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Evaluation of Causes of Hemoptysis in Rural and Under Developed Area of West Bengal

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Abstract **Original Research Article**

Background: Hemoptysis is a tip of iceberg of underlying terrific diseases. It is an alarming sign and which should not be neglected. Any history of hemoptysis should be evaluated immediately. ***Materials & methods*:** Total of 222 patients complaining of hemoptysis and sent for computed tomography scan to the department of Radiodiagnosis from various department of Bankura Sammilani Medical College, Bankura from January'18 to june'18, were taken up for this study. All the patients were investigated by chest x-ray and computed tomography along with previous treatment history to find out the etiology of hemoptysis. Reports of fiberoptic bronchoscopy collected if available or collected after bronchoscopy has been done. ***Results:*** The most common etiologies of hemoptysis in our study were tuberculosis (31.9%) followed by malignancy (19.8%) and bronchiectasis (17.1%).Out of 222 patients, 110 patients had mild hemoptysis (49.5%), 75 had moderate (33.8%%), 37 had severe hemoptysis (16.7%). 31.8%patient of mild hemoptysis were diagnosed of having tuberculosis. 20.9% patients of mild hemoptysis were diagnosed as bronchogenic carcinoma, 11.8% of the patients with idiopathic hemoptysis were having mild hemoptysis. Of the 75 patients with moderate hemoptysis, 20% were diagnosed as having bronchogenic carcinoma, 33.3% were having tuberculosis as the etiology for hemoptysis. Tuberculosis (29.7%) and bronchiectasis (48.6%) were the most common etiologies in patients with severe hemoptysis. ***Conclusion*:** In rural and under developed area of India, the most common cause of hemoptysis is tuberculosis and followed by malignancy.

Keywords: Hemoptysis, Tuberculosis, bronchiectasis, malignancy, rural and under developed area.

INTRODUCTION

Hemoptysis is defined as expectoration of blood originating from lungs or trachea-bronchial tree [22]. Hemoptysis is an alarming sign of an underlying serious pathology and which should not be neglected. The vast majority of hemoptysis events originate from the bronchial arteries (90%) as compared with the pulmonary arteries (5%). The etiology for hemoptysis varies among different population, races, habitus, and nutritional status and geographic locations. In India most common cause of hemoptysis in a patient is tuberculosis as per previous studies and patients are often treated without proper evaluation and followup. Computed tomography has also been established in recent decades as a particularly sensitive diagnostic and localizing tool in hemoptysis [8]. Recent reports have demonstrated a higher sensitivity of CT compared to bronchoscopic examination in detecting bronchiectasis [4].The main aim of our study was to find out the most common etiologies of hemoptysis in rural and under developed area in India using computed tomography, chest x-ray, clinical and treatment history. Fiberoptic bronchoscopy report collected if done previously or collected it when it has been done.

MATERIALS AND METHODS

Study design: observational study with a cross-sectional design. The study was conducted on patients complaining of hemoptysis and sent for computed tomography scan to the department of Radiodiagnosis from various department of Bankura Sammilani Medical College, Bankura. Total of 222 patients complaining of hemoptysis were taken up for this cross sectional study. The study was approved by the local ethics committee and informed consent from all patients was obtained prior to commencement of the study.

Detailed clinical history was recorded and the patients were thoroughly examined with a detailed

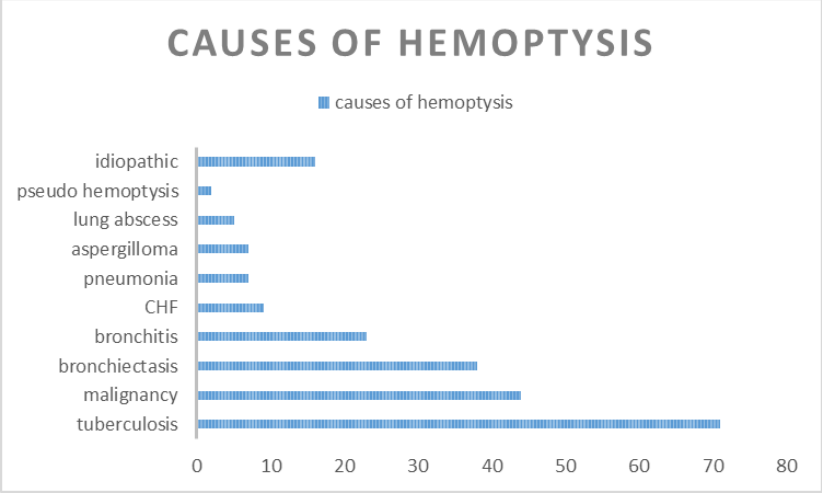
reference to the general physical examination required for respiratory diseases. The complaints which were evaluated in detail included hemoptysis (amount, time of onset in relation to duration of other symptoms), cough, sputum production, chest pain, dyspnea, fever, weight loss, anorexia and symptoms suggestive of malignancy. History of cigarette smoking, cardiopulmonary disease was noted. The presenting quantity of hemoptysis was estimated as best as possible from the patient's history, and was classified arbitrarily according to the severity into mild (<30ml/day), moderate (30-200ml/day), or severe (>200ml/day) depending upon the amount of bleeding. Base line investigations reports like blood for complete hemogram, ESR was done. Sputum for acid fast bacilli, malignant cell and for culture was done. fibreoptic bronchoscopy reports were collected and they were correlated with our radiological findings.

RESULTS

Out of the total of 222 patients with hemoptysis, chest roentgenogram was interpreted as normal or with no localizing abnormalities in 52.Of the 170 patients with localizing findings on the chest roentgenogram, diagnosis was made in 88 by non-bronchoscopic measures. Among them 14 patient was diagnosed to having tuberculosis, 37 having bronchiectasis and 18 were diagnosed of having malignancy.19 patients were diagnosed of having other causes of hemoptysis. Among 134 patients required fibro optic bronchoscopy, 57 patients were diagnosed of tuberculosis and 26 were of malignancy and rest were of having other causes of hemoptysis. The age of the patients ranged between 23 to 85 years. The mean age of the patients was 58.76 years. Outof 222 patients, 145 were males (65.3%), 77 (34.7%) females. 140 were smokers (63%), 82 were nonsmokers. Among smokers, 97% were males. The most common etiologies of hemoptysis in our study were tuberculosis (31.9%) followed by malignancy (19.8%) and bronchiectasis (17.1%). Other less common causes were bronchitis, congestive heart failure, pneumonia, aspergilloma and lung abscess.110 patients had mild hemoptysis(49.5%), 75 had moderate (33.7%), 37 had severe hemoptysis (16.7%).20.9% patients of mild hemoptysis were diagnosed as bronchogenic carcinoma, 31.8% were diagnosed of tuberculosis and 11.8% of the patients with idiopathic hemoptysis were having mild hemoptysis. Of the 75 patients with moderate hemoptysis, 20% were diagnosed as having bronchogenic carcinoma, 33.3% were having tuberculosis as the etiology for hemoptysis. Tuberculosis (29.7%) and bronchiectasis (48.6%) were the most common etiologies in patients with severe hemoptysis.

Table-1: Final diagnosis in patients who presented with hemoptysis

Cause of hemoptysis	Number of patient	Percentage
Tuberculosis	71	31.9%
Malignancy	44	19.8%
Bronchiectasis	38	17.1%
Bronchitis	23	10.4%
Congestive heart failure	9	4%
Pneumonia	7	3.2%
Aspergilloma	7	3.2%
Lung abscess	5	2.3%
Pseudo hemoptysis	2	0.9%
Idiopathic	16	7.2%



Graph-1

DISCUSSION

Hemoptysis is a nonspecific symptom and can occur in about 100 different clinical conditions [2]. Different etiological patterns of hemoptysis are seen in different parts of world. Developed countries have successfully controlled tuberculosis and it is not the major cause of hemoptysis but in our country it remains the most common cause of hemoptysis. Of all the patients in our study, tuberculosis was the most common etiology of hemoptysis in 31.9% cases followed by malignancy in 19.8% and bronchiectasis in 17.1%.

The rate of tuberculosis in our series is high compared to some other reports of developed countries [3,6,7,9,11,15,16,17,20,21,22,24].Carcinoma and bronchiectasis is the most common causes for hemoptysis in those studies. Some studies of developed countries shows higher rate of incidence of tuberculosis than our recent study [5, 8, 13, 14] but those studies were done decades ago. Although tuberculosis is still the most common cause of hemoptysis in our study and incidence has decreased in comparison with other studies [18] from India where 79.2% patient with hemoptysis were diagnosed with tuberculosis. But In comparison to the recent studies in other part of India, our study area has higher percentage of Tuberculosis and Malignancy inpatient with hemoptysis [12, 22] (Table no.2). This decrease in the incidence of tuberculosis can be attributed to better and newer tuberculosis control programme, in which both the diagnosis and the treatment is free and directly observed, what is called as Directly Observed Treatment, Short-course (DOTS). The incidence of bronchiectasis in our study was 17.1% which is almost same to that of many other studies from developing countries.

In our study malignancy was the second most common cause (19.8%). We observed that the patients with malignancy most of the times had mild hemoptysis.

Hemoptysis doesn't always suggest active tuberculosis. Hemoptysis may be present even when the disease is inactive or when the patient is on antitubercular treatment (ATT). In our study, 20 patients who presented with hemoptysis had inactive tuberculosis.

Table-2: Recent studies and present scenario of hemoptysis in INDIA

program	program	program	program	program	program	program	program	program	program
Shah *et al*. [22]	18.6	16.5	7.8	27.6	3.3	4.9	_	3.3	13.2
Kumar *et al*. [12]	2.5	20	6	24	2.38	6	_	2	37.1
Present study	19.8	17.1	10.4	31.9	2.3	3.2	_	4	11.3

CONCLUSION

We conclude that pulmonary tuberculosis still remains the most common cause in India. Hemoptysis even if mild should be extensively evaluated as malignancy is the second most common cause in our setting. From this study we came to a point that, though the prevalence of tuberculosis has decreased in recent era but in comparison to other part of India rural and under developed part of West Bengal has slightly more prevalence of tuberculosis and lung malignancy. So the physician should be more careful treating a patient of hemoptysis and health care system should give special care for this areas.

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