

Sen. Rand Paul Was Assaulted, Sustains Rib Fractures



By *Jamie Wells, M.D.* — November 6, 2017



Credit: Wikimedia [1]

Senator Rand Paul was assaulted and sustained multiple rib fractures, according to published reports. He tweeted, “Kelley and I appreciate the overwhelming support after Friday’s unfortunate event. Thank you for your thoughts and prayers.” The [arrest warrant](#) [2] for his alleged attacker indicates Sen. Paul has facial injuries and “trouble breathing due to rib injury.”

He “[was reportedly tackled](#) [3] while he was mowing the grass at his home in Bowling Green, Ky.” Aside from being supposedly tackled [from behind](#) [3], initial information conveyed his injuries were minor. As the days passed, a more serious nature of his findings became apparent to the public.

Though the details of what triggered the event remain unclear, his Senior Adviser Doug Stafford revealed the following:

- “Senator Paul has five rib fractures including 3 displaced fractures,” Stafford said in a statement emailed to the [Daily News](#) [4] by Paul’s staff. “This type of injury is caused by high velocity severe force. It is not clear exactly how soon he will return to work, as the pain is considerable as is the difficulty in getting around, including flying.”
- “Displaced rib fractures can lead to life-threatening injuries such as: hemopneumothorax, pneumothorax, pneumonia, internal bleeding, laceration of internal organs and lung contusions,” said Doug Stafford in a statement-- [as per CNN](#) [5].
- As per the [Associated Press](#) [6], “Stafford said Sunday that the broken ribs include three displaced fractures, which can lead to life-threatening injuries. The severe pain can last for weeks or months.”

What causes rib fractures?

Breaks in bones can occur from direct, forceful blows of blunt or penetrating traumas. Intentionally or accidentally broken bones can both be problematic for the otherwise healthy person as well as a more compromised individual. For instance, whether taking place from a physical altercation or secondary to cardiopulmonary (CPR) resuscitation from a [cardiac arrest](#) [7], additional harms arise from the resultant impairment.

Cancer in the bone or other medical conditions that weaken its matrix can precipitate pathological fractures. These are defined by substantial fractures not well-explained by the mechanism of injury. Usually, in these circumstances, the damage sustained is way out of proportion to the history and can lead to a diagnosis of the underlying problem.

Genetic disorders like *Osteogenesis Imperfecta* (OI) cause bones to be intrinsically weak and susceptible to fracture. In those with more extreme forms, the act of being born can be life-threatening and changing an afflicted infant's diaper can amount to broken bones. This brittle bone disease literally makes a newborn very fragile. In the extreme, it is not merely the pain of the many broken bones that is concerning but also what vital tissues they damage and organs they prevent from normally functioning. Crushing injuries can complicate the picture. Consider how challenging aerating the lungs can be if all the ribs are broken, for example. Think about how a vigorous hug in a person with a more severe form of OI can elicit a fracture - let alone recreational activities as a child ages. To learn more, review [When Being Born Breaks Bones](#) [8].

Medications, malnutrition, osteoporosis, immobility, treatment-level radiation and therapeutics can also deplete the strength of one's bones putting them at risk of fracture. With disease management, in particular, the risks of bone damage are continuously weighed against the risks of spread or worsening of disease. Precautions are taken whenever possible to reduce the likelihood.

What problems do rib fractures cause?

Like any bone fracture, a key component to better healing is whether the break is displaced or nondisplaced. Though either can be painful, when the opposing ends are misaligned and jagged they can exacerbate the scenario by impeding on surrounding structures. The more premium the real estate, the more extensive the problems. Additionally, if there is breakage of the skin, then introduction of infectious agents or debris can complicate the picture.

In the case of rib fractures, puncturing or bruising --aka contusion-- a lung would be one concern. Or, lacerating any organ and blood vessel in close proximity for that matter. The trajectory of these situations can evolve to blood, debris or air inside the chest which can exert further pressure on important anatomy leading to a collapsed lung or even air in the mediastinum (*defined below*). If someone is on blood thinning medications or has other health challenges, then the severity can escalate.

Depending on which ribs are broken, internal organs like the liver, spleen and even kidney can also be harmed. The spleen, in particular, is highly vascularized and when significantly lacerated can cause life-threatening blood loss requiring rapid correction and intervention. The bottom line is location, location, location determines the prognosis and severity as does the mechanism of injury.

The pain of multiple rib fractures can prompt an individual to take less robust breaths-- or hypoventilate-- which can put them at risk of diminished oxygen, even potential pneumonia. If a patient is placed on narcotic pain medications on top of everything else, then these can also contribute to reducing one's respiratory drive.

In [Screaming At One Direction Concert Not Only Way To Collapse A Lung](#) [9], I detail the distinction between pneumothorax and pneumomediastinum and their adverse effects by breaking down the basic anatomy. 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. 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.

In conclusion...

As you can now see, a cascade of untoward events can follow such assaults. Due to the variability in the extent of damage in the context of trauma, a precise roadmap becomes patient-dependent. The treatment and management will be unique to the individual, especially if there is a more complex clinical history and picture.

Here's hoping the Senator has a speedy, uneventful recovery.

Addendum: Please refer to [this link](#) [10] for the 11/9/17 update on Senator Rand Paul's condition including defining what a pleural effusion is.

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Links

[1] https://commons.wikimedia.org/wiki/File:Rand_Paul,_official_portrait,_cropped.jpg

[2] http://http://www.bgdailynews.com/news/paul-has-rib-fractures-lung-contusions-after-apparent-assault/article_e0d36d03-f357-5161-8267-3aa317e978c7.html

[3] <http://www.npr.org/sections/thetwo-way/2017/11/06/562289911/sen-rand-paul-recovering-from-broken-ribs-after-assault>

- [4] http://www.bgdailynews.com/news/paul-has-rib-fractures-lung-contusions-after-apparent-assault/article_e0d36d03-f357-5161-8267-3aa317e978c7.html
- [5] <http://www.cnn.com/2017/11/05/politics/rand-paul-assault-injuries/index.html>
- [6] https://apnews.com/68fb5bbe2e0441489a4e0002f0edd754/The-Latest:-APNewsBreak:-Paul-recovering-from-5-broken-ribs?utm_campaign=SocialFlow&utm_source=Twitter&utm_medium=AP
- [7] <https://www.acsh.org/news/2017/10/02/tom-petty-mainstay-rocker-dies-66-after-cardiac-arrest-11907>
- [8] <https://www.acsh.org/news/2017/06/07/when-being-born-breaks-bones-11389>
- [9] <https://www.acsh.org/news/2017/10/12/screaming-one-direction-concert-not-only-way-collapse-lung-11950>
- [10] <https://www.acsh.org/news/2017/11/09/senator-rand-paul-significant-injuries-after-assault-12121>