



ORIGINAL RESEARCH PAPER

Pulmonary Medicine

"A STUDY OF CLINICAL PROFILE OF HEMOPTYSIS AND ITS CORRELATION WITH RADIOLOGICAL, MICROBIOLOGICAL AND PATHOLOGICAL FINDINGS"

KEY WORDS: Haemoptysis, Pulmonary Tuberculosis & Bronchiectasis

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ABSTRACT

Introduction: Haemoptysis is a frequently occurring life threatening situation which can occur in various pulmonary conditions. Managing a case of haemoptysis is often difficult due to a large spectrum of causative factors. The effective control of haemoptysis depends upon identification of the aetiology and localization of the site of bleeding.

Methodology: This was a study of 100 patients who presented with active haemoptysis. Data from these patients was collected for the analysing the underlying cause & it's correlation with radiological, microbiological and pathological findings.

Result: Pulmonary tuberculosis, both active and inactive (68%), Bronchiectasis (10%), Neoplasm (7%) accounted for the most common aetiologies of haemoptysis. Microbiological correlation for sputum culture positivity with haemoptysis patients is (42%). Various organisms were found in Culture & Sensitivity, in which Klebsiella (20%), E.coli (11%) and Pseudomonas (6%) accounted for the most common organisms found in sputum culture. Radiological findings association shows more than two zone involved radiological lesion attributed (30%), RUZ (23%) and LUZ (21%) among most common zones.

Conclusion: The most common causes of haemoptysis were pulmonary tuberculosis and bronchiectasis. Haemoptysis can be life threatening in the course of pulmonary tuberculosis. Careful assessment of the condition and quick management remains rewarding.

INTRODUCTION

Hemoptysis is a common medical emergency in developing countries. It is a common clinical problem reported to be the cause of attendance in 7-15% of patients coming to chest clinics.¹

Hemoptysis is the coughing of blood originating from the larynx, trachea, bronchi, or lungs (the respiratory tract).

The differential diagnosis of haemoptysis includes disorders arising within the airways and the pulmonary parenchyma. The clinical setting is usually helpful in identifying the cause. The evaluation of haemoptysis involves a careful history, physical examination, and a chest radiograph.

The amount of minor hemoptysis, smaller quantities of blood, will likely resolve spontaneously not to occur infrequently but, in massive haemoptysis blood arising from the bronchial arteries (90%) is more often the source of haemoptysis, as compared to pulmonary arteries (5%) owing to its higher perfusion pressure than blood from the pulmonary circulation.²

In developing countries like India the most common etiology are tuberculosis and bronchiectasis.³ In developed countries Inflammatory processes bronchitis and neoplasm are the most common causes of blood arising within the airways.^{4,5} Within the pulmonary parenchyma common causes are infections, such as tuberculosis, pneumonia, Aspergillus, or lung abscess. Inflammatory processes that involve the pulmonary vasculature, such as Wegner's granulomatosis or Good pasture's syndrome also important causes of haemoptysis. So, the first priority in the care of a patient with life-threatening haemoptysis is to protect the airway by single- or double-lumen bronchial intubation and prevent asphyxiation and conservative management for patients with mild haemoptysis. If severe haemoptysis from bronchial arteries present it can be treated with angiographic embolization of the responsible bronchial artery. If these modalities fail to stop the bleeding, surgical exploration may be required.^{6,7,8}

METHODOLOGY

The study was carried out at Department of Pulmonary Medicine, C.U. SHAH MEDICAL COLLEGE, Surendranagar after Institutional Ethics committee approval with proper informed consent of the patient. Patients of all ages & either sex were selected randomly from patients admitted in ward & attended at OPD. 100 adult patients presenting with hemoptysis were enrolled in the study.

All patients were asked in detail about the relevant clinical history & were examined thoroughly. Patients were investigated with below listed with stepwise approach. All cases were treated conservatively initially (antitussives, sedatives, antimicrobials). Patient with massive hemoptysis given plasma expanders and blood transfusion.

Following investigations were carried out for provisional diagnosis.

Heamogram: Hemoglobin, total count and differential count and Platelet count

Sputum study for acid fast bacilli, culture & sensitivity and cytology.

Chest radiology

RESULTS

TABLE 1: Age distribution:-

Age of Patient	No. of patients	Percentage
18-29	13	13%
30-49	39	39%
50-69	31	31%
≥70	17	17%

The age group most commonly affected to hemoptysis were 30-49 (39%) followed by 50-69 (31%), and (17%) patients were ≥70 years of age. So, 70% patients were from age 30-69 years.

TABLE 2: Etiologies of Hemoptysis:-

Etiologies	No. of Patients	Percentage
Pulmonary Tuberculosis	68	68%
Bronchiectasis	10	10%
Neoplasm	07	7%
Bronchitis	02	2%
Others	13	13%
Cardiovascular	02	02%
Pneumonia	02	02%
Obst. Lung disease	03	03%
ILD	01	01%
Kartanger's Syndrome	01	01%
Hypertension	01	01%
Lung abscess	01	01%
Idiopathic	02	02%

Based on above data pulmonary tuberculosis, both active and inactive, was found to be the leading cause (68%) of hemoptysis in our patients.

TABLE 3: Associated Symptoms:-

Symptoms	No of Patients	Percentage
Cough	98	98%
Dyspnea	57	57%
Fever	45	45%
Chest Pain	18	18%
Malaise	16	16%
Night Sweat	11	11%
Anorexia/ Weight Loss	6	6%

In hemoptysis patients, there was Coughing (98%) most commonly associated symptom which is shown in Table: 3.

TABLE 4: Correlation of Hemoptysis with Sputum Culture:-

Organism	No. Of Patients	Percentage
No Growth	58	58%
KLEBSIELLA	20	20%
E.COLI	11	11%
PSEUDOMONAS	6	6%
ENTEROCOCCI	2	2%
STAPHYLOCOCCI	2	2%
STREPTOCOCCAL	1	1%
PNEUMONIAE		

In our study, Various organism was found in Culture & Sensitivity, in which Klebsiella organism was (20%) present with hemoptysis followed by E.coli (11%), Pseudomonas (6%), Enterococci (2%), Staphylococci (2%), Streptococcal Pneumoniae (1%) were seen in our hemoptysis patients which shown in Table 4.

TABLE 5: Correlation of Hemoptysis with Radiological Findings:-

Radiological Findings	No. of Patient	Percentage
More than two Zone	30	30%
RUZ	23	23%
LUZ	21	21%
RLZ	10	10%
LLZ	6	6%
RMZ	4	4%
LMZ	1	1%
Normal	5	5%

In this study more than two zone involved radiological lesion attributed (30%). Also RUZ (23%), LUZ (21%), RLZ (10%), LLZ (6%), RMZ (4%), LMZ (1%), and normal radiological finding in (5%) patients of haemoptysis at presentation of our hospital which is shown in Table 5.

DISCUSSION

All the patients with hemoptysis presenting at hospital was determined on the basis of all available clinical profile, their investigation profile of all basic requirement likewise pathological,

radiological and microbiological with their correlation to evaluation. Hemoptysis was commonly found in the age 30-49 (39%), followed by 50-69 (31%) age group. In our study results found that pulmonary tuberculosis (68%), Bronchiectasis (10%), Neoplasms cases were (7%) patients and Bronchitis (2%) and others, causes (13%). In our study patients, Klebsiella organism was (20%) present with hemoptysis followed by E.coli (11%), Pseudomonas (6%), Enterococci (2%), Staphylococci (2%), Streptococcal Pneumoniae (1%).

In our study found that 95 % patients of hemoptysis had radiological positive finding on initial investigation of chest X ray.

CONCLUSION

Haemoptysis is a frightening & a common presenting symptom amongst patients presenting to chest clinics all over the world including India. Most affected age group was 30-49 (39%) closely followed by 50-69(31%). Male sex was more commonly affected (73%) than female sex (27%) with male to female ratio of 2.70:1. Haemoptysis was probably higher rate in pulmonary tuberculosis patients in our study(68%) whether there was active or inactive disease of tuberculosis because high prevalence of tuberculosis in our country. Haemoptysis patients with associates presenting symptoms were, Coughing (98%) most commonly associated symptom.

Abbreviations:

ILD–Interstitial lung disease, Obst. – Obstructive, RUZ– Right upper zone, RMZ– Right middle zone, RLZ – Right lower zone, LUZ– Left upper zone, LMZ– Left middle zone, LLZ– Left lower zone.

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