

Investigation of Haemoptysis in Adults

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Haemoptysis is the coughing up of blood from the respiratory tract. It is an alarming symptom and although often indicative of serious pathology, in most cases it usually presents as small amounts of blood mixed with mucus in someone who has bronchitis. Massive Haemoptysis is usually defined as more than 100ml per day (some say 200ml). Suffice it to say, quantifying the volume of blood-stained sputum is challenging at the best of times, and if one is measuring bright red blood by the cupful rather than trying to find tiny specks of blood with a magnifying glass, the patient needs to go to hospital!

In the first instance, it is useful to differentiate a pulmonary source from a non-pulmonary source such as the nose, nasopharynx, esophagus, or upper gastrointestinal tract (hematemesis). Clinical history and examination should help distinguish a true pulmonary source. True Haemoptysis is usually bright red, often frothy, and generally associated with a cough. Hematemesis is usually associated with dark (or black) altered blood, never frothy, and may be associated with nausea and vomiting. Of course, a history of peptic ulcer disease or liver disease is useful too. Occasionally, a patient who has aspirated vomited blood and is now coughing it up may add an additional layer of diagnostic complexity! In such cases where there is still uncertainty - if the patient is bringing up small amounts of blood and is not acutely unwell - it is logical to start with the lungs then investigate gastrointestinal causes.

In the community, the most common causes of Haemoptysis in adults are infection and lung cancer. Important in the history is whether this is the first presentation or whether there have been past episodes of Haemoptysis which may have already been investigated. Other gems which may (or may not) be volunteered are likely causes such as recent viral respiratory tract infection, smoking and chronic airways disease, known bronchiectasis, anticoagulant therapy, risk factors for pulmonary embolism, and certain occupational exposures (e.g. asbestos).

Even when the Haemoptysis is minor a chest x-ray and

sputum culture are sensible ways to start the ball rolling. Also consider sputum cytology (e.g. in a smoker) or acid-fast bacilli (possible tuberculosis). If infection is the likely cause in a low-risk patient, then antibiotic therapy (if bacterial) and resolution is expected. If Haemoptysis continues or recurs despite therapy, then respiratory specialist referral should be undertaken. If the patient has indicators of *high cancer risk* (smoking, age over 40 years, recurrent Haemoptysis or longer than one week duration) then High Resolution CT (HRCT) and respiratory specialist review is required. It is highly likely, in such cases the patient will also go on to fiberoptic bronchoscopy. Patients with risk factors but normal chest x-ray, HRCT and bronchoscopic evaluation have a good prognosis. This of course does not lower their statistical cancer risk, so remain vigilant the next time they make an appointment.

An 'HRCT Thorax' strictly speaking, is a non-contiguous sampling of the pulmonary structures (usually a 1mm slice taken at 10-15mm intervals) designed to demonstrate the finer details of secondary pulmonary lobules. It is worth noting that at SKG, any patient over 40 years old referred for an HRCT Thorax actually receives a multi-detector 'helical HRCT' protocol because of the higher risk of neoplastic pathology. This provides a contiguous thin slice data set (for lung nodule detection) as well as HRCT images (for interstitial lung disease and bronchiectasis) all in the one study.

The following algorithm provides a more complete overview of how to investigate minor Haemoptysis. It is by no means exhaustive and should be used only as a guideline. *The key point is that anyone who has persistent or recurrent Haemoptysis, or has risk factors, should undergo further investigation.*

References:

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