related to diagnosis and management of pneumothorax in patients with asthma. The

.....
Dr Anthony D'Urzo is a lecturer in the Departments of Medicine and Family and Community Medicine at the University of Toronto in Ontario and is Director of the Primary Care Asthma Clinic. **Ms Deborah D'Urzo** is Assistant Director of Clinical Research at the Primary Care Asthma Clinic. **Dr Chapman** is Professor of Medicine at the University of Toronto and is Director of The Asthma Centre.

...

This article has been peer reviewed.

Cet article a fait l'objet d'une évaluation externe.

Can Fam Physician 1999;45:1524-1525.

most common underlying disease associated with SSP is COPD.¹ The frequency of SSP in this population appears to be related to the severity of disease. In a series of 67 patients with SSP reported by Tanaka et al,¹ asthma was confirmed in only two patients. O'Rourke and Yee² studied a series of patients with spontaneous pneumothorax and found that four of 45 patients with SSP had asthma. These reports highlight that SSP is an uncommon complication of asthma.

Morbidity and mortality rates could be substantial in patients with SSP due to reduced pulmonary reserve and advanced age.³ Pneumothorax should be suspected in patients with asthma, particularly if they complain of shortness of breath accompanied by chest pain. Although chest pain is present in most cases of primary spontaneous pneumothorax, it is less common in patients with SSP.⁴

In asthmatic patients, a finding of decreased air entry on chest auscultation might be consistent with marked hyperinflation or pneumothorax. Asymmetrical or focal findings should suggest the latter. In patients presenting with increased shortness of breath and chest pain, a chest x-ray film should be obtained to exclude SSP. Patients with SSP should be reminded that the risk of recurrence could be as high as 30%.⁴

Spontaneous pneumothorax usually results from the rupture of a small congenital pleural bleb and might recur because several small blebs might be present. Asthma predisposes susceptible individuals to pleural bleb rupture and pneumothorax when bronchospasm and hyperinflation increase the pleural pressures needed to maintain ventilation. However, asthma is a common disorder, and pneumothorax and asthma could be coincidentally rather than causally related.

Observation is recommended only for patients with pneumothorax less than 15% of the hemithorax, who are not dyspneic and who do not require hospitalization. Administering supplemental oxygen accelerates the rate of pleural air absorption.⁴ Simple aspiration is much more likely to be successful with primary spontaneous pneumothorax than with SSP. It is recommended that almost all patients with SSP be treated with tube thoracostomy.⁴

Conclusion

Asthma is one of the most common chronic diseases managed by family physicians. Given the morbidity and mortality associated with SSP, family physicians should consider this diagnosis in asthmatic patients presenting with suggestive symptoms or focal chest findings on physical examination. The risk of coincidental pneumothorax in asthma sufferers is that diagnosis might be delayed while attention is misdirected at the known respiratory disorder: asthma. ❖

Correspondence to: Dr Anthony D'Urzo, Primary Care Asthma Clinic, 1670 Dufferin St, Suite 107, Toronto, ON M6H 3M2

References

1. Tanaka F, Itoh M, Esaki H, Kobe J, Veno Y, Inone R. Secondary spontaneous pneumothorax. *Ann Thorac Surg* 1993;55:372-6.
2. O'Rourke JP, Yee ES. Civilian spontaneous pneumothorax. Treatment options and long term results. *Chest* 1989; 96:1302-6.
3. Burke GE. Pneumothorax complicating acute asthma. *S Afr Med J* 1979;55:508-10.
4. Light RW. Management of spontaneous pneumothorax. *Am Rev Respir Dis* 1993;148:245-8.

Key points

- Secondary spontaneous pneumothorax is an uncommon, but potentially serious, complication of asthma.
- Consider the diagnosis when asthma patients present with shortness of breath accompanied by chest pain.

Figure 1. Presence of pneumothorax is confirmed: A) Chest radiograph of patient with SSP on the left during inspiration. Arrows point to visceral pleural surface of lung. Beyond the visceral pleura is air within the pleural space; no lung markings are seen in this region. B) In this chest radiograph during expiration, arrows point to visceral pleural surface.

