

# Hemoptysis

Hemoptysis is the coughing up of blood from the lower respiratory tract or lungs. This sputum usually has a foamy pink appearance. It is caused by erosion of the bronchial artery by a pathological process, rupture of arteriovenous anastomoses in bronchiectasis or necrosis of lung tissue. It is a non-specific symptom of serious diseases of the respiratory system.

**Hemoptoe** - the name used to describe the coughing up of a large amount of blood - massive hemoptysis.

**Pseudo-hemoptysis** - coughing up blood from the nasopharynx, oral cavity, pharynx or oesophagus.

According to the amount of coughed-up blood we can distinguish hemoptysis:

- small (15-20 ml blood / 24 hours);
- moderate, significant (more than 300 ml blood / 24 hours);
- massive (more than 500 ml blood / 24 hours).

## Causes of hemoptysis

In up to 20% of cases, the cause is unclear.

Causes of hemoptysis by adults	
<b>Chronic bronchitis</b>	the most common cause of hemoptysis
<b>Bronchiectasis</b>	the second most common cause of hemoptysis
<b>Neoplasia, lung metastases</b>	bronchogenic carcinoma
<b>Infection</b>	bacterial pneumonia
	tuberculosis
	aspergillosis
<b>Pulmonary embolism</b>	...
<b>Pulmonary infarction</b>	tissue necrosis
<b>Cardiac causes</b>	mitral defect (valve stenosis)
	left heart failure
<b>Vascular malformations</b>	Granulomatosis with polyangiitis
	Churg-Strauss syndrom
	Goodpasture's syndrome
<b>Systemic diseases</b>	systemic lupus erythematosus
	systemic scleroderma
	rheumatoid arthritis
<b>Trauma, iatrogenic damage</b>	for example in bronchoscopy as a complication

**In children**, the most common causes of hemoptysis are lower respiratory tract infections and foreign subject aspiration.

## Differential diagnostics

Other sources of bleeding, such as bleeding from the GIT (oesophageal varices, gastric ulcer, Mallory-Weiss syndrome) or bleeding from the orofacial area, should be ruled out.

## Investigation methods

### Careful medical history

Always ask about the amount of coughed up blood, its appearance and what preceded hemoptysis (often coughing). It is necessary to distinguish between hematemesis (previous nausea, blood is dark, digested), pseudo-hemoptysis (previous epistaxis or accumulation of blood in the oral cavity). We always need to find out if the patient is a smoker (how long he / she has smoked / how many per day, calculate the total load).

### Physical examination

1. Aspects of the oral cavity, nasal cavity, pharynx (rhinoscopy and laryngoscopy) to exclude bleeding in this area.
2. A comprehensive examination of the chest (sight, percussion, listening, touch).

## Lung X-ray

In two projections - front and side. In up to 60% of cases, the X-ray finding is positive and localizes the pathological process. However, there may be no findings on the X-ray (eg mitral defect, pulmonary embolism).

## Bronchoscopy

**Absolutely every hemoptysis is indicated for bronchoscopy.** For example, up to 10% of bronchogenic carcinomas have no X-ray and are only discovered on bronchoscopy. It will therefore enable more accurate diagnosis, but also the treatment of bleeding. Bronchoscopy is not performed during hemoptysis only if pulmonary embolism is suspected.

HRCT

CT serves to confirm / rule out bronchiectasis as a source of bleeding.

## Therapy

- In the case of small haemoptysis, antitussives (eg codeine) are given.
  - In the case of significant bleeding, it is necessary to find the source (bronchoscope) and try to stop:
1. balloon catheter - proximal to the source, stabilizes bleeding, the balloon can be left here for up to several days;
  2. local application of norepinephrine or fibrin tamponade;
  3. bronchial arteriography followed by embolization;
  4. surgical revision;
  5. electrocautery.

## Links

## References

- KLENER, Pavel. *Vnitřní lékařství*. 3. edition. 2006. 1158 pp. ISBN 80-7262-430-X.
- Reg. č. o/036/245. *Hemoptýza*. 2002. DOPORUČENÉ POSTUPY PRO PRAKTICKÉ LÉKAŘE. Available from <<http://www.cls.cz/dokumenty2/postupy/t245.rtf>>.