

Screaming At One Direction Concert Not Only Way to Collapse A Lung



By Jamie Wells, M.D. — October 12, 2017



Credit: Wikimedia Commons [1]

The body likes things like oxygen to go where it is designed to go. So, when it escapes the lungs and enters the surrounding cavity that houses them, they get unhappy and one might even collapse if the amount and pressure it creates is significant enough. Such is the situation for a *One Direction* concert-goer whose difficulty breathing after “intense screaming” yielded a [published case report](#) [2] in the *Journal of Emergency Medicine*.

The [article](#) [2] entitled ““Screaming your Lungs Out!” A Case of Boy Band-Induced Pneumothorax, Pneumomediastinum, and Pneumoretropharyngeum,” uses some big words. Let us break it down a bit. The lungs occupy either side of the chest and are surrounded by a thin tissue membrane called the pleura. You can think of the lungs and pleura as a bag of air, blown up inside a second bag, the lungs are blown up to the point that the pleura is a collapsed space, physicians call it a virtual space. The pleura helps the lungs move smoothly up and down and facilitates breathing. Another anatomic space is the area between the lungs which is known as the mediastinum. It contains blood vessels and trachea, the tube carrying oxygen from our nose and mouth to our lungs. When air gets into this space it is called a pneumomediastinum and air around the trachea, especially in the neck is called pneumoretropharyngeum.

When air gets into the pleura the space is no longer collapsed and we can see an air pocket between the chest wall and the lung. Ordinarily with time, the air in the pleura is absorbed and the virtual space returns as the pleura returns to its collapsed position. A pneumothorax is when air gets into the pleural space. Under certain conditions, instead of being reabsorbed the air pocket continues to enlarge which results in the lung collapsing; this in turn reduces your ability to get oxygen into your blood. Pneumomediastinum and pneumoretropharyngeum both indicate that

there is a hole in the respiratory system that is allowing air to leak from the trachea or in very rare instances from the esophagus. I know you might say, but wait, the esophagus is involved in carrying food to our stomach and that is true, but along with food, we also swallow air (think burping) so that a pneumomediastinum or pneumoretropharyngeum may also be due to a tear in the esophagus.

How does this happen?

A penetrating trauma from outside the body directly into the chest wall can cause entry of air around the lungs. As can a blunt injury or untoward effect from a medical procedure involving passing a needle into the chest. A broken rib can puncture a lung. Barotrauma is a culprit as it results in tissue damage from a failure to equalize pressure, most commonly with scuba diving or flying. Other ways include excessive coughing from an acute asthma attack, vomiting (remember that torn esophagus previously mentioned), infectious etiologies as well as from underlying diseases like cystic fibrosis or chronic obstructive pulmonary disease (COPD). When it is secondary to another disease, it is typically referred to as “secondary” spontaneous pneumothorax etc. In these scenarios, the tissue itself might be more prone to harm.

Some people have blebs –or blister-like bubbles- in the lining which can be at risk of leaking air through rupture. This is often considered the likely explanation in those with “primary” spontaneous pneumothorax.

This circumstance is deemed a “spontaneous pneumothorax, pneumomediastinum and pneumoretropharyngeum” given the 16-year-old female had no symptoms or signs of recent illness and due to the sudden onset of shortness of breath after “forceful screaming” at the concert. She does have a history of Type 1 Diabetes (to learn more, see [here](#) [3]).

As per the report, shouting has been described in the literature as a cause. Fortunately, her areas of collapse were small requiring no major intervention beyond supplemental oxygen with overnight hospital observation including serial chest x-rays to affirm no progression. She went home the next day without any further problems.

It is not uncommon for minor air leaks to absorb themselves and resolve on their own. But, it is very important when such symptoms appear that you are properly diagnosed and managed to avoid complications.

In severe versions of these findings, a more invasive chest tube needs to be placed that necessitates a protracted hospital stay. Think about most medical television shows you have seen where they use a scalpel and big tube, their finger or a straw and forcibly stick it into the chest of a struggling patient. As is Hollywood, the actor magically and instantaneously is without pain and breathes more comfortably again.

In extremes where the airway is obstructed, intubation might also be required. Even surgery is a possibility with profound disease.

Who is most at risk?

Men are more likely than women. According to the [U.S. National Library of Medicine](#) [4], it occurs in

7.4 to 18 per 100,000 men each year and 1.2 to 6 per 100,000 women each year. Smoking ups the ante. There can be a genetic predisposition, so family history is important. Typically, if you have one, then you have a greater chance of having another one. Obviously those with significant lung disease or the need for mechanical ventilation are at high risk of pneumothoraces. Tall, thin people are also at higher risk.

COPYRIGHT © 1978-2016 BY THE AMERICAN COUNCIL ON SCIENCE AND HEALTH

Source URL: <https://www.acsh.org/news/2017/10/12/screaming-one-direction-concert-not-only-way-collapse-lung-11950>

Links

[1] https://commons.wikimedia.org/wiki/File:One_Direction_ARIA_Awards_2014.jpg

[2] [http://www.jem-journal.com/article/S0736-4679\(17\)30711-4/fulltext](http://www.jem-journal.com/article/S0736-4679(17)30711-4/fulltext)

[3] <https://www.acsh.org/news/2017/04/25/many-invisible-faces-type-1-diabetes-11182>

[4] <https://ghr.nlm.nih.gov/condition/primary-spontaneous-pneumothorax#statistics>