Pneumomediastinum Following Spirometry

To the Editor:

Spirometry is a simple and common procedure performed to access pulmonary lung function. Complications from testing are rare but can include dizziness from hyperventilation, and vasovagal reactions. The development of pneumomediastinum following spirometric testing has also been previously reported in two normal subjects1,2 and in one immunocompromised patient with presumed Pneumocystis carinii pneumonia.3

Patients undergoing spirometry are instructed to take a deep inspiration to total lung capacity and then to expire vigorously. This causes a rapid increase in lung volume and pressure changes in the alveoli. These sudden changes in alveolar volume and transpulmonary pressure can lead to alveolar rupture and subsequent air entry into the bronchovascular sheath.4

We report a 32-year-old white man who developed a pneumomediastinum after undergoing spirometry. The patient had a history of perennial allergic rhinosinusitis and had complained of vague and intermittent upper-chest tightness for several months. He denied any gastric reflux symptoms.

Spirometry was performed before and after administration of nebulized levalbuterol hydrochloride (0.63 mg) and findings were normal. Two hours later, he developed severe throat and neck pain. He also had a change in his voice to a high-pitched voice. Physical examination noted palpable crepitus in the neck. A high-resolution CT scan of the chest was obtained to exclude pulmonary lung function. Complications from testing are rare but can include dizziness from hyperventilation, and vasovagal reactions. The development of pneumomediastinum following spirometric testing has also been previously reported in two normal subjects1,2 and in one immunocompromised patient with presumed Pneumocystis carinii pneumonia.3

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Although spirometry is a safe and useful test, one should be aware of the physiologic changes that occur in the respiratory tract with the vigorous straining required to complete the test. Furthermore, one should suspect pneumomediastinum as a complication if the patient complains of severe neck or throat pain following the procedure.

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Dying With Respiratory Disease

To the Editor:

Since little is known about the symptoms and treatments for dying patients with respiratory diseases, we carried out a chart review for symptoms experienced in the last 2 days of life and the effectiveness of treatment.1 The medical records of 150 sequential patients who died at a respiratory division in an university hospital in April 1994 through December 2000 were reviewed.

The 150 patients who died had an average age of 65 years, and 101 patients (67%) were men. One hundred nine patients had malignancy (lung cancer [n = 101], others [n = 5]), and 41 patients had benign disease (interstitial pneumonia [n = 19], COPD [n = 11], others [n = 11]). Dyspnea and cough were documented in 69% and 28% of patients with benign disease, respectively. Pain was present in 32% of patients with malignant disease. In patients with benign disease, 59% were receiving ventilatory support, 49% underwent resuscitation, and 63% died in ICUs. On the other hand, patients with malignant disease were less likely to be in ICUs (p = 0.0001, χ² test), to receive ventilatory support (p = 0.0001), or to receive resuscitation (p = 0.0001) compared to those with benign disease.

Our patients had dyspnea more frequently than patients in previous studies1-5 of hopelessly ill patients. This might be explained by the difference in study population. Patients with malignant disease in our series had pain less frequently, which may be due to pain control by appropriate medication. Not a small percentage of our patients with benign disease received life-sustaining treatments. Too often, such treatments are instituted in hospitals, especially in ICUs, without sufficient thought to the proper goals of treatment. Chest physicians are required to...
formulate an adaptable and flexible treatment plan, tailoring treatment to the patient’s changing needs as the disease progresses.

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REFERENCES

Erratum
In the January 2001 supplement Sixth ACCP Consensus Conference on Antithrombotic Therapy, the article “Antithrombotic Therapy in Patients With Mechanical and Biological Prosthetic Heart Valves” (CHEST 2001; 119:220S–227S), by Stein et al, contained an error. On page 226S, recommendation number 6, the INR range should have read “range, 2.0 to 3.0.”