353 APPROACH TO THE PATIENT WITH HEMOPTYSIS pdf

1: Novel approaches to the patient with massive hemoptysis - Europe PMC Article - Europe PMC

Diagnosis and management of hemoptysis Anna Rita Larici, Paola Franchi, Mariaelena Occhipinti, Andrea Contegiacomo, Annemilia del Ciello, Lucio Calandriello, Maria Luigia Storto, Riccardo Marano, Lorenzo Bonomo CHEST IMAGING REVIEW ABSTRACT Hemoptysis is the expectoration of blood that originates from the lower respiratory tract.

Immediate access to this article To see the full article, log in or purchase access. Bidwell received his undergraduate and medical degrees from the University of Wisconsin, Madison. He completed his family medicine residency at St. Pachner graduated from the Medical College of Wisconsin and completed a family practice residency at St. Address correspondence to Jacob L. Reprints are not available from the authors. Pathogenesis, evaluation, and therapy for massive hemoptysis. Management and prognosis of massive hemoptysis. Recent experience with patients. J Thorac Cardiovasc Surg. Harrison TR, Braunwald E. The causes of hemoptysis revisited. A review of the etiologies of hemoptysis between and Bond D, Vyas H. Viral pneumonia and hemoptysis. Nelson JE, Forman M. Hemoptysis in HIV-infected patients. A reappraisal of the causes of hemoptysis. Diagnostic strategies for common medical problems. American College of Physicians, Long-term outcome and lung cancer incidence in patients with hemoptysis of unknown origin. Clinical features, bronchoscopic findings, and natural history in 67 patients. Pianosi P, alsadoon H. Emerg Med Clin North Am. Preventive Services Task Force. Lung cancer screening with sputum cytologic examination, chest radiography, and computed tomography. Pneumonia and severe haemoptysis. Leeches in the larynx. Plague as a biological weapon: Clubbing, arthralgia and haemoptysis in a patient with metastatic carcinoma of the breast. Hemoptysis, bronchiectasis, and small airways disease. Detecting lung cancer as a cause of hemoptysis in patients with a normal chest radiograph: Clinical assessment and management of massive hemoptysis.

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2: BMJ Best Practice

Hemoptysis is the spitting of blood that originated in the lungs or bronchial tubes. The patient's history should help determine the amount of blood and differentiate between hemoptysis.

 Abstract Massive hemoptysis is a life-threatening condition with a high mortality when treated conservatively. Several modalities have been described in the treatment of hemoptysis with varying results. Endobronchial therapy has traditionally been performed with rigid bronchoscopy. This requires both specialized training and equipment that is not readily available in many centers. The role of fiberoptic bronchoscopy FOB is unclear in these situations but is more widely accessible. We describe three cases of the successful treatment of hemoptysis with FOB. These patients were treated with a combination of techniques described previously in the literature; however, these methods failed to result in cessation of the bleeding. Therefore, we employed alternative strategies not described in the literature, using oxidized regenerated cellulose with FOB alone as well as in conjunction with endobronchial placement of vascular embolization coils. These additional techniques may offer other options when rigid bronchoscopy or other modalities are not readily available. Novel Insights Fiberoptic placement of oxidized regenerated cellulose and vascular embolization coils are other modalities that may be performed in the peripheral airways to successfully to treat hemoptysis. Massive hemoptysis is a life-threatening condition with a high mortality when treated conservatively. Interestingly, varying definitions in the literature exist of massive hemoptysis. These range from to over mL in a hour period 1. Malignant airway tumors, bronchitis, and bronchiectasis are typically the most common cause of massive hemoptysis but tuberculosis and lung abscesses among others have been reported 2. Tuberculosis remains an important cause of hemoptysis in the United States despite the decreased prevalence compared to more endemic countries 3. As with the definition of massive hemoptysis, the approaches to treatment and therapy are variable. Several modalities involving arteriography have been described, including bronchial arterial embolization. Airway interventions include procedures performed with rigid and fiberoptic bronchoscopes and open surgical procedures. Rigid bronchoscopy is advantageous because it maintains a patent airway as well as allows larger instruments and suction catheters to be used. Unfortunately, a substantive percentage of these methods require highly specialized centers, including thoracic vascular radiology and rigid bronchoscopy. We present cases of massive hemoptysis treated with alternative methods using fiberoptic bronchoscopy FOB and tools available to bronchoscopists at most institutions. Case 1 A year-old man with a history of hypertension, hyperlipidemia, type 2 diabetes mellitus, and cigarette smoking was admitted to the hospital following episodes of massive hemoptysis in the previous 24 hours. Admission laboratory work did not reveal a coagulopathy or thrombocytopenia. A chest radiograph demonstrated a radiodensity in the medial aspect of his left lower lung. A follow-up chest computed tomography CT scan was significant for a 4-cm spiculated cavitary mass in the superior segment of the left lower lobe that abutted the posterior mediastinum along with several subcentimeter nodules inferior to the lesion. His presentation was highly suspicious for a primary bronchogenic carcinoma. The patient underwent bronchoscopy. The takeoff to the superior segment was significantly stenotic with induration and heaped-up mucosa. The FOB was advanced into the cavity. Forceps biopsies through the working channel of the bronchoscope were taken inside the cavity. This led to bleeding from the orifice of the superior segment that was initially controlled using a combination of recombinant thrombin and balloon bronchoplasty with a 4-Fr Fogarty balloon. Although the bleeding slowed, it, nevertheless, continued unabated. The forceps were then withdrawn into the operating channel of the bronchoscope, and the scope was reinserted into the airways. The forceps were inserted into the cavity, and the ORC was deployed. No further samples were taken to prevent dislodgement of the ORC. The pathology on the forceps biopsy was consistent with inflammatory changes. He then underwent thoracotomy 1 week later due to a continued concern for a malignancy. Prior to the thoracotomy, there were no further episodes of bleeding. The mass was noted to be quite fibrotic with

involvement of a branch of the inferior pulmonary artery. Acid-fast bacilli were noted on pathology staining, and DNA probe was positive for Mycobacterium tuberculosis. Case 2 A year-old man with a history of prior resection of a stage Ia non-small cell lung cancer NSCLC of the left upper lobe, renal transplant, prostate cancer, chronic obstructive lung disease, coronary artery disease, and atrial fibrillation presented with a 6-cm mass in the right middle lobe. The procedure was uncomplicated; he did well and was started chemotherapy for metastatic disease. Roughly, 4 weeks later, he presented with massive hemoptysis and was admitted to the hospital. The etiology of the bleeding was thought to be a consequence of recurrent bleeding from his tumor. A FOB was performed. Substantial amounts of bloody secretions were noted in the airways predominantly from the takeoff of the right middle lobe. After suctioning, there was continued oozing from the right middle lobe. Bleeding was initially controlled with recombinant thrombin and balloon tamponade with a 4-Fr Fogarty balloon. Electrocautery was used as well on visible areas of friable mucosa. Despite this, the bleeding continued. The decision was then made to place ORC into the culprit airway lumen. Using the method outlined above in the first case, the ORC was placed into the lateral segment of the right middle lobe. While the bleeding slowed, there was some displacement of the ORC proximally so a Vortex embolism coil was placed into the lateral segment of the right middle lobe in an attempt to secure the ORC. This was accomplished without difficulty. At that point, hemostasis was achieved. He was then discharged without further incident and had no further bleeding and ultimately died from his underlying malignancy a few months later. Case 3 A year-old gentleman with a history of aortic valve replacement on chronic Coumadin as well as history of pulmonary tuberculosis who presented to the hospital after coughing up copious amounts of blood for 2 days. His international normalized ratio was supratherapeutic at 3. A CT scan revealed significant bilateral upper lobe emphysematous changes as well as right upper lobe bronchiectasis Fig.

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3: Hemoptysis - Wikipedia

Furthermore, a large volume of expectorated blood alone should not define massive hemoptysis, but rather an amount of blood sufficient to cause a condition that threatens the patient's life can be a more correct and functional definition of severe hemoptysis (4, 5).

Hemoptysis, which literally means "spitting up blood", is clinically used to describe expectoration of bloody sputum. What is the differential diagnosis for this problem? Hemoptysis is associated with a myriad of pulmonary conditions including infection, malignancy, vascular abnormalities, injury, and vasculitis. Infections include bacterial pneumonia, fungal infections, tuberculosis, and lung abscess. Malignancies may be primary or metastatic. Vascular abnormalities include aneurysms, thoracic aortic dissection, pulmonary embolism both thrombotic and septic, as well as arterial fistulas. The differential diagnosis also includes inflammatory conditions e. Lung injury, whether it be external from pulmonary contusion, status post-biopsy, or inhalant injury from an aspirated foreign body or cocaine i. In addition, pulmonary hypertension, severe mitral stenosis, and decompensated congestive left heart failure can lead to hemoptysis. In younger patients, the differential diagnosis should be expanded to include cystic fibrosis and idiopathic pulmonary hemosiderosis. Although popular media portrays even mild hemoptysis as having high acute mortality, the literature does not support this. This perception however increases the anxiety of both patients and providers. It is often difficult to quantify the amount of blood expectorated, and a clearly defined limit for massive hemorrhage has not been agreed upon, although volumes in the range of mL have been considered. Risk factors for massive hemoptysis include alcoholism, cancer, aspergillosis, pulmonary artery involvement, and mechanical ventilation. Based on the history, hemoptysis can often be differentiated from hematemesis vomiting of blood or oropharyngeal bleeding. Attempt to obtain duration, quantity, and the trigger for bloody cough. Obtaining associated symptoms related to specific disease states may help narrow the differential diagnosis. Historical information important in the diagnosis of this problem. The natural history of the sputum is important to understand. Frothy bloody sputum is associated with pulmonary edema and hence congestive heart failure and pulmonary embolism. Consider asking your patient the following questions: Always remember to elicit a history of smoking or inhalation of other acute caustic and remote carcinogenic substances. Seek out associated symptoms, such as chest pain, i. A review of systems sensitive for risk factors of pulmonary embolism should increase clinical suspicion for the presence of a clot. If considering septic emboli, elicit a history of intravenous drug use or recent vascular access by central line, pacemaker, or defibrillator. For infection consider asking: When considering malignancy review smoking history, asbestos exposure, recurrent pneumonia, unintentional weight loss, family history, and more chronic hemoptysis. If vasculitis is suspected particularly when considering granulomatosis with polyangiitis , be sure to pursue urinary symptoms, particularly hematuria: Decompensated heart failure might be elicited with, "Are you using more pillows to sleep comfortably at night? Has your weight increased? Do you have worsened swelling of the legs? Presumably, in adult patients, cystic fibrosis and idiopathic pulmonary hemosiderosis would be part of their known past medical history. Physical Examination maneuvers that are likely to be useful in diagnosing the cause of this problem. Thorough examination of the oropharynx and nasopharynx with a strong light source and tongue blade may yield diagnostic clues for vasculitis and help to confirm the source of bleeding as being oropharyngeal rather than pulmonary. Although nonspecific, crackles may localize bleeding to the left or right lung. A murmur may increase suspicion for mitral stenosis. Jugular venous distention may increase suspicion for decompensated heart failure or pulmonary hypertension. Laboratory, radiographic and other tests that are likely to be useful in diagnosing the cause of this problem. Routine diagnostic work-up includes: Complete blood count CBC Comprehensive metabolic panel CMP - elevated BUN may be indicative of consumed blood; abnormal liver function tests may be indicative of coagulopathy secondary to liver disease; decreased total protein and albumin or hypercalcemia may be indicative of pulmonary malignancy. Other diagnostic testing that may be useful by suspected etiology: Sputum and blood cultures in suspected infectious causes with acid fast bacteria cultures of sputum and blood in suspected tuberculosis. In younger patients

consider HIV testing. D-dimer if low to intermediate pre-test probability; if positive, pursue CT pulmonary embolism protocol or ventilation perfusion scan with or without lower extremity venous Doppler. Remember that D-dimer may be elevated in any type of clotting even that of recurrent pulmonary bleeding. With low to intermediate pre-test probability, a negative D-dimer rules out pulmonary embolism as well as thoracic aorta dissection. Cardiac markers, brain natriuretic peptide BNP and electrocardiogram ECG are necessary to confirm decompensated congestive heart failure if suspected by history and physical examination. If granulomatosis with polyangiitis is suspected, ANCA and urine analysis are appropriate. Consider transthoracic echocardiography as the first line test if you suspect pulmonary hypertension, mitral stenosis, or infective endocarditis leading to septic pulmonary emboli. Transesophageal echocardiography may still be warranted if the initial echocardiogram is inconclusive. Urine toxicology may be of benefit in suspected "crack lung" if patient is unable to provide history. Chronic bronchitis is defined as cough productive of sputum for at least three months per year in two consecutive years. It is considered a type of chronic obstructive pulmonary disease. Tuberculosis can be ruled out when three consecutive acid fast bacilli cultures are negative. Bronchiectasis is diagnosed by high resolution computed tomography CT and pulmonary function testing. Malignancies and abscess will have a characteristic radiographic appearance but may be confused with one another. They both require tissue biopsy either by bronchoscopy, radiologically guided needle biopsy, or thoracoscopy to confirm diagnosis. Gram stain may also be helpful. Vascular abnormalities including aneurysms, thoracic aortic dissection and pulmonary embolism, are computed tomographic angiography CTA diagnoses. Some arterial fistulas may be radiographically apparent but others may require bronchoscopic visualization. Infective endocarditis is defined by modified Duke criteria. Granulomatosis with polyangiitis, whether the ANCA is positive or negative, requires a tissue diagnosis of either lung or renal lesions, but not both. Systemic lupus erythematosus has specific diagnostic criteria written by the American College of Rheumatology. Pulmonary hypertension, mitral stenosis, and left systolic heart failure are characterized by specific echocardiographic criteria. Lung injury, whether trauma or inhalant in origin, can be diagnosed by history and clinical examination. Radiography may be of adjunctive help. Due to the perceived association between hemoptysis and acute mortality, patients with hemoptysis are often placed at a higher level of care than needed. They are also subjected to tests that are of minimal benefit. Diagnostic testing should be based on a differential diagnosis developed from a sound history and physical. Due to the wide number of etiological processes, a stepwise approach to diagnostic testing is preferred. Strongly consider PA and lateral views for chest radiography rather than simply portable films for greater diagnostic yield. CT will often be necessary but not essential for work-up, thus starting with plain chest radiography is appropriate. If CT is deemed necessary consider whether or not the diagnosis requires contrast and if so, what phase contrast will be most diagnostic. CTA of the arterial phase examines abnormalities in systemic arterial contrast, e. Thus knowing what you are looking for will determine when, after the contrast bolus, the images will be acquired. Bronchoscopy has decreased yield, and is presumably not indicated in patients who are below 40 years old, non-smokers, with less than 1 week of hemoptysis, and who have a normal chest X-ray. Management while the Diagnostic Process is Proceeding A. The first clinical decision must be whether to intubate the patient for airway protection. A patient will need intubation if they are unable to clear blood or other secretions, in extremis, failing non-invasive positive pressure support ventilation, or if they have worsening hemodynamics, or a decline in mentation despite interventions. If it is possible to localize the bleed, it may be necessary to perform intubation of main left or right bronchus to isolate bleeding and protect the other lung. Patients requiring intubation may need more urgent bronchoscopy or arteriography to isolate bleeding. If you suspect tuberculosis, airborne isolation should be ordered empirically to protect other patients and providers. Continuous positive pressure ventilation may, theoretically, play a role by applying positive pressure i.

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4: Hemoptysis: Diagnosis and Management - - American Family Physician

Hemoptysis, or the expectoration of blood, can range from blood-streaking of sputum to the presence of gross blood in the absence of any accompanying sputum. Hemoptysis has a broad differential, but the cause can be determined in the majority of patients. It is important to identify the cause and location of bleeding in order to guide treatment.

Thoracic surgery for haemoptysis in the context of tuberculosis: Haemoptysis is not an unusual finding in patients with old or active pulmonary tuberculosis. Because of bronchial artery or a branch of pulmonary artery erosion due to cavitary infiltration, bronchiectasis, fungus ball, broncholithiasis or destroyed lung, the bleeding can sometimes be a life-threatening situation. Assessment of the patient and finding the exact site of bleeding can be difficult especially in a patient with disseminated lung disease. Chest computerized tomography and bronchoscopy remain the methods of choice for lateralization of the disease. Some patients can be treated successfully with endobronchial interventions. Bronchial artery embolization can be rewarding in some patients but the recurrence rate is higher in tuberculosis than other etiologies of haemoptysis. Surgical resection of the lung, mainly lobectomy, remains a life-saving procedure but it should be performed very selectively to avoid higher postoperative morbidity and mortality. Different management options of haemoptysis in patients with pulmonary tuberculosis are discussed in this manuscript. Tuberculosis; haemoptysis; treatment; management; surgery Submitted Sep 15, Accepted for publication Dec 12, This complaint reduces by time with treatment. However, the amount of bleeding can be very high and some patients are lost due to this massive or major haemoptysis. The definition of major and massive haemoptysis may vary in the literature. Sometimes, lower amount of bleeding in a patient having limited respiratory function may cause life threatening respiratory compromise. Actually, the definition of massive haemoptysis is not only related to the amount of blood expectorated but also to the risk of aspiration and the degree of respiratory collapse. Clinical deterioration is, most of the time, depends not only to the amount of bleeding but also to the amount of blood aspirated. Massive haemoptysis constitutes In etiology of haemoptysis, geographic distribution and socioeconomic level may have importance 6. Pulmonary tuberculosis, with its chronic sequel, is the most common cause of haemoptysis in the third world 6. Etiologies of haemoptysis in a tuberculosis patient Bronchial artery is the major cause for bleeding in most patients with haemoptysis. Chronic inflammation of bronchial walls in tuberculosis bronchitis may cause destruction and, as in the case of bronchiectasis, may lead bronchial artery bleeding. Since bronchial arteries have higher pressure than the pulmonary arteries, such bleeding may also be severe and difficult to control. When a tuberculosis cavity invades parietal pleura and chest wall, erosion of intercostal arteries or subclavian or internal mammary arteries may also be associated with haemoptysis. Development of fungal infection in old tuberculosis cavity is another important cause of haemoptysis. Aspergillum species are most commonly the causative organism but infection with monosporium has also been reported 7. Intracavitary mycetomas may be seen with either of these infections. Broncholithiasis is development of calcium deposits on peribronchial lymph nodes during healing process of chronic granulomatous condition, most commonly tuberculosis. Erosion of bronchial wall and peribronchial arteries by broncholiths may be another cause of severe haemoptysis. Assessment of the patients Whatever the etiological factor is, massive haemoptysis in a tuberculosis patient may be a life-threatening situation and immediate medical and surgical management is needed. A brief history may give you valuable information; previous attacks of haemoptysis, amount and duration of bleeding, use of medication anticoagulants or antithrombotics should be noted. Patient should be followed in intensive care or high-dependency unit if he or she has a major or massive haemoptysis. Prevention of asphyxiation should be the major goal in such a patient. Determining the cause and the location of bleeding is an important issue. Radiologic examinations chest X-ray, thorax computerized tomography provide valuable information such as presence of an active tuberculosis infiltration or cavity in the lung, mycotic ball in a cavity or broncholiths. Sometimes both lungs may have pathological findings where lateralization and localization of bleeding becomes an important issue. Some patients describe a dull pain at the same side with the pathology but this is not enough to diagnose the side of the bleeding in a patient with bilateral lung infiltration. The obvious cause

of haemoptysis should be treated with specific measures reversal of anticoagulants, anti-tuberculosis treatment, antibiotics for bronchiectasis. A bronchoscopic examination is always needed to determine the bleeding site definitely. Rigid bronchoscopy should be preferred over fiberoptic bronchoscopy for its advantages of better ventilation and suctioning. Prompt localization of bleeding site has outmost importance. It should be remembered that the clots could be aspirated to the contralateral lung or to other lobe s in the same side and may be misleading to understand the main source of bleeding. Non-surgical managements Once the bleeding site is determined, application of iced isotonic saline lavage, adrenalin or thrombin-fibrinogen compounds may be helpful to stop bleeding. Electro-cautery or argon plasma coagulation machine can also be used. Another method for stopping a bronchial bleeding is the insertion of a Fogarty catheter and inflating it in order to create a pressure over the site of bleeding balloon tamponade. If all these maneuvers fail, intubation by a double-lumen tube may help to stabilize patient until the preparations for definitive surgical treatment done 8. Bronchial artery embolization Availability of endobronchial techniques and bronchial artery embolization may control massive bleeding, at least temporarily, and prevents emergency surgical treatment 9. The first report for controlling life-threatening haemoptysis by bronchial artery embolization was done in by Remi and colleagues By selective bronchial artery angiography, the site of bleeding of a bronchial artery is determined first and then application of embolization material obliterates the site of leak from bronchial artery. Mal and colleagues evaluated 56 patients who had been embolized for haemoptysis and noted that immediate control was achieved in 43 patients. These series cover patients having haemoptysis due to different kind of etiology, not only due to patients with tuberculosis. A study consisting of only tuberculosis patients having haemoptysis is a few. Since different mechanisms play role in tuberculosis patients i. Ramakantan and colleagues performed bronchial artery embolization in patients with haemoptysis due to active or old tuberculosis Hwang and colleagues performed bronchial artery embolization in 72 patients with haemoptysis due to active or old tuberculosis infection Gross and colleagues performed emergency bronchial artery embolization in 61 patients with haemoptysis due to tuberculosis Of these, 11 had died before discharge, while none of the patients who underwent surgical resection died. Lee and colleagues compared their long-term results of embolization in two groups of patients; patients with chronic tuberculosis and bronchiectasis They found recurrence rate of They argued that presence of fungus ball was an important risk factor for re-bleeding. White and colleagues suggest that bronchial artery embolization is a palliative procedure and the potential for recurrent haemoptysis exists as long as the disease process is not cured by drug therapy or removed surgically Recurrence after bronchial artery embolization may be related to incomplete embolization, recanalization of embolized vessel, revascularization of collateral vessels associated with the progression of the underlying disease, or bleeding coming from a pulmonary artery branch as in the case of cavitary tuberculosis In patients deemed too ill to undergo elective surgery, embolization may be repeated successfully for repeated haemoptysis Potential risks of embolization are mediastinal hematoma due to subintimal aortic dissection and neurological damage. The former may occur due to unwanted occlusion of spinal arteries during embolization. Resectional surgery Management of massive haemoptysis and timing of surgical intervention pose difficult problems. Gourin and Garzon have recommended prompt surgical resection for patients having more than mL blood in 24 hours Emergency surgery should be reserved only for those patients: I having adequate lung function; II exact site of bleeding definitely defined; III continuing bleeding despite the adequate measures taken Emergency surgery performed for massive haemoptysis has always-higher risk than a planned surgery as reported by Jougon and colleagues Most important reasons for increased mortality in emergency situation are the continuing bleeding during the operation and proceeding aspiration to uninvolved lung and hypovolemia. So, deciding to perform an emergency surgical resection in a patient with massive haemoptysis remains a real challenge. A double lumen endotracheal intubation for the conduction of anesthesia should be preferred in order to block the bronchus of the bleeding site and prevent aspiration to uninvolved site. A balloon Fogarty catheter occlusion of involved site together with a single lumen tube may also be preferred. In most emergency cases, the patient had already aspirated some blood to the other lobe s and lung functions were already disturbed. Resection of the lung parenchyma may lead respiratory insufficiency. For this reason, the amount of lung resection should be as small as possible while

resecting the main source of bleeding. In most cases, a lobectomy is the standard operation. Because in most cases it is not possible to define the bleeding segment, a segmental resection is rare. In some cases, pneumonectomy is inevitable due to whole lung involvement destroyed lung or when the bleeding site is lateralized but not localized. Another factor that increases the operative risk is the condition of the lung. Generally accompanying dense pleural adhesions, presence of enlarged sticky lymph nodes, bronchiectasis or broncholithiasis make the surgery very complex and difficult one. In that method, only the bronchus and the artery of affected lobe or lung are obliterated without resection Erdogan and colleagues reported a series of 59 tuberculosis patients with haemoptysis who underwent surgical resection An analysis of the nationwide inpatient sample database study was performed recently to define the prevalence and outcomes of anatomic lung resection for haemoptysis in the USA covering a year period Over , admissions for the diagnosis of haemoptysis were identified. The rate of tuberculosis patients was 0. Of all patients with haemoptysis, 2, patients 0. This study showed that the increased age and pneumonectomy were the most important risk factors for operative mortality while tuberculosis was not. Erdogan and colleagues reported three cases of empyema and broncho-pleural fistula in their series containing 59 patients who were operated for tuberculosis related hemoptysis In our experience, the rate postoperative surgical bleeding is also increased in this group of patients even if any coagulation abnormality is not detected during preoperative evaluation. Disturbed nutritional balance and low levels of blood proteins may cause increased surgical bleeding in this group of patients. Conclusions Haemoptysis in an active or previous tuberculosis patient is a complex situation. Locating the site of the haemoptysis and defining the etiology may be difficult especially in case of a massive haemoptysis. Bronchial artery embolization may be a good method for controlling haemoptysis and gaining time for a planned surgery in general population. However, in tuberculosis patients the success rate of this method seems to be decreased probably due to the presence of bleeding also from a pulmonary artery branch in this group of patients. In case of massive bleeding, emergency surgery becomes inevitable but carries higher risk than a planned surgery. Surgical resection is still the definitive treatment with acceptable rate of morbidity and mortality. Haemoptysis can be life threatening in the course of pulmonary tuberculosis.

5: Hemoptysis - Cancer Therapy Advisor

Hemoptysis: Evaluation and Management JOHN SCOTT EARWOOD, Figures 1 and 2 outline a recommended approach to the NONMASSIVE HEMOPTYSIS This patient has a history of minimal blood.

6: Hemoptysis - Renal and Urology News

Haemoptysis is a common presentation in the primary, secondary and tertiary care setting. Hence, it is essential for primary care physicians to be well-versed in the evaluation and management of patients with haemoptysis. This article aimed to discuss the more common differential diagnosis, indications for referral to the emergency department or specialty clinics, and a general management plan for patients with non-massive haemoptysis.

7: Haemoptysis | Radiology Reference Article | www.enganchecubano.com

Hemoptysis, which literally means "spitting up blood", is clinically used to describe expectoration of bloody sputum. B. Describe a diagnostic approach/method to the patient with this problem.

8: Separating Fact From Factitious Hemoptysis: A Case Report

Massive hemoptysis is a life-threatening condition with a high mortality when treated conservatively. Several modalities have been described in the treatment of hemoptysis with varying results. Endobronchial therapy has traditionally been performed with rigid bronchoscopy.

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