CONDITION

Pneumomediastinum

Pneumomediastinum is air trapped in the central chest around the heart, windpipe, and other organs.

WHAT IT IS
Air trapped around the heart and windpipe

BODY SYSTEM
Lungs and breathing

MAIN SYMPTOMS
Chest pain, breathlessness, neck swelling, crackling under skin

WHAT CAUSES IT
Airway pressure, injury, procedures, or esophageal rupture

HOW IT IS DIAGNOSED
Chest X-ray, sometimes clarified by CT

MAIN TREATMENT
Observation, pain relief, and treatment of the cause

CAN IT BE CURED?
Yes - air usually reabsorbs naturally

IS IT AN EMERGENCY?
Sometimes - severe breathlessness, collapse, or suspected esophageal rupture

LONG-TERM OUTLOOK
Usually full recovery without serious underlying injury

Overview

Pneumomediastinum means that air has escaped into the mediastinum. This is the space in the middle of your chest between the lungs. It contains the heart, windpipe, esophagus, and major blood vessels.

Air does not normally collect in this space. It may leak from tiny air sacs in the lungs, an injured airway, or a tear in the esophagus. The esophagus is the tube that carries food from your mouth to your stomach.

Some cases happen without a major injury or medical procedure. This is called spontaneous pneumomediastinum. It often follows coughing, vomiting, strenuous effort, or another event that sharply raises pressure inside the chest.

An uncomplicated spontaneous episode usually improves as the body absorbs the air. However, the same finding can sometimes signal a serious chest injury or esophageal tear. Medical assessment is important to identify the cause and check for related problems.

Pneumomediastinum is different from a pneumothorax, or collapsed lung, although both can happen together.

Symptoms

Sudden chest pain is common. It is often felt behind the breastbone and may spread into the neck, shoulders, or back. The pain may worsen when you breathe deeply, cough, or swallow.

Other possible symptoms include:

Air can spread from the chest into the tissues under the skin, especially around the neck and upper chest. This is called subcutaneous emphysema. The skin may feel puffy or produce a crackling sensation when touched, similar to pressing on bubble wrap.

A clinician may sometimes hear a crunching sound that matches the heartbeat. This is called Hamman's sign, but it is not present in everyone.

Symptoms may be mild, particularly when the air leak is small. Similar symptoms can also occur with heart, lung, or digestive emergencies, so chest pain should not be self-diagnosed.

- Shortness of breath
- Neck pain, swelling, or fullness
- Difficulty or pain when swallowing
- A change in voice
- Coughing
- A fast heartbeat

Causes and risk factors

In spontaneous pneumomediastinum, pressure inside the lungs causes tiny air sacs to rupture. Air then tracks along the airways and blood vessels toward the central chest. This movement is sometimes called the Macklin effect.

Events that can suddenly raise chest pressure include:

Asthma is an important associated condition. Other lung problems that cause severe coughing or fragile lung tissue may also increase the risk. Pneumomediastinum has been reported with

smoking and vaping, particularly when deep inhalation or breath-holding is involved.

Secondary pneumomediastinum has an identifiable injury or medical cause. Examples include blunt or penetrating chest trauma, mechanical ventilation, chest surgery, endoscopy, and procedures involving the airway or esophagus.

A tear in the esophagus can allow air and digestive contents to enter the chest. This is known as esophageal perforation. It can occur after forceful vomiting, injury, a procedure, or swallowing a sharp object. It is much more serious than an uncomplicated lung-related air leak.

Infections caused by gas-producing germs are an uncommon cause. In some people, no clear trigger is found.

- Forceful coughing or an asthma flare
- Repeated or forceful vomiting
- Strenuous exercise or heavy lifting
- Straining during childbirth or a bowel movement
- Shouting, singing, or playing a wind instrument
- Inhaling recreational drugs

Diagnosis

Pneumomediastinum is usually confirmed with imaging. A chest X-ray may show air outlining structures in the central chest. It can also reveal a pneumothorax or other lung problem.

A small amount of air may not appear clearly on an X-ray. A computed tomography, or CT, scan provides more detailed pictures and can confirm the finding. CT may also help show where the air came from and whether there is an injury or other complication.

Your assessment may include questions about vomiting, coughing, asthma, recent procedures, injuries, inhaled substances, and when the symptoms began. Your chest and neck may be checked for swelling or crackling beneath the skin.

Not everyone needs tests of the esophagus or airways. These are considered when the symptoms, history, examination, or scans suggest a tear. Tests may include a contrast swallow study, CT imaging after swallowed contrast, endoscopy, or bronchoscopy. Bronchoscopy uses a thin camera to examine the windpipe and larger airways.

An electrocardiogram and blood tests may be used to check for other causes of chest pain or signs of infection. These tests do not confirm pneumomediastinum by themselves.

Treatment and management

Treatment is based on the cause, your symptoms, and whether complications are present.

Uncomplicated spontaneous pneumomediastinum is usually managed with observation, rest, and pain relief while the body absorbs the air. Supplemental oxygen may be used in some settings, especially if the blood oxygen level is low. Food and fluids can usually continue unless an esophageal injury is being considered.

Some people are observed in hospital. Others may be able to recover at home after serious causes have been excluded and their symptoms are stable. Follow the discharge and follow-up plan given to you.

Any trigger or underlying condition also needs attention. For example, an asthma flare may require asthma treatment. Persistent vomiting may need treatment to prevent further pressure changes and dehydration.

Antibiotics and surgery are not routinely needed for uncomplicated spontaneous cases. They may be necessary when there is an infection, esophageal perforation, or another internal injury. A suspected esophageal tear requires urgent specialist care, often including stopping food and drink, intravenous treatment, drainage, or surgical or endoscopic repair.

A pneumothorax may need separate treatment. Rarely, air under pressure must be released urgently if it begins to compress the heart, lungs, or major blood vessels.

Complications

Most uncomplicated spontaneous episodes settle without lasting damage. Possible complications include a pneumothorax, increasing air under the skin, or another air leak around the chest.

Rarely, trapped air builds enough pressure to interfere with breathing or blood flow. This is called tension pneumomediastinum and is an emergency.

Complications are more likely when pneumomediastinum comes from major trauma, an airway injury, infection, or esophageal perforation. In these cases, the seriousness and recovery are driven mainly by the underlying problem.

Pneumomediastinum can return, although repeated episodes are not typical. Recurrence may lead to further evaluation for asthma or another lung condition.

Prevention

Pneumomediastinum cannot always be prevented. A spontaneous episode can happen without a known lung problem or avoidable trigger.

Managing asthma and other conditions that cause repeated coughing may reduce sudden pressure stress on the lungs. Use your established treatment plan and seek routine review if symptoms are not well controlled.

Avoid smoking, vaping, and inhaled recreational drugs. These can irritate the lungs and may involve deep inhalation or breath-holding.

After an episode, follow advice about returning to strenuous activity, flying, diving, or playing wind instruments. Restrictions are usually temporary, but the timing should reflect your recovery and the original cause.

Living with it and what to expect

In an uncomplicated case, chest pain and breathlessness often improve as the trapped air is absorbed. Symptoms may settle before every trace of air disappears on imaging. Recovery may take days to a few weeks, but the timing is not the same for everyone.

Temporary tiredness or mild discomfort with deep breathing can occur during recovery. Activity is usually increased gradually rather than resumed all at once. Long-term medicines are not normally required solely because air was present in the mediastinum.

Follow-up may involve a symptom review and, in some cases, repeat imaging. Repeat scans are not always necessary when symptoms have resolved and the cause is clear. A clinician may recommend lung testing if asthma or another airway condition is suspected.

Most people with uncomplicated spontaneous pneumomediastinum return to their usual lives without lasting breathing problems. Recovery after trauma, infection, or esophageal injury can be longer and is shaped by the damage that caused the air leak.

New or returning chest symptoms should still be assessed rather than assumed to be another harmless episode.

When to get medical help

Seek emergency medical help for new chest pain with severe or worsening shortness of breath, fainting, confusion, blue or grey lips, heavy sweating, or a feeling that you may collapse. Do not drive yourself if you feel seriously unwell.

Emergency assessment is also important for:

These features can occur with an esophageal tear, major airway injury, pneumothorax, infection, or pressure on the heart and lungs.

If you have already been diagnosed and are recovering, arrange prompt medical review if pain or breathlessness is worsening, fever develops, swelling increases, or symptoms return after improving.

Routine follow-up is appropriate when symptoms are steadily settling and none of the urgent warning signs are present. Use that visit to discuss recovery, asthma control, repeat imaging, and returning to work, exercise, flying, or diving.

- Severe chest or upper abdominal pain after forceful vomiting
- Chest symptoms after a significant injury or medical procedure
- Vomiting blood or coughing up blood
- Rapidly increasing neck or chest swelling
- Trouble swallowing saliva
- Fever with worsening chest pain or breathlessness

Common questions

Can pneumomediastinum go away on its own?

Uncomplicated spontaneous pneumomediastinum often clears as the body gradually absorbs the trapped air. Observation and pain relief may be all that is required. Medical assessment is still needed because imaging alone does not show whether every case is harmless.

How long does pneumomediastinum take to heal?

Many people feel better within days, while discomfort or imaging changes may last longer. Recovery can take several weeks when the air leak is larger or an underlying lung problem needs treatment. An injury or esophageal tear has a different and often longer course.

Is pneumomediastinum the same as a collapsed lung?

No. Pneumomediastinum is air in the central chest. A collapsed lung, called a pneumothorax, is air between the lung and chest wall. They can occur together, so imaging usually checks for both.

Can coughing or vomiting cause pneumomediastinum?

Yes. Forceful coughing or vomiting can sharply increase pressure inside the chest. This can

cause air to escape from the lungs. Vomiting can also rarely tear the esophagus, which is why severe pain after vomiting needs urgent assessment.

Can pneumomediastinum come back?

It can recur, but repeated episodes are not expected for most people with uncomplicated spontaneous pneumomediastinum. If symptoms return, seek medical assessment rather than assuming the cause is the same. Recurrent episodes may prompt checks for asthma or another lung condition.

Can I exercise or fly after pneumomediastinum?

Strenuous activity and air travel are generally postponed until symptoms have resolved and recovery is confirmed. Diving involves larger pressure changes and needs specific medical advice. The right timing is influenced by the cause, whether a pneumothorax occurred, and whether air remains on imaging.

Sources

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