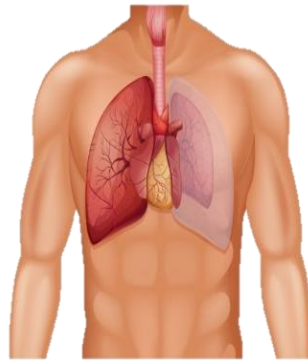




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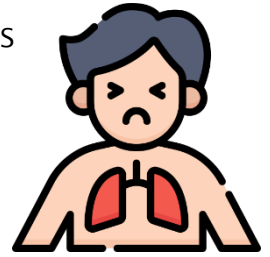
مستشفى الملك فهد الجامعي
King Fahad Hospital The University

استرواح الصدر Pneumothorax



What is pneumothorax?

A pneumothorax is a prolapse of the lung. A pneumothorax occurs when air leaks into the area between your lungs and the ribs of your chest. This air presses on your lungs from the outside and causes them to collapse. In most cases, only part of the lung descends.



- A pneumothorax can be caused by:
 - a) a superficial or deep injury to the chest.
 - b) certain medical procedures.
 - c) damage from an underlying lung disease.
 - d) it may happen for no apparent reason.



- Symptoms usually include sudden chest pain and shortness of breath. In some cases, lung failure can be life-threatening.

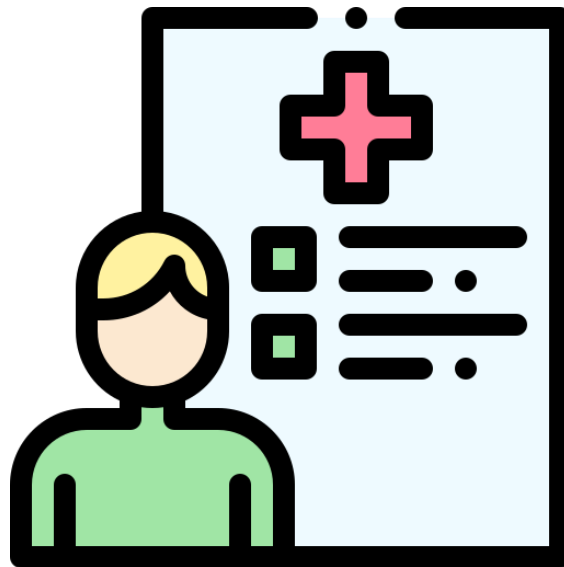


- Treatment for a pneumothorax usually involves inserting a flexible tube or needle between the ribs to remove excess air. However, simple pneumothorax may recover on its own.



What are the symptoms of pneumothorax?

The main symptoms of a pneumothorax are sudden chest pain and shortness of breath. But these symptoms can be caused by a variety of health problems, some of which can be life-threatening. If chest pain is severe or breathing becomes more difficult, get immediate emergency care.



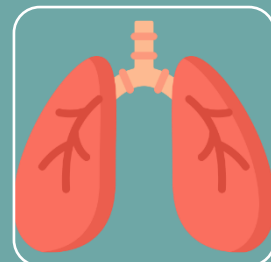
What are the causes of pneumothorax?

Pneumothorax can be caused by:

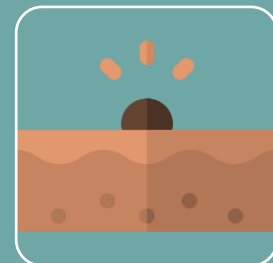
Chest injury: Any blunt or penetrating injury to the chest can cause the lung to collapse. Some injuries may occur during physical assaults or motor vehicle accidents, while others may occur unintentionally during medical procedures that involve inserting a needle into the chest.



Lung diseases: Damaged lung tissue is most likely to collapse. Lung damage can be caused by many types of underlying diseases, including chronic obstructive pulmonary disease, cystic fibrosis, and pneumonia.



Herniated air pimples: Small air pustules (bullae) can appear on the top of the lung. Although these blisters (bullae) are not a lung disease, they sometimes burst – allowing air to seep into the space that surrounds the lungs.



Mechanical ventilator: A severe type of pneumothorax can occur in people who need mechanical assistance to breathe. A ventilator can lead to an imbalance in intrathoracic air pressure. The lung may collapse completely.





What are the risk factors?

Risk factors for developing a pneumothorax include:

Gender

- In general, men are more likely to develop pneumothorax than women.

Smoking

- The risk increases with the length of time and number of cigarettes smoked, even without emphysema.

Age

- This type of pneumothorax caused by ruptured air blisters is more likely to occur among people between the ages of 20 and 40, especially if the person is tall and thin.



What are the risk factors?

Risk factors for developing a pneumothorax include:

Lung disease

- Having an underlying lung disease, particularly chronic obstructive pulmonary disease (COPD), makes lung collapse more likely.

Mechanical ventilator

- People who need a mechanical ventilator to help them breathe are at increased risk of pneumothorax.

Previous pneumothorax

- Anyone who previously had a type of pneumothorax is at increased risk of developing another type, usually within one to two years of the first infection.

Genetics

- Certain types of pneumothorax seem to run in families.

Do complications occur after a pneumothorax?

Usually, people who have had a pneumothorax would experience the same condition again within a year or two after the first time. Air can sometimes continue to leak if the opening in the lung is not closed. You may need a surgery to close the place where the air is leaking.



How is pneumothorax diagnosed?

Pneumothorax is usually diagnosed using X-rays. In some cases, a computerized tomography scan (CT) may be needed to provide more detailed images. Computerized tomography scans (CT) combine X-ray images taken from many different directions to produce cross-sectional images of internal structures.



How is pneumothorax treated?

The goal of pneumothorax treatment is to relieve pressure on your lung; which allows it to re-stretch. Depending on the cause of the pneumothorax, a second goal may be to prevent its recurrence.

Ways to achieve these goals depend on the **severity** of the collapsed lung, and sometimes **your health** in general.

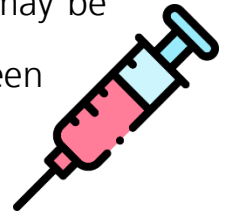
If only a small part of the lung has collapsed, your doctor may simply monitor your condition with a series of chest X-rays until the excess air is completely absorbed and the lung re-expands. This usually takes one to two weeks. Supplemental oxygen may speed up absorption.



How is pneumothorax treated?

Insertion of a needle or chest tube:

If a larger part of the lung has collapsed, a needle or chest tube may be used to remove the excess air. The hollow needle is inserted between the ribs into the space filled with air pressing on the descending lung. Using the needle, the syringe is attached so that the doctor can withdraw the excess air — like using a syringe to draw blood from a vein. The chest tube may be connected to a suction device to continuously remove air from the chest cavity.



Surgery:

If a chest tube does not resolve the problem, surgery may be necessary to close the air leak. In most cases, surgery may be performed to close the air leak. In most cases, the surgery can be performed through small incisions using a tiny fiber-optic camera and very small, hand-shifted surgical instruments. It looks for the leaking bubble and closes it.



How is pneumothorax treated?

Wedge resection with video-assisted thoracoscopic surgery:

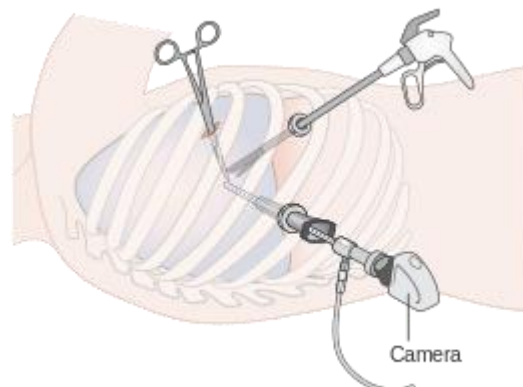
A less invasive approach is thoracoscopy, usually in the form of a video-assisted thoracoscopic procedure. Results of a thoracoscopy-based video-assisted curettage are slightly worse than those achieved with a short-term thoracotomy, but are causing smaller scarring of the skin.

Compared with open thoracotomy:

thoracoscopic surgery allows for a shorter hospital stay after surgery.

With a lower risk of lung problems after surgery, thoracoscopy can also be used to achieve chemical pleurodesis by inflating talc, which activates an inflammatory reaction due to the adhesion of the lung to the chest wall.

If the chest tube is already in place, then various substances can be inserted through it to create chemical adhesion, such as talc and some antibiotics



What are the steps of care after the operation?



If a pneumothorax occurs in a smoker, there is a chance of its recurrence if the person continues to smoke, unlike those who stop smoking, so smoking cessation has many benefits.

- It may be advisable for a person to stay off work for up to a week after a spontaneous pneumothorax has occurred.
- If the person usually performs heavy manual work, it may take several weeks.
- Those who have had pleurisy need 2-3 weeks away from work to recover.



- Air travel should also be avoided for up to seven days after complete absorption of the pneumothorax if it does not recur.



What are the steps of care after the operation?

Scuba diving is considered unsafe after a pneumothorax unless a preventive procedure (thoracotomy, thoracoscopic with pleurodesis) is performed after a pneumothorax; To prevent a recurrence of the seizure.

Not all episodes of pneumothorax require such interventions. The decision will depend to a large extent on the estimation of the risk of recurrence.



These procedures are often recommended after a second pneumothorax has occurred. Surgery may be considered if a person develops a pneumothorax on both sides ("bilateral"). Or he/she had consecutive seizures on both sides, or if the seizure was related to pregnancy.

Sources and references

All pictures used are from flaticon.com & shutterstock.com

Review and audit:

The content of this booklet has been reviewed by consultants of the Surgery department at King Fahad University Hospital

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