



**SNS COLLEGE OF ALLIED HEALTH SCIENCES**  
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**DEPARTMENT OF PHYSICIAN ASSISTANT**

**COURSE NAME: PULMONOLOGY**

**TOPIC :- HAEMOPTYSIS**

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# INTRODUCTION



- Haemoptysis refers to the coughing up of blood or bloody mucus from the respiratory tract, excluding blood in the sputum originating from other sources such as the nose, throat, or gastrointestinal tract.
- It can range from small amounts of blood-tinged sputum to massive hemorrhage, and its causes can vary widely from benign to life-threatening conditions such as lung cancer, tuberculosis, bronchiectasis, and pneumonia.
- The severity and duration of haemoptysis should be evaluated by a healthcare professional to determine the underlying cause and appropriate management.



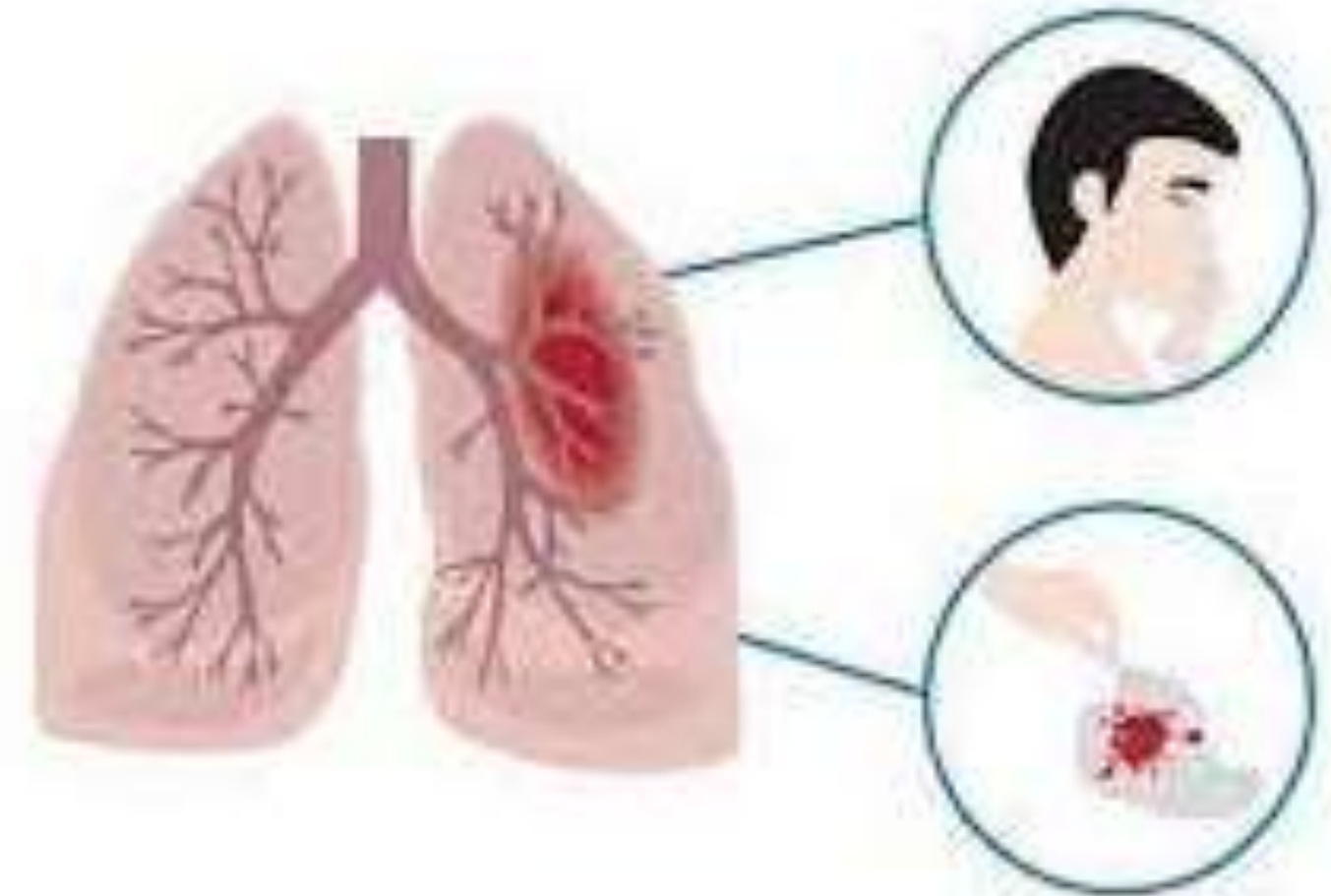


# CAUSES OF HAEMOPTYSIS



## Infectious causes:

- - Tuberculosis (TB): A bacterial infection that primarily affects the lungs. It can cause inflammation and damage to the airways, leading to haemoptysis.
- - Pneumonia: An infection of the lung tissue, often caused by bacteria, viruses, or fungi. Pneumonia can lead to inflammation and damage to the airways, resulting in haemoptysis.



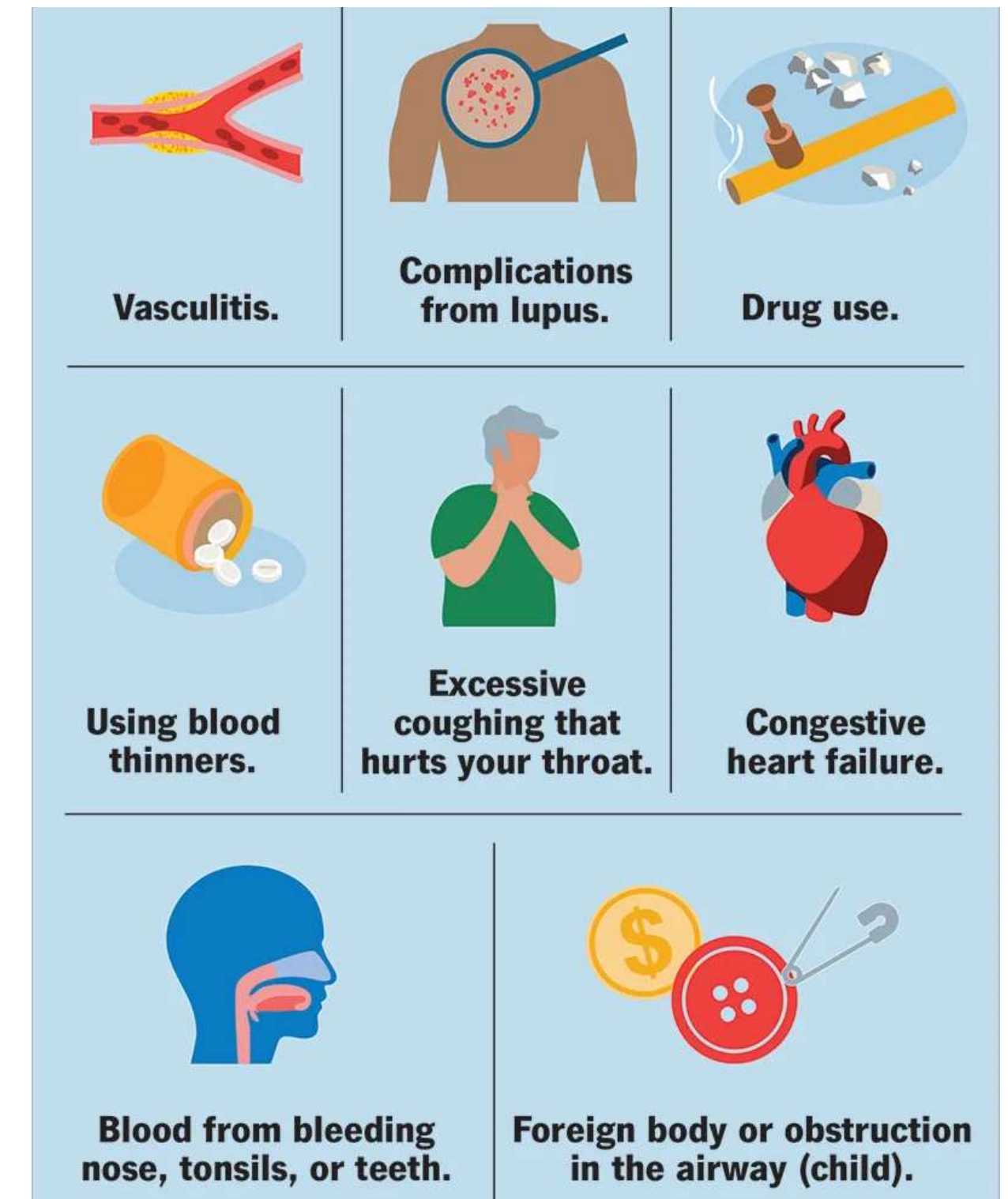


# CAUSES OF HAEMOPTYSIS



## Non-infectious causes:

- - Bronchiectasis: A chronic condition characterized by widening and scarring of the bronchial tubes due to recurrent infections or other causes. This can lead to excessive mucus production and coughing up blood.
- - Lung cancer: A malignant tumor that develops in the lung tissue. Lung cancer can invade and damage the airways, causing haemoptysis.



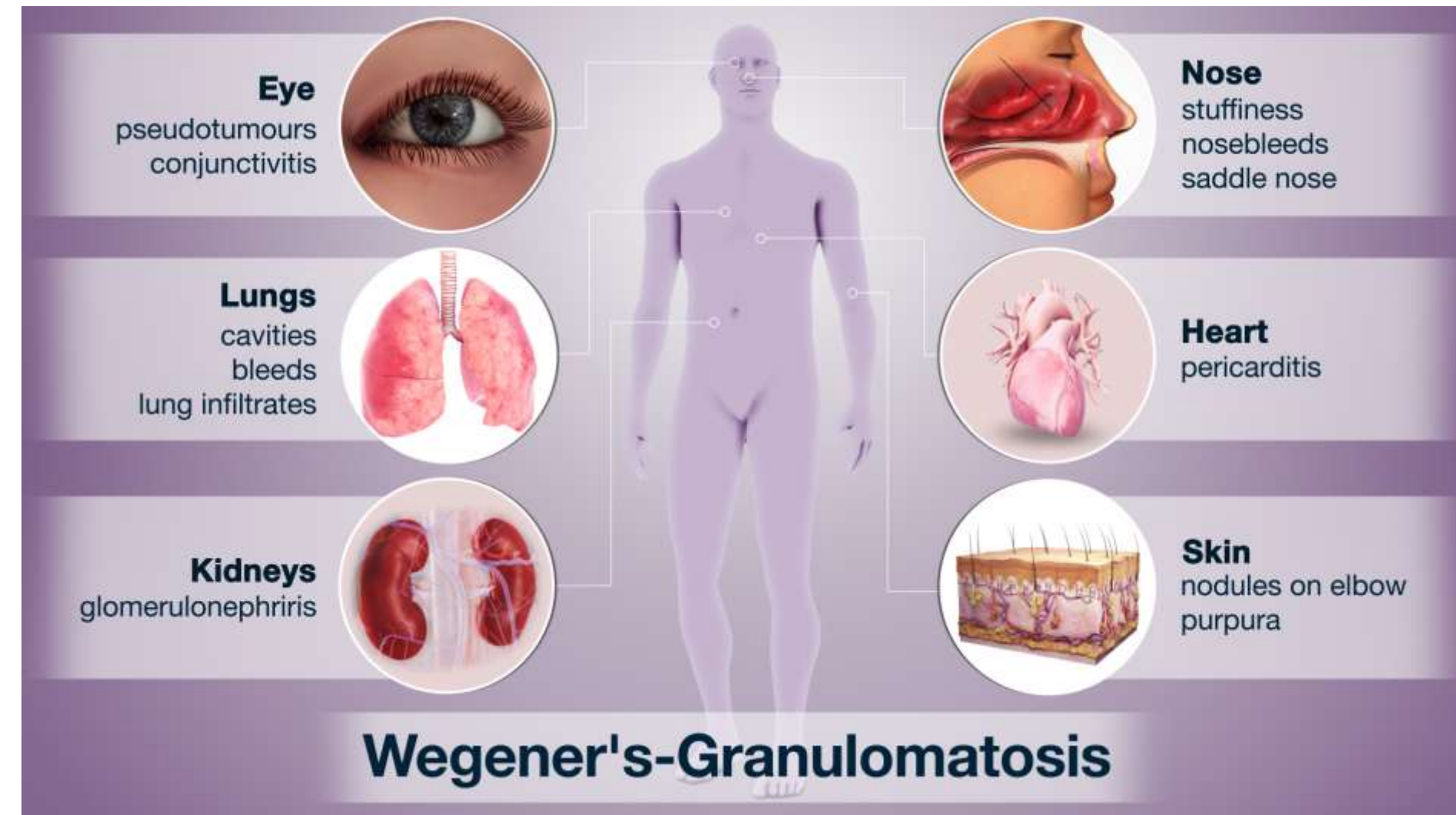


# CAUSES OF HAEMOPTYSIS



## Rare causes:

- - Wegener's granulomatosis: A rare autoimmune disorder that affects the respiratory system, kidneys, and other organs. It can cause inflammation and damage to the airways, leading to haemoptysis.





# DIAGNOSIS



## **Medical History and Physical Examination:**

- The first step in diagnosing haemoptysis is to gather a detailed medical history from the patient, including symptoms, duration, frequency, and any underlying medical conditions. A physical examination is also conducted to assess the patient's overall health and identify any signs of respiratory distress or abnormalities.

## **Chest X-ray and CT Scan:**

- Chest X-rays are commonly used to detect any abnormalities in the lungs, such as infections, tumors, or other structural changes.
- CT scans provide more detailed images of the lungs and can help identify smaller lesions or abnormalities that may not be visible on X-rays.



# DIAGNOSIS



## **Bronchoscopy and Bronchoalveolar Lavage (BAL):**

- Bronchoscopy is a procedure that allows a healthcare provider to examine the inside of the airways using a flexible tube with a camera attached.
- Bronchoalveolar lavage (BAL) involves washing out the airways with a sterile saline solution to collect cells and fluid for analysis. BAL can help identify the presence of infection, inflammation, or other abnormalities.

## **Sputum Analysis and Culture:**

- Sputum is the mucus that is coughed up from the lungs. Analyzing sputum can help identify the presence of bacteria, viruses, or other organisms that may be causing haemoptysis. Culture of sputum can also help determine which antibiotics will be most effective in treating any underlying infections.



# DIAGNOSIS



## **Pulmonary Function Tests (PFTs):**

- Pulmonary function tests (PFTs) measure lung function and can help identify any underlying respiratory conditions that may be contributing to haemoptysis, such as chronic obstructive pulmonary disease (COPD). PFTs can also help determine the severity of lung disease and guide treatment plans.

## **Other Tests:**

- In some cases, additional tests may be necessary to further investigate the cause of haemoptysis, such as angiography (a procedure that uses X-rays to visualize blood vessels), pulmonary angiogram (a type of angiography that focuses on the lungs), or echocardiography (an ultrasound of the heart). These tests can help identify any underlying vascular disorders that may be contributing to haemoptysis.





# TREATMENT



## Initial management of hemoptysis

Action	Purpose
Monitor the vital parameters	Registration of pulse-oximetric oxygen saturation (SpO <sub>2</sub> ), respiratory and circulatory function (non-invasive blood pressure measurement [NIBP]); assessment of risk involved in interventional procedures and medicinal treatment
Give oxygen	Improvement of oxygenation
Place the patient with the bleeding side down	Prevention of the flow of endobronchial blood into unaffected lung segments
Sedation/anxiolysis	Calming of the patient, facilitation of diagnostic and therapeutic measures (NB: restriction of breathing activity, ability to expectorate, ability to cooperate/communicate)
In massive hemoptysis: endotracheal or, if required, unilateral endobronchial intubation	Maintenance of gas exchange

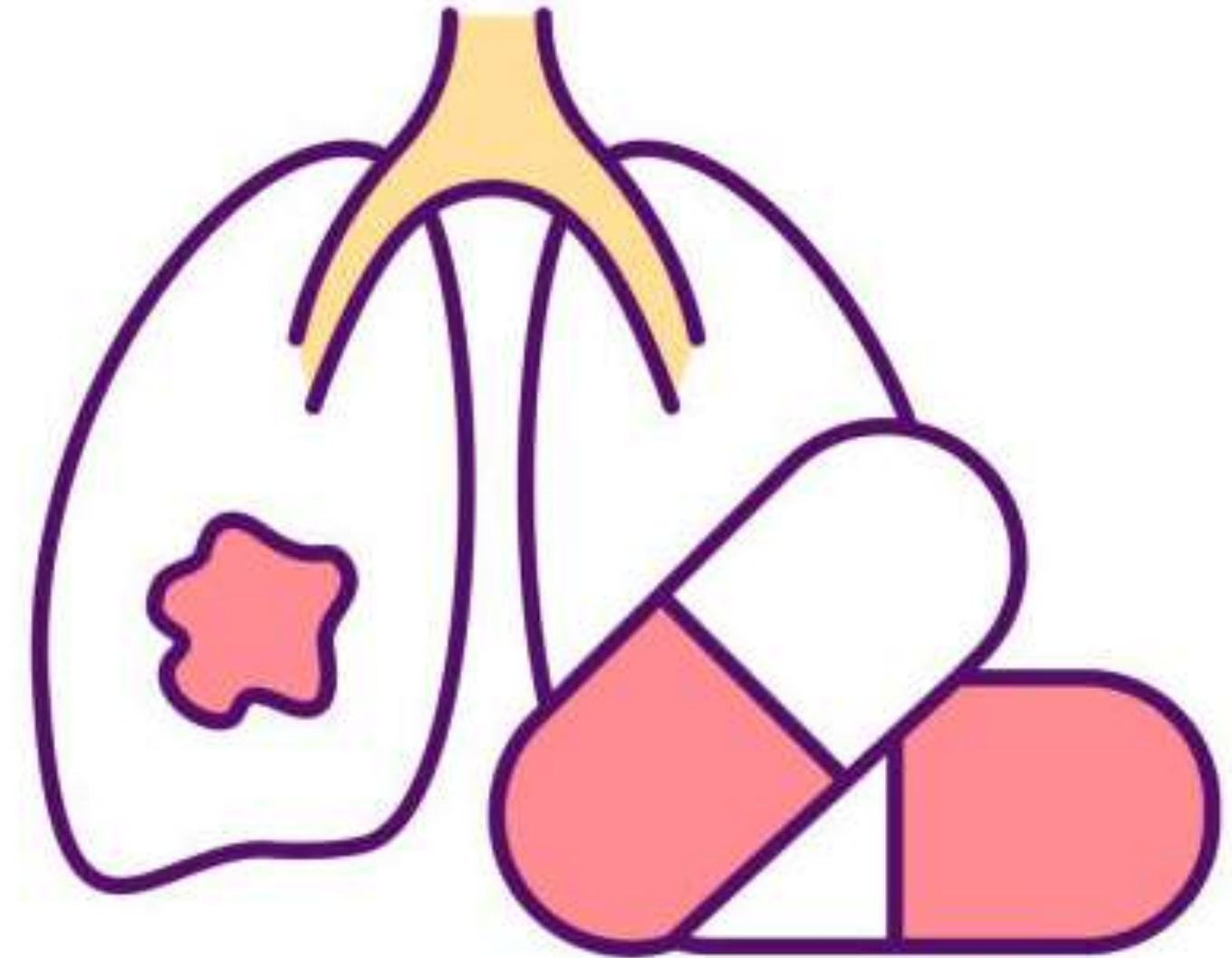


# TREATMENT



**1. Antibiotics:** If the cause of haemoptysis is bacterial infection, such as pneumonia, antibiotics may be prescribed to help clear the infection and reduce the risk of further bleeding.

**2. Bronchodilators:** In patients with chronic obstructive pulmonary disease (COPD), bronchodilators may be prescribed to help open up the airways and make breathing easier, which can reduce the risk of coughing and bleeding.





# TREATMENT



**3. Corticosteroids:** In patients with bronchiectasis or other inflammatory lung conditions, corticosteroids may be prescribed to help reduce inflammation and prevent further damage to the airways.

**4. Anticoagulants:** In patients with pulmonary arteriovenous malformations (PAVMs), anticoagulants may be prescribed to help prevent blood clots and reduce the risk of further bleeding.





# TREATMENT



**5. Surgery:** In some cases, surgery may be necessary to remove the affected tissue or blood vessel, such as in patients with bronchogenic carcinoma or PAVMs that are causing severe bleeding.

**6. Bronchoscopy:** In patients with severe haemoptysis, bronchoscopy may be performed to help identify the source of bleeding and guide appropriate treatment strategies, such as bronchial artery embolization or bronchial packing.





# TREATMENT



**7. Oxygen therapy:** In patients with respiratory conditions that cause shortness of breath, oxygen therapy may be prescribed to help improve lung function and reduce the risk of coughing and bleeding.

**8. Quitting smoking:** Smoking is a major risk factor for many lung conditions that can cause haemoptysis, such as COPD and lung cancer. Quitting smoking can help to reduce the risk of further lung damage and prevent further episodes of haemoptysis.





# PREVENTION



- Avoidance of Smoking and Secondhand Smoke Exposure
- Regular Health Checkups and Screening for High-risk Populations (e.g., Annual Chest X-ray for Tuberculosis Screening)
- Prompt Treatment of Respiratory Infections and Symptoms (e.g., Antibiotics for Pneumonia, Cough Suppressants for Chronic Cough)
- Healthy Lifestyle Habits (e.g., Regular Exercise, Balanced Diet, Stress Management Techniques)



**THANK YOU**