

# Spontaneous Pneumothorax

## What is it?

Pneumothorax is a collection of air or gas in the pleural cavity (chest) that causes the lung to collapse. When this happens without an injury to the chest it is called spontaneous pneumothorax.

## What causes spontaneous pneumothorax?

Usually, the rupture of a small bleb or bullae (an air-filled sac in the lung) causes primary spontaneous pneumothorax. Secondary spontaneous pneumothorax occurs in the setting of known lung disease, most often chronic obstructive pulmonary disease (COPD). Other lung diseases commonly associated with spontaneous pneumothorax include: tuberculosis, pneumonia, asthma, cystic fibrosis, lung cancer, and certain forms of interstitial lung disease.

## What symptoms does it produce?

Spontaneous pneumothorax usually occurs at rest. The patient may experience any of the following:

- Chest pain on the affected side
- Shortness of breath
- Cough
- Abnormal breathing movement
- Rapid breathing

## How is spontaneous pneumothorax diagnosed?

In addition to the history and examination findings, a chest x-ray finding of varying amount of air in the chest cavity and a collapsed lung confirms the diagnosis of a spontaneous pneumothorax. Sometime a CT scan is required to assess the lung and identify the pathology that caused the pneumothorax.

## How is it treated?

The first objective of treatment of spontaneous pneumothorax is removal of the air from the pleural space, allowing the lung to re-expand. A small pneumothorax may not require any intervention and resolves spontaneously. For a larger pneumothorax, aspiration of air, through a catheter to a vacuum bottle may re-expand the lung. The placement of a chest tube between the ribs into the pleural space allows the evacuation of air, when simple aspiration is not successful, or the pneumothorax is large. Re-expansion of the lung may take several days, during which the chest tube has to be left in place.

## Can the spontaneous pneumothorax recur?

If a definitive treatment is not undertaken after the first episode recurrence rates of a spontaneous pneumothorax are high. The chances of recurrence are as high as 30% on the same side within 6 months and 50% within 2 years. It is therefore imperative that a definitive treatment is undertaken after the first or at least after second episode of primary spontaneous pneumothorax.

## What is the definitive treatment?

Thoracoscopic surgery (VATS) is a unique way to definitively treat spontaneous pneumothorax. Under the magnified view offered by thoracoscopy all the surfaces of the lung can be checked and the lung evaluated for parenchymal disease. Techniques to detect air leaks, such as partial lung inflation and inflation with the lung immersed, can be used to help find small air leaks and bullae. Once identified, the bullae or blebs can be resected using endoscopic stapler devices. To prevent further recurrence of the pneumothorax permanent adhesions are caused between the surface of the lung and the inside of the chest wall. This is achieved by rubbing the pleura (lining of the chest cavity) so that it sticks to the lung.

**What happens after the surgery?**

After any surgery on the chest / lungs it is necessary to place a tube in the chest to remove the fluid and some air that may leak from the lung. This is usually removed within 24 – 48 hours after surgery and the patient is discharged.

**What are the advantages of a thoracoscopic treatment of spontaneous pneumothorax?**

- Less pain from the incisions after surgery
- Shorter hospital stay
- Shorter recovery time
- Faster return to work or normal activity
- Better cosmetic healing

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