Spontaneous retropharyngeal and cervical emphysema: A rare singer’s injury

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Abstract
Spontaneous retropharyngeal and cervical emphysema is rare. We describe a case that was unusual in its etiology: the result of singing. Although this condition is usually benign, hospital admission for close observation and supportive therapy is prudent.

Introduction
Spontaneous retropharyngeal and cervical emphysema is a rare clinical entity. It generally occurs in association with spontaneous pneumomediastinum. A wide variety of precipitating factors has been reported. Singing has not previously been described as a cause for this condition.

The most common symptoms of spontaneous retropharyngeal and cervical emphysema are chest pain and dyspnea, although neck symptoms of varying intensity are often present, as well. A presentation involving only complaints referable to the neck with no chest symptoms is unusual and may delay a correct diagnosis.

We describe a case of acute spontaneous pneumomediastinum with retropharyngeal and cervical emphysema that occurred in a singer while she was performing. We also discuss the presentation, pathophysiology, and management of this condition.

Case report
A 27-year-old woman presented to the Accident and Emergency Department at Adelaide Meath and National Children’s Hospital in Dublin complaining of sudden-onset anterior neck pain, odynophagia, and dysphonia. Her symptoms had manifested while she was performing during a singing engagement. She denied any associated chest pain or dyspnea. Her medical history was negative for chronic or explosive cough, trauma, or underlying respiratory disease.

On initial examination, the patient’s vital signs were stable and no stridor or respiratory distress was evident, but she was dysphonic and unable to swallow her saliva. Her neck was tender to palpation, and its range of motion was limited. No demonstrable crepitus was palpable. Findings on oropharyngeal inspection and flexible fiberoptic nasopharyngoscopy were normal, as was the remainder of the physical examination.

Neck and chest x-rays revealed the presence of retropharyngeal air, subcutaneous emphysema in the soft tissues of the neck, and pneumomediastinum (figure 1). The patient was admitted for observation, supplemental oxygen, and supportive treatment, including intravenous fluids and analgesia. She made an uneventful recovery and was able to tolerate oral intake after 4 days. Six days after admission, a follow-up lateral neck x-ray confirmed resolution of the retropharyngeal emphysema (figure 2). The patient was discharged home, and she resumed singing 1 month later. She reported no further episodes at the 6-month review.

Discussion
The term spontaneous is applied to diagnoses of pneumomediastinum and cervical emphysema that have no obvious cause, such as surgery or trauma. Some possible precipitating factors that have been reported include weight lifting, parturition, glassblowing, explosive cough, and vomiting. Underlying pulmonary diseases—asthma, emphysema, or respiratory tract infection—may predispose some patients to develop spontaneous pneumomediastinum.

The mechanism by which air enters the mediastinum was elucidated by Macklin in 1939. He postulated that an increase in alveolar pressure secondary to an increase in intrathoracic pressure against a total or partial obstruction (as occurs during Valsalva’s maneuver and explosive cough) leads to marginal alveolar rupture. When underlying parenchymal disease is present, the alveoli may...
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be weakened; as a consequence, alveolar rupture can be caused by changes in pressure that are less dramatic. Following rupture of the alveoli, extraalveolar air enters the pulmonary interstitium and dissects along the perivascular sheaths to the mediastinum. Proximal extension along subfascial tissue planes can occur, resulting in cervical and retropharyngeal emphysema.

Patients with spontaneous pneumomediastinum usually complain of retrosternal chest pain and dyspnea. Neck symptoms—including pain, odynophagia, and dysphonia—have been reported in as many as 72% of patients. It has been suggested that the onset of neck symptoms in cervical and retropharyngeal emphysema coincides with a decrease in chest symptoms. Physical findings include Hamman’s sign ( precordial crepitus), subcutaneous emphysema, and decreased cardiac dullness to percussion. Radiographic examination confirms the diagnosis. On chest x-ray, the most consistent finding is a thin radiolucent line along the left edge of the heart. Lateral x-ray of the soft tissues of the neck will show air in the soft-tissue planes.

In general, this condition is self-limiting and runs a benign course. However, in fulminant cases, impaired venous return and decreased cardiac output might result in potentially fatal hypotension. Hospital admission for observation, bed rest, and analgesia is sufficient for most patients. Intravenous fluids may be required for patients who have significant odynophagia. Supplemental oxygen may expedite recovery by creating a favorable pressure gradient for nitrogen, resulting in gas resorption. Prophylactic antibiotics appear to be unnecessary. Close observation and serial radiography should be carried out to confirm the patient’s recovery.

References