



## Original Article

# Aetiological Pattern of Haemoptysis in a Tertiary Level Hospital in Bangladesh

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### Abstract

To identify the causes of haemoptysis and to diagnose the diseases clinically and cost effective laboratory investigations in our situation. Fifty consecutive cases of haemoptysis admitted at Rajshahi Medical College Hospital, Rajshahi during 2000-2001 were prospectively studied. Pulmonary tuberculosis was the commonest found in 19 (38%) cases. Tubercular bacilli could be isolated in 5 (26.31%) of the cases. Eight (16%) patients were mitral valvular diseases. Bronchial carcinoma was 4(8%) of the series. Three patients (6%) were lung abscess. Six patients (12%) had bronchiectasis. Five patients (10%) had pneumonia. Remaining five (10%) patients were miscellaneous aetiology. In the present series it has been found that pulmonary tuberculosis and mitral valvular disease comprise 54% of the cases. Chest X-ray and sputum examination were found to be the two most useful investigations necessary for aetiological diagnosis of haemoptysis. Within limited resources the aetiological diagnosis of haemoptysis can easily be done in the majority of cases by doing chest X-ray and sputum examination in our country.

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### Introduction

Haemoptysis is a common medical problem and may present as an acute life-threatening emergency, which requires immediate attention and intervention. Haemoptysis may vary from streaking of sputum to coughing up massive amount of blood. The most common site of bleeding is the airway i.e. tracheo bronchial tree which can be affected by inflammation (acute or chronic bronchitis, bronchiectasis) or neoplasm (bronchogenic carcinoma, endobronchial metastatic carcinoma or bronchial carcinoid tumour). Blood originating from the pulmonary parenchyma can

be either from a localized source, such as an infection (Pneumonia, lung abscess, tuberculosis) or from a process diffusely affecting the parenchyma i.e. coagulopathy. Disorders primarily affecting the pulmonary vasculature include pulmonary embolic disease and those conditions associated with elevation of pulmonary venous and capillary pressure e.g. Mitral stenosis or left ventricular failure.<sup>1</sup>

Infectious diseases occur most frequently in Bangladesh due to various sociodemographic factors e.g. Socio-economic status, education, nutrition, environmental pollution and sharing of

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bedroom etc. Recent studies indicate that bronchitis and pulmonary tuberculosis are two most common causes of haemoptysis. Bronchogenic carcinoma and bronchiectasis also represent the frequent causes of massive haemoptysis.

A retrospective case study shows that out of 23 patients with life threatening haemoptysis, 39% patients had active pulmonary tuberculosis and 39% patients had post tuberculous bronchiectasis.<sup>2</sup>

In another study, out of 536 patients with pulmonary malignancy, haemoptysis was present in 21% cases. Haemoptysis as the initial sign of pulmonary malignancy occurs mostly in patients with centrally located tumour.<sup>3</sup>

Environmental pollution has emerged as a major health hazard in our country which is likely to increase respiratory diseases and alter the aetiological pattern of haemoptysis in our country over the years.

It is very much fortunate that the patient seeks medical advice as soon as he or she develops haemoptysis, because this symptom is due frequently to serious disease and in many instances is the early sign which can lead to an early diagnosis if proper investigations are carried out promptly.

Haemoptysis is the common presenting feature of various diseases responsible for major morbidity and mortality. Aetiological pattern in our country is different than that of developed countries. Limited study has been done on this in our country. Sophisticated investigation facilities such as CT scan, bronchoscopy etc, are only available in limited centres and we have to diagnose and treat cases within our limited resources. So a study on haemoptysis will be helpful for prompt diagnosis and management of our patients within limited resources which this study aims.

## Material and Methods

Fifty consecutive cases of haemoptysis admitted in the medical wards of Rajshahi Medical College and Hospital, Rajshahi over a period of one year

from July 2000 to July 2001 were prospectively studied.

After ascertaining that the patient has had haemoptysis, detailed history and clinical examination was supplemented by routine blood, sputum, stool, urine examinations and chest x-ray posteroanterior view. Other special investigations were done in selected cases to establish the diagnosis.

At Rajshahi, sophisticated investigations like CT, Bronchoscopy are not available, so I have given maximum emphasis on history, clinical examination, chest x-ray, sputum examination and other supportive investigations.

Table describes the record sheet which were duly filled in for each individual cases who left hospital before investigations were complete and diagnosis was made were not included in the study.

Paediatric age group (Below 12 years) patient was not included in this study.

## Results and Observations:

**Table-I :** Different causes of haemoptysis among 50 cases.

Diseases	No. of patients	Percent
Pulmonary tuberculosis	19	38
Mitral valvular heart disease	8	16
Bronchiectasis	6	12
Pneumonia	5	10
Bronchogenic carcinoma	4	8
Lung abscess	3	6
Idiopathic thrombocytopenic purpura	1	2
Acute myeloid leukaemia	1	2
Acute bronchitis	1	2
Non-specific respiratory tract infection	1	2
Rickettsial fever	1	2
Total	50	100

Pulmonary tuberculosis is the most common cause of haemoptysis (38%). Mitral valvular disease was the next common cause (16%).

**Table-II :** Describes the distribution of age under various aetiology.

Diasese	12-20 Yrs.		21-30 Yrs.		31-40 yrs.		41-50 Yrs.		51-60 Yrs.	
	No.	%	No.	%	No.	%	No.	%	No.	%
Pulmonary tuberculosis	1	2	6	12	8	16	2	4	2	4
Mitral valvular heart disease	4	8	2	4	2	4	-	-	-	-
Bronchiectasis	2	4	2	4	-	-	-	-	2	4
Pneumonia	-	-	2	4	3	6	-	-	-	-
Bronchogenic carcinoma	-	-	-	-	-	-	1	2	3	6
Lung abscess	1	2	1	2	1	2	-	-	-	-
Idiopathic thrombocytopenic purpura	-	-	1	2	-	-	-	-	-	-
Acute myeloid leukaemia	-	-	1	2	-	-	-	-	-	-
Acute bronchitis	-	-	1	2	-	-	-	-	-	-
Non-specific tract infection respiratory	1	2	-	-	-	-	-	-	-	-
Rickettsial fever	-	-	1	2	-	-	-	-	-	-
Total	9	18	17	34	14	28	3	6	7	14

The mean age of the patient with standard deviation in the series was 32.84±12.49 years a range from twelve to sixty

**Table-III :** Shows the gender incidence in various causes of haemoptysis in the series.

Disease	Male patients		Female patients	
	No.	%	No.	%
Pulmonary tuberculosis	13	26	6	12
Mitral valvular heart disease	4	8	4	8
Bronchiectasis	5	10	1	2
Pneumonia	5	10	-	-
Bronchogenic carcinoma	3	6	1	2
Lung abscess	3	6	-	-
Idiopathic thrombocytopenic purpura	1	2	-	-
Acute myeloid leukaemia	1	2	-	-
Acute bronchitis	1	2	-	-
Non-specific respiratory tract infection	-	-	1	2
Rickettsial fever	1	2	-	-
Total	37	74	13	26

This series included 37 male (74%) and 13 (26%) female, a ratio of about 3:1. Of the tuberculosis patients 13 (68.42%) were male and 6 (31.5%) were female.

## Discussion

The causes of haemoptysis has been studied in different countries including our country. In a prospectively studied series the aetiology revealed, tuberculosis 21%, cancer 30% and sequelae of tuberculosis 9%. But there is a portion of patients for whom the cause of the haemoptysis cannot be found.<sup>4</sup>

In Bangladesh, in a series of 30 patients, the causes of haemoptysis as pulmonary tuberculosis 36.6%, bronchiectasis 20%, bronchial carcinoma 10%, mitral stenosis 10%, bacterial pneumonia 6.7%, lung abscess, chronic bronchitis, amoebic liver abscess and tropical eosinophilia 3.3% each, 3.3% of cases were undiagnosed.<sup>5</sup> In another study at the IDCH, Dhaka, the causes of haemoptysis were pulmonary tuberculosis 82.3%, chronic bronchitis 1.25%, pneumonia, pneumo-thorax and chest injury each contributed 62%. And undiagnosed 1.25%.<sup>6</sup>

In another study in Bangladesh consisting of 40 cases, the causes were pulmonary tuberculosis 40%, mitral stenosis 17.5%, bronchial carcinoma and lung abscess 7.5% each, bronchiectasis and metastatic carcinoma in the lungs 5% each. And others 17.5%.<sup>7</sup> However none of these studies were in recent past.

There were only fifty cases in this series to determine the aetiological pattern of haemoptysis. In this series of fifty patients with haemoptysis, pulmonary tuberculosis was 38%, mitral stenosis 16%, bronchiectasis 12%, pneumonia 10%, bronchial carcinoma 8%, lung abscess 6% and others like idiopathic thrombocytopenic purpura (ITP), acute myeloid leukaemia (AML), acute bronchitis, non-specific respiratory tract infection and rickettsial fever 2% each.

The incidence of pulmonary tuberculosis found in this series and other series in our country<sup>5,6,7</sup> are higher than that of other countries. It indicates the fact that pulmonary tuberculosis is still prevalent in this part of the world. The incidence of haemoptysis due to mitral valvular disease is also high (16%) in this series than in the other countries. The incidence of bronchial carcinoma (8%) quite well coincides with the study in our country (7.5%)<sup>7</sup> but do not coincides with other workers. This might be due to small number of cases in this series.

.In this series it is quite apparent that the patients with pulmonary tuberculosis were mostly younger with only one patient who was below 20 years and four patients above 40 years of age. These findings are quite similar as pointed out by other workers.<sup>8</sup> The patients with bronchial carcinoma were older. All of them were above the age of 40 years. .

These findings mostly correspond with those in other countries and also in our country. The high incidence of bronchial carcinoma among the male is worldwide.<sup>7,8</sup>

Fortunately all the fifty cases in this series could be diagnosed within limited investigation

facilities. In many series there are large numbers of cases that remain undiagnosed even after the thorough investigation including sophisticated ones. Therefore if common causes of haemoptysis as found in this study is kept in mind while managing a case of haemoptysis in our country, diagnosis will be easy in most of the cases.

Chest X-ray and sputum examination are the two most important investigations for diagnosing the aetiology of haemoptysis. ESR and FNAC are also very useful. Costly and sophisticated investigations like CT scan, Bronchoscopy and sputum culture for AFB are not commonly needed in our situation although they are essential for early diagnosis.

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