CONDITION

Diaphragmatic hernia

A diaphragmatic hernia is an opening in the breathing muscle beneath the lungs that lets abdominal organs move into the chest.

WHAT IT IS
Abdominal organs moving through an opening in the diaphragm

BODY SYSTEM
Chest, lungs, and digestive organs

MAIN SYMPTOMS
Breathing difficulty, chest pain, vomiting, poor feeding

WHAT CAUSES IT
Development before birth, injury, or widened natural opening

HOW IT IS DIAGNOSED
Prenatal ultrasound, chest X-ray, CT, or MRI

MAIN TREATMENT
Breathing support and surgical repair when needed

CAN IT BE CURED?
Sometimes - surgery can repair the opening

IS IT AN EMERGENCY?
Sometimes - severe breathing difficulty or sudden intense pain

LONG-TERM OUTLOOK
Often good, but severe newborn cases need lifelong follow-up

Overview

The diaphragm is a broad muscle beneath the lungs that helps with breathing and separates the chest from the abdomen.

A diaphragmatic hernia occurs when an opening or weak area in this muscle allows the stomach, bowel, spleen, liver, or another abdominal organ to move into the chest. This can crowd the lungs or trap part of the digestive system.

Some diaphragmatic hernias develop before birth. These are called congenital diaphragmatic hernias, or CDH. The lung on the affected side may not have enough room to grow, and its blood vessels may develop differently. Severe CDH can cause major breathing problems immediately after birth.

Other diaphragmatic hernias develop after a serious chest or abdominal injury. Occasionally, a small congenital opening remains undetected until childhood or adulthood.

A hiatal hernia is a specific type in which part of the stomach moves through the natural opening for the food pipe. It usually causes reflux-related symptoms and is managed differently from most congenital or injury-related hernias.

The effects range from no symptoms to life-threatening breathing or digestive problems. Severity depends on the opening's size and location, the organs involved, and lung development.

Symptoms

Symptoms vary by age. A small hernia may be found by chance during imaging for another reason.

A newborn with congenital diaphragmatic hernia may have:

These signs usually appear at birth or soon afterward, although less severe congenital hernias may cause symptoms later.

In an older child or adult, symptoms may include:

A hiatal hernia is more likely to cause heartburn, acid coming into the mouth, burping, or discomfort after meals. Many small hiatal hernias cause no symptoms.

Sudden severe pain, repeated vomiting, or marked breathing difficulty may mean an organ is trapped or has lost part of its blood supply. This requires urgent assessment.

- Fast, difficult, or shallow breathing
- Bluish or grey skin, lips, or tongue
- A fast heart rate
- A chest that looks fuller on one side
- An unusually flat-looking abdomen
- Difficulty feeding
- Shortness of breath, especially with activity
- Chest, shoulder, or upper abdominal pain
- Nausea or vomiting
- Feeling full after a small meal

- Trouble swallowing
- Repeated chest infections
- Constipation, abdominal swelling, or inability to pass gas

Causes and risk factors

Congenital diaphragmatic hernia develops when the diaphragm does not close completely during early pregnancy. The cause is often unknown, and it is not due to something a parent did or did not do.

Most cases occur by themselves. Some are associated with genetic or chromosome changes or with differences affecting other organs, including the heart. Genetic testing or counselling may be offered when other findings suggest an underlying condition.

An acquired diaphragmatic hernia usually follows an injury, such as:

The injury may tear the diaphragm immediately, but the opening can remain undetected for months or years before organs move into the chest.

A hiatal hernia forms at the diaphragm's natural opening for the food pipe. Age-related tissue changes, obesity, pregnancy, repeated abdominal pressure, or heavy straining may contribute, although these factors do not always cause a hernia.

- A major road traffic collision
- A fall from height
- A crushing injury
- A stab or gunshot wound
- A complication of surgery near the diaphragm

Diagnosis

Congenital diaphragmatic hernia may be found during a routine pregnancy ultrasound. The scan can show the stomach, bowel, or liver in the baby's chest or the heart displaced from its usual position.

Further ultrasound and sometimes fetal MRI can examine the lungs and organs in more detail. A fetal echocardiogram checks the baby's heart. Prenatal tests help specialists plan delivery and care, but cannot predict the exact outcome for an individual baby.

After birth, a chest X-ray can usually confirm that abdominal organs are in the chest. Blood tests and heart or lung imaging help assess oxygen levels, lung circulation, and stability.

Tests for an older child or adult may include:

CT is particularly useful after an injury or when bowel may be trapped. Clinicians will also consider other causes of chest pain, breathlessness, vomiting, or abdominal symptoms.

- Chest X-ray
- CT scan
- MRI in selected situations
- Tests of the food pipe and stomach if a hiatal hernia is suspected

Treatment and management

Treatment depends on the hernia's type, symptoms, and whether an organ or its blood supply is at risk.

A newborn with severe breathing difficulty needs care in a specialist neonatal intensive care unit. Treatment first stabilizes breathing and circulation. A breathing tube and ventilator may be required. A tube passed into the stomach removes air and fluid, reducing pressure in the chest.

Medicines and intensive-care treatments may be needed for high pressure in the lung arteries, called pulmonary hypertension. In the most severe cases, a specialist centre may use extracorporeal membrane oxygenation, or ECMO, to temporarily support the heart and lungs.

Surgery is usually performed after the baby is stable, not immediately after birth. The surgeon returns the organs to the abdomen and closes the opening. A large defect may need a patch. Surgery may use small cuts or an open approach.

An acquired hernia often requires repair, particularly if it causes symptoms or could trap organs. Emergency surgery may be necessary if stomach or bowel tissue has lost its blood supply.

A small hernia found by chance may sometimes be monitored, but this requires specialist assessment because risk varies by location and the organs involved.

Hiatal hernia treatment may include reflux-reducing measures, acid-reducing medicines like omeprazole or lansoprazole , and surgery for selected people with severe symptoms or complications. These treatments do not apply to every diaphragmatic hernia.

Complications

Diaphragmatic hernias can affect breathing and digestion. Risks are greatest in babies whose lungs did not fully develop.

Possible complications include:

Some children with severe CDH later have hearing, movement, learning, chest-wall, or spinal problems. These are not inevitable, but structured follow-up is important.

Scar tissue after abdominal surgery can occasionally cause bowel blockage months or years later. Warning signs include cramping pain, abdominal swelling, vomiting, and inability to pass stool or gas.

- Underdeveloped lungs
- High blood pressure in the lung arteries
- Ongoing need for oxygen or breathing support
- Feeding difficulty, reflux, or slow growth
- Bowel blockage
- Reduced blood flow to trapped stomach or bowel
- Return of the hernia after repair
- Infection, bleeding, or other surgical complications

Prevention

Congenital diaphragmatic hernia cannot currently be prevented. It develops early in pregnancy and is usually not linked to anything a parent could have controlled.

The risk of an acquired hernia may be reduced by wearing a seat belt and using appropriate workplace or sports safety equipment, although not every injury is preventable.

There is no guaranteed way to prevent a hiatal hernia. Avoiding tobacco, maintaining a weight that is healthy for you, and treating persistent constipation may reduce abdominal pressure or reflux symptoms but cannot ensure a hernia will not form.

Living with it and what to expect

The outlook varies widely. Someone with a small, successfully repaired hernia may have few

restrictions after recovery. A child born with underdeveloped lungs may need ongoing help with breathing, feeding, growth, hearing, or development.

Children with significant CDH are often followed by specialists in lung, heart, digestive, surgical, nutrition, hearing, and developmental care. Follow-up may continue through childhood and into adult services.

Oxygen or feeding needs may change as a child grows. Reflux and feeding difficulties can continue after repair, and the hernia may return, especially if the original opening was large or needed a patch.

After repair in an older child or adult, recovery usually involves gradually returning to eating, walking, work, and exercise. The surgical team may temporarily limit lifting while the diaphragm heals.

Keep routine follow-up appointments even if you feel well. Imaging or other checks may be recommended, particularly after repair of a large congenital defect. Discuss new mild breathlessness, digestive symptoms, or reduced exercise tolerance with your care team.

When to get medical help

Call emergency services for:

Seek urgent medical assessment for repeated vomiting, a swollen abdomen, inability to pass stool or gas, or worsening pain. These may indicate a blocked or trapped digestive organ.

A newborn with difficult breathing, unusual skin colour, or poor responsiveness needs immediate emergency care.

Arrange a routine appointment for persistent mild breathlessness, recurring chest or upper abdominal discomfort, frequent vomiting, trouble swallowing, early fullness, or ongoing reflux. After a previous repair, report new symptoms even if the operation was many years ago.

- Severe or rapidly worsening difficulty breathing
- Blue, grey, or unusually pale lips or skin
- Sudden intense chest or upper abdominal pain
- Fainting, confusion, or difficulty waking
- Severe symptoms after a major chest or abdominal injury

Common questions

Is a diaphragmatic hernia the same as a hiatal hernia?

A hiatal hernia is one type. It involves the stomach moving through the natural opening for the food pipe. Other diaphragmatic hernias pass through an abnormal opening or tear and may involve the bowel, liver, spleen, or stomach.

Can a diaphragmatic hernia heal by itself?

An opening usually does not close by itself after birth. Some small, symptom-free hernias can be monitored, but many congenital and traumatic hernias require surgery.

Can an adult have a congenital diaphragmatic hernia?

Yes. A small congenital opening may remain unnoticed until adulthood and be found by chance or after symptoms develop. Adults can also develop a hernia after injury.

Does every diaphragmatic hernia need surgery?

No. Treatment depends on the type, size, symptoms, and risk of organs becoming trapped. Congenital hernias affecting breathing and traumatic tears commonly need repair. Small incidental or hiatal hernias may be managed differently.

Is congenital diaphragmatic hernia inherited?

Most cases are isolated and have no clear inherited cause. Some are part of a genetic or chromosome condition. Genetic counselling can help families understand test results and the chance of recurrence in another pregnancy.

Can a diaphragmatic hernia come back after surgery?

Yes. Recurrence is more likely after repair of a large opening, particularly when a patch was needed. Follow-up helps detect recurrence and manage breathing, feeding, or digestive symptoms.

Sources

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