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RESEARCH ARTICLE

CLINICAL PROFILE OF PATIENTS WITH HEMOPTYSIS AT A TERTIARY CARE CENTRE IN CENTRAL INDIA: A RETROSPECTIVE STUDY OF 47 CASES

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Abstract

Background: Hemoptysis, the expectoration of blood from the respiratory tract, is a symptom with a wide spectrum of underlying causes, ranging from benign to life-threatening conditions. Understanding the clinical characteristics of these patients is vital for prompt diagnosis and effective management, particularly in tertiary care centers where complex cases are prevalent.

Objective: To analyze the clinical presentations, diagnostic findings, and outcomes of patients presenting with hemoptysis at a tertiary care center.

Materials and Methods: This retrospective observational study was conducted from January 2022 to December 2023 in the respiratory medicine department of a tertiary care center. A total of 47 patients aged over 18 years with confirmed hemoptysis were included. Data were collected from medical records, covering demographic details, clinical presentation, laboratory and radiological findings, bronchoscopy results, treatment methods, and outcomes. Descriptive statistics were employed to summarize the data.

Results: The study cohort consisted of 47 patients with a mean age of 52 ± 14 years; 60% were male. Acute hemoptysis was observed in 64% of cases. Hemoptysis severity was categorized as mild in 43%, moderate in 32%, and massive in 25% of patients. Common associated symptoms included cough (85%), fever (60%), weight loss (32%), chest pain (26%), and dyspnea (53%). Smoking history was present in 60% of patients. The predominant underlying conditions were COPD (30%), bronchiectasis (21%), tuberculosis (15%), lung cancer (11%), cardiovascular diseases (11%), and other conditions (13%). Abnormalities were detected in 74% of chest X-rays and 89% of CT scans, which included findings such as consolidation, cavitation, masses, and bronchiectasis. Bronchoscopy was performed in 51% of patients, with a diagnostic yield of 64%, revealing endobronchial lesions, bleeding sites, and inflammation.

Management and Outcomes: Medical management included antibiotics (43%), bronchodilators (32%), steroids (19%), antitubercular therapy (15%), and anticoagulant reversal (6%). Interventional procedures, such as bronchial artery embolization, were performed in 11% of patients, and surgical resection was referred for

4% of patients. Hemoptysis resolution was achieved in 81% of cases, with a recurrence rate of 11% and a mortality rate of 6%.

Discussion: COPD and bronchiectasis were the leading causes of hemoptysis, highlighting the prevalence of chronic respiratory diseases in the studied population. The significant diagnostic yield of CT chest and bronchoscopy underscores their importance in evaluating hemoptysis. Effective medical management was achieved in most cases, while interventional procedures were critical for controlling massive hemoptysis. The study identifies challenges in managing massive and recurrent hemoptysis and suggests the need for standardized management protocols.

Conclusion: Hemoptysis in a tertiary care setting is frequently associated with chronic respiratory diseases such as COPD and bronchiectasis. Comprehensive diagnostic approaches, particularly CT chest and bronchoscopy, are crucial for effective management. Early identification and treatment of the underlying causes are essential for improving patient outcomes. The findings underscore the need for developing clinical guidelines and conducting further research on innovative diagnostic and therapeutic strategies.

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Introduction:-

Background:

Hemoptysis, the expectoration of blood from the respiratory tract, can be a symptom of numerous underlying pathologies, ranging from benign conditions to life-threatening diseases.

Significance:

Understanding the clinical profile of patients presenting with hemoptysis is crucial for timely diagnosis and management, particularly in tertiary care settings where complex cases are often referred.

Objective:-

To analyze, clinical presentations, diagnostic findings, and outcomes of patients presenting with hemoptysis at a tertiary care center.

Material and Methods:-

Study Design:

Retrospective observational study.

Study Period:

January 2022 to December 2023.

Study Population:

Patients presenting with hemoptysis at the respiratory medicine department.

Sample Size:

47 patients.

Inclusion Criteria:

Patients aged >18 years with confirmed hemoptysis.

Exclusion Criteria:

Patients with bleeding from the upper respiratory tract, gastrointestinal tract, or other sources.

Data Collection:

Extracted from medical records, including demographic data, clinical presentation, laboratory and radiological findings, bronchoscopy results, treatment, and outcomes.

Statistical Analysis:

Descriptive statistics were used to summarize the data. Frequencies and percentages were calculated for categorical variables, and means and standard deviations for continuous variables.

Results:-

Demographic Data

1. **Total Patients:** 47
2. **Age Distribution:** Mean age 52 ± 14 years
3. **Gender Distribution:** 28 males (60%), 19 females (40%)

Clinical Presentation

Onset and Duration:

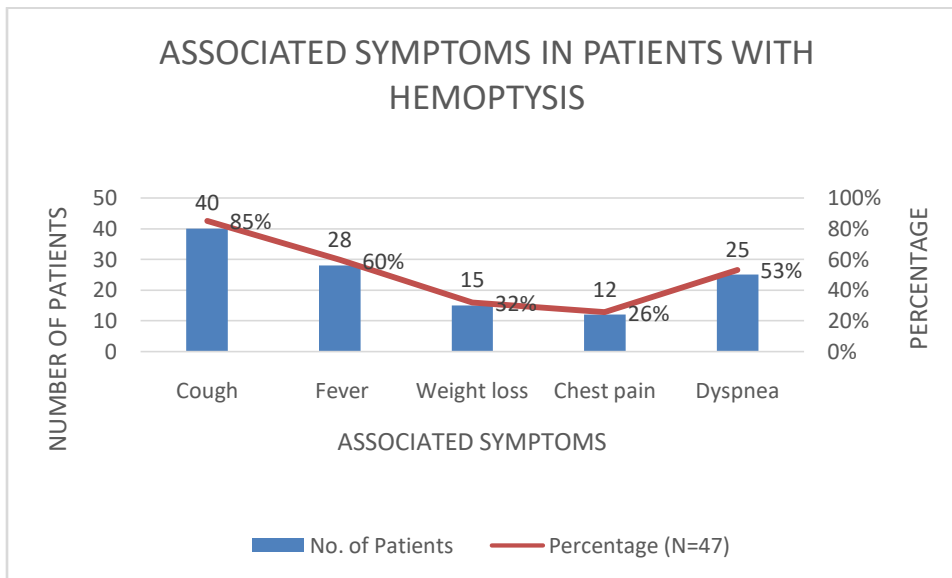
1. Acute: 30 patients (64%)
2. Chronic: 17 patients (36%)

Volume of Blood:

1. Mild (streaks): 20 patients (43%)
2. Moderate (20-200 ml): 15 patients (32%)
3. Massive (>200 ml): 12 patients (25%)

Associated Symptoms:

Symptoms	No. of Patients	Percentage (N=47)
Cough	40	85%
Fever	28	60%
Weight loss	15	32%
Chest pain	12	26%
Dyspnea	25	53%



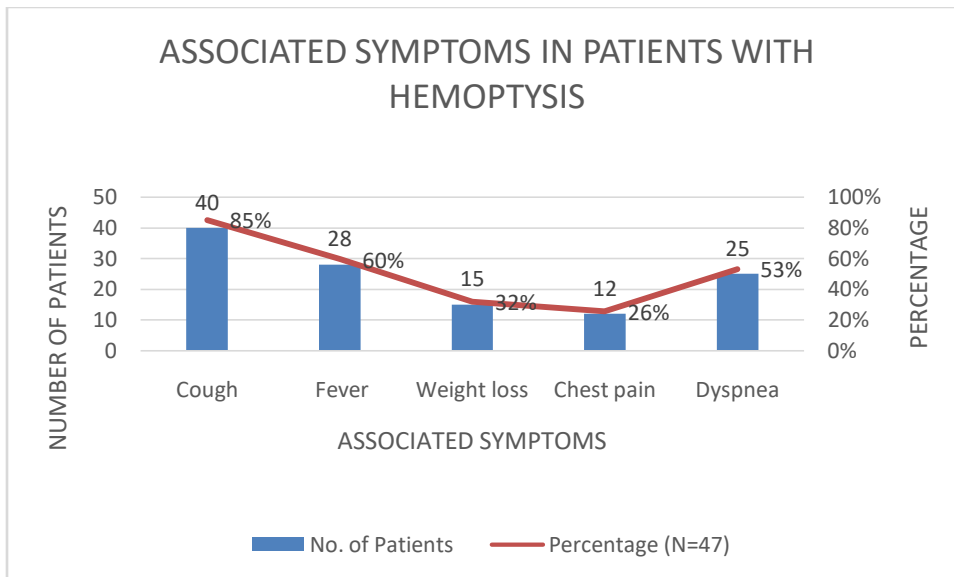
Medical History

Smoking History:

28 smokers (60%), 19 non-smokers (40%)

Underlying Conditions

Underlying Condition	No. of Patients	Percentage (N=47)
Chronic obstructive pulmonary disease (COPD)	14	30%
Bronchiectasis	10	21%
Tuberculosis	7	15%
Lung cancer	5	11%
Cardiovascular diseases	5	11%
Other (e.g., fungal infections, vasculitis)	6	13%



Laboratory Tests:

1. Complete Blood Count: Anemia in 9 patients (19%)
2. Coagulation Profile: Abnormal in 5 patients (11%)

Radiological Findings:

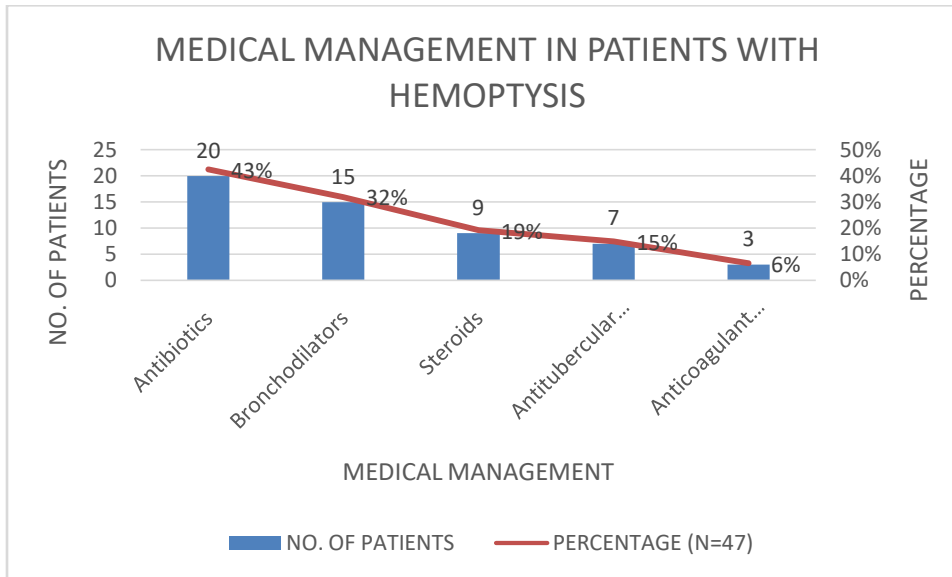
1. Chest X-ray: Abnormalities in 35 patients (74%)
2. CT Chest: Performed in 42 patients (89%), findings included consolidation, cavitation, masses, and bronchiectasis

Bronchoscopy:

1. Performed in 14 patients (19%)
2. Diagnostic yield: 9 patients (64%)
3. Findings: Endobronchial lesions, bleeding sites, inflammation

Management and Outcomes**Medical Management:**

MEDICAL MANAGEMENT	NO. OF PATIENTS	PERCENTAGE (N=47)
Antibiotics	20	43%
Bronchodilators	15	32%
Steroids	9	19%
Antitubercular therapy	7	15%
Anticoagulant reversal	3	6%

**Interventional Management:**

1. Bronchial artery embolization: 5 patients (11%)
2. Referred for Surgical resection: 2 patients (4%)

Outcome:

1. Resolution of hemoptysis: 38 patients (81%)
2. Recurrence: 5 patients (11%)
3. Mortality: 3 patient (6%)

Discussion:-**Etiological Distribution:**

COPD and bronchiectasis were the leading causes, followed by tuberculosis and lung cancer. This reflects the high prevalence of chronic respiratory conditions and infectious diseases in the studied population.

Diagnostic Approach:

The high diagnostic yield of CT chest and bronchoscopy underscores their importance in evaluating hemoptysis. Bronchoscopy was particularly useful in identifying endobronchial lesions and specific bleeding sites.

Management Strategies:

Medical management was effective in the majority of cases. Interventional procedures, such as bronchial artery embolization, were crucial for controlling massive hemoptysis.

Challenges:

Managing massive hemoptysis remains a significant challenge due to the risk of hemodynamic instability and the need for rapid intervention. Recurrent hemoptysis also poses difficulties in long-term management.

Future Directions:

There is a need for standardized protocols for the management of hemoptysis, especially in resource-limited settings. Further research into less invasive diagnostic and therapeutic options could improve patient outcomes.

Conclusion:-**Summary:**

Hemoptysis in a tertiary care setting is commonly associated with chronic respiratory diseases such as COPD and bronchiectasis. Effective management requires a comprehensive diagnostic approach, with CT chest and bronchoscopy playing pivotal roles. Early identification and treatment of the underlying cause are essential for improving patient outcomes.

Implications for Practice:

The findings highlight the importance of a structured diagnostic and management protocol for hemoptysis. Enhanced training in interventional procedures and access to advanced diagnostic tools can significantly impact patient care.

Recommendations:

Development of clinical guidelines tailored to the local epidemiological context and further studies to explore innovative diagnostic and therapeutic modalities are recommended.

Acknowledgments:-

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2. Hemoptysis: Evaluation and Management - American Academy of Family Physicians (2022) [This AAFP resource provides a good overview of hemoptysis evaluation and management with key recommendations for practice]
3. A systematic approach to the management of massive hemoptysis - Radchenko et al. (2020) [This article focuses on massive hemoptysis, a high-risk situation, and discusses prognostic features and management approaches]
4. ABCDE Approach for Massive Hemoptysis: A Novel Cognitive Aid - ATS Scholar (2022) [This publication introduces the ABCDE approach, a framework to aid in managing massive hemoptysis, a critical emergency]
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The ACCP provides comprehensive guidelines on the diagnosis and management of hemoptysis. Their latest recommendations can usually be found on their official website or through academic databases.
6. British Thoracic Society (BTS) Guidelines:
BTS guidelines offer practical recommendations for the management of hemoptysis, emphasizing diagnostic approaches and treatment strategies. These can be accessed through their official website or medical journals.
7. European Respiratory Society (ERS) Guidelines:
ERS guidelines cover various aspects of respiratory conditions, including hemoptysis. They provide evidence-based recommendations that are widely referenced in clinical practice.
8. EMCrit Project: Severe Hemoptysis: <https://emcrit.org/ibcc/hemoptysis/>
9. Patient Info: Haemoptysis: Symptoms, Causes, and Treatment. <https://jintensivecare.biomedcentral.com/articles/10.1186/s40560-020-00441-8>