PROCEDURE

Mediastinoscopy with biopsy

Mediastinoscopy is surgery through a small neck incision to collect tissue from the centre of the chest.

PURPOSE
Sample chest lymph nodes or masses for diagnosis and staging

PROCEDURE TYPE
Diagnostic minimally invasive surgery through a small neck incision

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General anaesthesia

HOW LONG IT TAKES
About 60 to 90 minutes

PREPARATION
Fasting and individualized blood-thinner instructions

RECOVERY
Same day or overnight; no driving for at least 24 hours

MAIN RISKS
Bleeding, pneumothorax, infection, nerve injury

RESULTS
Pathology usually within days; special tests may take longer

Overview

Mediastinoscopy with biopsy is an operation used to examine and collect tissue from the mediastinum. This is the area in the centre of your chest between your lungs. It contains the windpipe, major blood vessels and groups of lymph nodes.

Lymph nodes are small parts of the immune system. They can become enlarged because of cancer, inflammation or infection. A biopsy removes small tissue samples so they can be examined in a laboratory.

During mediastinoscopy, a surgeon passes a narrow instrument called a mediastinoscope through a small cut near the base of your neck. The instrument has a light and camera. It allows the surgeon to reach certain lymph nodes beside and below the windpipe.

This procedure is more invasive than a needle biopsy but usually involves a smaller incision and shorter recovery than open chest surgery.

Why the procedure is performed

Mediastinoscopy may be offered when imaging shows enlarged or unusual lymph nodes in the centre of your chest. It may also be used when an earlier needle biopsy did not collect enough tissue or did not give a clear result.

One common reason is to diagnose or stage lung cancer. Staging means finding out whether cancer has reached nearby lymph nodes. This information can affect whether surgery, radiotherapy, drug treatment or a combination is most suitable.

The procedure may also help diagnose lymphoma, which is cancer of the lymphatic system. Larger tissue samples can be important because identifying the exact type of lymphoma often requires the structure of the lymph node to remain intact.

Other possible reasons include looking for inflammatory conditions such as sarcoidosis or investigating certain infections. Mediastinoscopy does not by itself confirm why a lymph node is enlarged; the laboratory examination provides that information.

Who should and should not have it

Mediastinoscopy may be appropriate if tissue is needed from lymph nodes that the instrument can reach and a less invasive test is unlikely to provide enough information. Your team should explain how the result could change your care.

It is not the right first test for everyone. A needle biopsy guided through the airways or food pipe may be preferred because it does not require a surgical incision. Some lymph nodes and chest masses cannot be reached safely by mediastinoscopy and require a different approach.

The procedure may be delayed if you have an active infection, an uncorrected bleeding problem or a medical condition that makes general anaesthesia temporarily unsafe. Blood-thinning medicines may also need adjustment before surgery.

Previous mediastinoscopy, neck or chest surgery, or radiotherapy can cause scar tissue. A large thyroid gland, limited neck movement or changes in the chest's major blood vessels may also make access more difficult. These factors do not always rule out the procedure, but they may make another biopsy method safer.

If you are pregnant or might be pregnant, tell your healthcare team. They will weigh the need

for the biopsy against the timing and effects of anaesthesia and other tests.

How to prepare

Your treating facility's own instructions take priority because fasting times and medicine plans differ between hospitals and individuals.

You will usually be told when to stop eating and drinking before general anaesthesia. Following these instructions reduces the chance of stomach contents entering your lungs while you are asleep.

Give the team a current list of your medicines, supplements and allergies. Tell them if you take anticoagulants or antiplatelet medicines, often called blood thinners. Examples include warfarin, apixaban, rivaroxaban, dabigatran, clopidogrel and aspirin. Do not stop these on your own. The plan must balance bleeding risk against the reason you take the medicine.

Before the procedure, you may have blood tests, an electrocardiogram to check your heart rhythm, and a review by the anaesthesia team. Tell them about previous reactions to anaesthesia, loose teeth, sleep apnoea, heart or lung conditions, and any recent illness.

Arrange for an adult to take you home and stay with you if you are discharged the same day. Leave jewellery and valuables at home.

What happens during the procedure

You will meet the surgical and anaesthesia teams, confirm the planned procedure and sign a consent form. This is an opportunity to ask questions about the expected benefit, alternatives and risks.

General anaesthesia is given through a vein, so you are unconscious and do not feel the operation. A breathing tube supports your breathing.

The surgeon makes a small incision, usually just above the breastbone at the base of the neck. The mediastinoscope is carefully passed behind the breastbone and alongside the windpipe. The surgeon examines the accessible area and removes samples from selected lymph nodes or abnormal tissue.

The samples are sent to a pathology laboratory. If infection is possible, some tissue may be sent for microbiology tests to look for bacteria, fungi or other organisms.

The instrument is removed and the incision is closed with stitches, skin adhesive or surgical strips. You are then taken to a recovery area while the anaesthetic wears off.

Recovery and what to expect afterward

Pain is usually centred around the neck incision. You may also have a sore throat or mild discomfort when swallowing because of the breathing tube. Pain medicine will be offered. Pain should gradually improve rather than become more intense.

You can usually drink once you are awake and swallowing safely. Most people can return to normal food as tolerated, although softer foods may feel more comfortable at first.

Gentle walking is encouraged. Avoid heavy lifting, strenuous exercise and movements that pull on the incision until your surgical team says they are safe. Follow the wound-care instructions you receive.

Do not drive yourself home. After general anaesthesia, you should not drive for at least 24 hours and not while taking medicine that makes you sleepy. Your facility may require a longer restriction.

Some people return to desk-based work within several days. Work involving lifting or physical effort may require more time. Your surgeon can advise based on the operation, your recovery and your type of work.

Many people go home the same day, but an overnight stay may be recommended for observation or because of other health needs.

Risks and possible complications

Your team should discuss your individual risks before you consent. Possible complications include:

Minor bruising, swelling and temporary numbness near the incision can occur. Some hoarseness may result from the breathing tube and settle as throat irritation improves. Persistent or worsening voice changes need medical review.

If major bleeding occurs during surgery, a larger chest incision may be needed to control it.

- Bleeding, including uncommon bleeding from a major chest blood vessel
- Air leaking around a lung, called a pneumothorax, which may require a chest drain
- Infection of the incision or deeper tissues
- Injury to a nerve controlling the vocal cord, causing a hoarse or weak voice
- Injury to the windpipe, food pipe or nearby structures

- Reactions to anaesthesia, blood clots or breathing problems

Results and follow up

The surgeon may tell you what the area looked like after the procedure, but appearance alone usually cannot provide a diagnosis.

A pathologist examines the tissue under a microscope. Initial results are often available within several days. Tests for lymphoma, particular cancer markers or infections can take longer.

Your follow-up appointment should explain what was found, whether the sample was adequate and how the result affects your options. A negative biopsy means no disease was identified in the tissue sampled. It does not always exclude a problem elsewhere or in a lymph node that could not be reached.

Routine follow-up also includes checking how your incision is healing and whether pain, swallowing or voice changes are improving.

Alternatives

Endobronchial ultrasound-guided needle aspiration, or EBUS-TBNA, collects lymph-node samples through a bronchoscope passed into the airways. It avoids a neck incision and is often the first invasive staging test. Its smaller needle samples may not answer every question, particularly when more tissue is needed.

Endoscopic ultrasound-guided sampling reaches lymph nodes through the food pipe. It can access some areas that mediastinoscopy cannot, but it may not reach the nodes of concern in your case.

A bronchoscopy can sample a tumour inside or near an airway. A CT-guided needle biopsy can sample some lung or chest lesions through the skin. Both target different locations and carry their own risks.

Video-assisted thoracic surgery uses small incisions between the ribs and can reach other parts of the chest or remove a larger amount of tissue. It is generally more extensive than mediastinoscopy.

PET and CT scans can estimate whether lymph nodes look abnormal, but they cannot reliably show whether the cause is cancer, inflammation or infection. Choosing imaging follow-up instead of biopsy avoids surgery but may delay a definite diagnosis.

When to call your healthcare team

Contact your surgical team promptly for increasing redness, swelling, warmth or discharge from the incision; fever; worsening pain; persistent vomiting; difficulty swallowing; or a new or persistent hoarse voice.

Seek urgent medical assessment for new shortness of breath, chest pain, coughing up blood, rapidly increasing neck swelling or bleeding that does not stop.

Call emergency services for severe breathing difficulty, fainting, confusion or heavy bleeding. These are emergency symptoms rather than reasons to wait for a routine follow-up visit.

Common questions

Will I be asleep?

Yes. Mediastinoscopy is usually performed under general anaesthesia, so you are unconscious throughout the operation.

Can I drive home?

No. Arrange for someone else to take you home. Do not drive for at least 24 hours after general anaesthesia, or longer if your facility advises it or you are taking sedating pain medicine.

How painful is it?

Most people have mild to moderate soreness around the incision and may have a sore throat. Pain medicine usually helps. Worsening or severe pain should be reported.

When will I know the results?

The surgeon may share immediate observations, but the diagnosis comes from laboratory testing. This commonly takes several days, while specialized tests may take longer.

Will I have a large scar?

The incision is usually small and placed near the base of the neck. Its final appearance is affected by healing, skin type and whether further surgery was needed.

What if the biopsy does not give an answer?

Your team may recommend another biopsy method, additional imaging or follow-up scans. The next step will depend on what was sampled and what question remains unresolved.

Sources

- MedlinePlus Medical Encyclopedia: Mediastinoscopy with biopsy , U.S. National Library of Medicine
- National Health Service: Mediastinoscopy , NHS
- Cancer Research UK: Mediastinoscopy , Cancer Research UK
- National Institute for Health and Care Excellence: Lung cancer-diagnosis and management, NG122 , NICE
- European Society of Thoracic Surgeons guidelines for preoperative mediastinal lymph node staging for non-small-cell lung cancer , European Journal of Cardio-Thoracic Surgery , 2014