



A Prospective Analysis of 100 Hemoptysis Cases in Tertiary Care Hospital.

KEYWORDS

hemoptysis, lung cancer, pulmonary tuberculosis, bronchoscopy

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ABSTRACT "Hemoptysis is defined as expectoration of blood from the tracheo-bronchial tree or from pulmonary parenchyma".¹

It is not a disease entity but a symptom of underlying pulmonary pathology or disease and can occur in different clinical condition. Hemoptysis may vary in degree from just a streaking of blood with sputum (mild) to life threatening massive hemoptysis.² A wide spectrum of diseases has been reported to cause hemoptysis but the search for a specific cause can be tedious and unrewarding.³ Therefore hemoptysis of any degree needs thorough evaluation. The aim of evaluation is to find treatable cause and management modalities for controlling the underline disease.^{4, 5}

This study is an attempt to study relative frequency of different causes of hemoptysis, value of chest radiography, computed chest tomography (CT) ^{6,7}or fiber-optic bronchoscopy^{8,9} as a diagnostic tool and other demographic factors in hemoptysis.

Aims & Objectives:

1. To study principle etiologies of hemoptysis and their relative frequencies.
2. To study clinical characteristics of patients having hemoptysis.
3. To study comorbid and demographic factors associated with hemoptysis.

Material & Methods:

The present prospective study was carried out in a tertiary care hospital. 100 adult patients presented with hemoptysis were identified during the period January 2010 to July 2013. Exclusion criteria's - Patient with bleeding from upper respiratory tract or gastro intestinal tract, with bleeding diathesis or patients on anticoagulant or antiplatelet medicines were excluded.

Detailed written and informed consent was taken from patients. In all patients, the amount of hemoptysis was measured in the hospital by medical staff i.e. nurses, residents or specialists.

We reviewed medical history of patient, physical examination and chest radiography after confirmation with fiber optic bronchoscopy or computed chest tomography (CT) and separately analyzed the more common etiologies and grade of hemoptysis. Various trigger mechanism and factors responsible for hemoptysis such as active or old pulmonary tuberculosis, abscess and cavity as complications of or addition to primary disease were studied in order to determine further management.

Results:

Clinical clues and diagnostic possibilities in finding various causes of hemoptysis can be tabulated as follows.^{3,4}

TABLE 1

Sr. No.	Clues	Diagnostic possibilities
1	Young age	Adenoma, bronchiectasis, mitral stenosis, sequestration arteriovenous malformation
2	Age >40, smoking, abnormal chest x-ray, small amount of hemoptysis occurring daily for weeks	Bronchogenic carcinoma
3	Recurrence over months to years	Adenoma, bronchiectasis
4	Hematuria	Goodpasture's syndrome, Wegener's granulomatosis, polyarteritis nodosa
5	Occurrence during menses	Endometriosis(Catamenial hemoptysis)
6	Fever, weight loss, night sweats, cough, chronic phlegm	Tuberculosis, fungal disease, chronic bronchitis, bronchiectasis
7	Dyspnea, acute pleuritic chest pain	Pulmonary embolism with infarct or pneumonia
8	Associate with exertion, orthopnea or paroxysmal nocturnal dyspnea	Congestive heart failure, mitral stenosis
9	History of rheumatic fever	Mitral stenosis
10	History of anticoagulation	Caugulopathy from large dose or pulmonary embolism from too low a dose
11	History of deep venous thrombosis	Pulmonary embolism
12	Infertility, diabetes mellitus, malabsorption	Cystic fibrosis

13	Recent procedure	Iatrogenic (bronchoscopy, Swan-Ganz catheterization, etc.)
14	Sputum appearance	
	Mixed with gritty white material	Broncholithiasis
	Pink frothy	Left ventricular failure
	Rusty Brown	Pneumonia
	Mixed with pus	Lung abscess, bronchiectasis

A total of 100 patients (85 Male & 15 Female) were included in the study (61Smokers & 39Nonsmokers).

Among 100 patients, 75% had mild to moderate hemoptysis indicating majority group followed by 25% patients with massive hemoptysis.

Pulmonary tuberculosis (active as well as healed) 45% and bronchogenic carcinoma 25% were most common causes for hemoptysis followed by 30% patients with infective etiologies like bronchitis, pneumonia, bronchiectasis and aspergilloma contributing to hemoptysis. The most frequent cause of hemoptysis in male as well as female was pulmonary tuberculosis. Bronchogenic carcinoma mainly presented as recurrent streaky hemoptysis and was seen exclusively in smokers.

Among 45 pulmonary tuberculosis patients, 28 smear positive (62%) and 17 smear negative (38%) pulmonary tuberculosis had significant hemoptysis indicating contribution of tuberculosis as major etiology in our country. Rest 55 patients had other infective and malignant etiology.

Among patient with active (smear positive) pulmonary tuberculosis 36% and 64% patients had mild and large hemoptysis respectively indicating majority group while 76% and 24% patients with healed (smear negative) pulmonary tuberculosis had mild and large hemoptysis respectively.

Among 28 smear positive pulmonary tuberculosis patients, 64% patients had cavitary lesion and 29% patients had exudative infiltration on presentation followed by 7% patients having consolidation on chest radiography.

Among 25 Carcinoma patients, 46% patients had mass with mediastinal lymph adenopathy, 39% patients had mass with secondaries else where followed by 15% patients having malignant effusion with collapse of the lung as main CT findings.

Fibreoptic bronchoscopy revealed that 54% patients had intra-luminal growth, 25% patients had infiltrative sub-mucosal lesion followed by 21% patients having luminal narrowing from external compressive lesion.

Conclusions:

- Hemoptysis is a common presenting feature of various underlying pulmonary diseases and cough with expectoration (blood stained) being most common companion.
- Smokers are at higher risk of hemoptysis due to its causative relation in disease induction hence smokers with hemoptysis are at increased risk for lung cancer and need to be extensively evaluated.
- Respiratory infection in particular pulmonary tuberculosis outnumbers all other respiratory causes of hemoptysis suggesting significant load of respiratory infective diseases.
- Significant numbers of smear AFB positive pulmonary tuberculosis patients have massive hemoptysis suggesting possible diagnostic delay and more advanced disease at the time of presentation. Thus, degree of hemoptysis can be an indicator of level of pathological advancement of tuberculosis in active cases and can also be used as a morbidity marker of healed pulmonary tuberculosis, revealing extra burden of the disease morbidity even after treatment completion in TB overwhelmed areas.
- Central intra-luminal bronchogenic carcinomas have more tendency to present with hemoptysis. So patients older than 50 years with positive history of smoking need an extensive evaluation and follow up to exclude lung cancer.
- Recurrent small hemoptysis can be an ominous sign indicative of ensuing massive hemoptysis needing thorough investigation in time for diagnosis and prompt treatment and can advantageously be used as a suspect parameter of bronchogenic carcinoma in clinical practice.
- Based on this study, we suggest that, the diagnostic approach to the patients presenting with hemoptysis should include first a detailed history, physical examination and chest radiography; second sputum smear and culture for acid fast bacilli; third computed tomography of thorax and lastly fiberoptic bronchoscopy.

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