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### RESEARCH ARTICLE

#### EVALUATION OF PATIENTS WITH HEMOPTYSIS ATTENDING THE DEPARTMENT OF PULMONOLOGY SANTHIRAM MEDICAL COLLEGE.

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#### Manuscript Info

##### Manuscript History

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#### Abstract

**Objective:** To evaluate hemoptysis among patients who attended the department of pulmonary medicine, Santhiram medical college and general hospital.

**Material And Methods:** This was a descriptive cross sectional study done on patients with at least one episode of hemoptysis attending to the Department of pulmonary medicine, Santhiram medical college and general hospital from January 2015 to August 2016. All the patients are evaluated by -Chest x-ray pa-view, CT-chest, Sputum for culture and sensitivity, Sputum for KOH mount, Sputum for AFB, Bronchoscopy, Upper airway and nasal examination, Complete blood picture, Coagulation profile, ECG, Complete urine examination, ICTC, 2d-Echo (if necessary). The final diagnosis is noted and the data will be statistically analysed.

**Results:** The age of the patients ranged from 21-75 years with a mean age of 49.42 years. Predominant age group was 41-60 years accounting for 49%. 48% had history of smoking and all the smokers in the study were males. Hypertension was the most common associated medical condition (27%) followed by Diabetes Mellitus (22%). Tuberculosis was the most common underlying lung disease from the history (36%). Consolidation was the most common radiographic feature in 39% patients. Suspected clinical diagnosis was made in most of the cases. Tuberculosis was the most common final diagnosis of our study. Out of 34 cases, 21 cases were diagnosed by sputum for AFB and remaining 13 cases were diagnosed with the help of Fibre-optic bronchoscopy. 5 cases out of tuberculosis patients were retro-viral positive. All the retroviral positive cases (5%) were diagnosed as Tuberculosis. Of all the 20 cases of bronchiectasis 16 cases were confirmed by HRCT and remaining 4 showed characteristic clinical features and changes of bronchiectasis on chest radiographs. 13 cases (13%) were diagnosed as lung cancer, out of which 6 cases were squamous cell carcinoma, 2 cases were small cell carcinoma, 2 cases were secondaries in the lung, 1 case was adeno carcinoma, 1 case was poorly differentiated cell carcinoma and 1 case was carcinoid. Pneumonia was present in 9 cases (9%) and bacterial infection was the most common cause. 6 cases (6%) were diagnosed as Chronic bronchitis. All the cases were males with positive history of smoking. Diagnosis was made based on clinical history, chest radiograph, chest

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CT findings and spirometry. In 5 cases hemoptysis was unexplained by chest radiograph, chest CT and fibre-optic bronchoscopic evaluation and was diagnosed as idiopathic hemoptysis. 3 cases (3%) were diagnosed as lung abscess and diagnosis was confirmed by chest CT in all the cases. 1 case was diagnosed as adenoma, 1 case was diagnosed as pulmonary embolism based on CT pulmonary angiogram, chest CT, bilateral lower limb venous colour Doppler, 2D-Echo and 1 case had foreign body. Out of 100 cases, 26 cases had streaky hemoptysis. Mild hemoptysis was present in 38 cases. Moderate hemoptysis was present in 25 cases. Severe hemoptysis was present in 9 cases. Life threatening hemoptysis was present in 3 cases. Out of the 3 cases with life threatening hemoptysis, 2 were sputum positive tuberculosis and 1 had bilateral bronchiectasis. Out of the 100 cases 80 cases were managed conservatively. Ventilator support was provided to 19 cases. 1 bilateral bronchiectasis case with recurrent hemoptysis was referred for therapeutic embolization.

**Conclusion:** Tuberculosis was the most common final diagnosis in our study. It is also evident that Squamous cell carcinoma was the most common malignancy surfaced out in our study. Most of the cases presented with mild hemoptysis. Tuberculosis is the most common cause of life threatening hemoptysis.

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## ..... Introduction:-

The coughing up of blood is termed as hemoptysis. Hemoptysis is defined as the expectoration of blood that originates from the lower respiratory tract. Bleeding from the upper airways is to be excluded. Spectrum of hemoptysis varies from blood streaked sputum to coughing out large amount of blood. Hemoptysis is a common clinical problem reported to be the cause of attendance in 7-15% of patients coming to chest clinics<sup>52</sup>. In most cases hemoptysis is a self-limiting event but in fewer than 5% it may be severe or massive, representing a life-threatening condition that warrants urgent investigations and treatment. The severity of haemoptysis has been arbitrarily divided depending upon the amount of bleeding into

Mild: Hemoptysis of less than 100ml blood loss per day.

Moderate: Hemoptysis of 100-150ml blood loss per day.

Severe: Hemoptysis of 150-200ml blood loss per day.

Massive: Hemoptysis of >500ml blood expectorated per day or rate of blood loss >150ml /hr or 100ml blood loss per day for more than 3 days.

Because of the practical difficulties of quantifying the volume of expectorated blood, others have proposed the term life-threatening hemoptysis to indicate hemoptysis accompanied by measurable parameters, such as abnormal gas exchange and hemodynamic instability, for patients in need of urgent resuscitation and treatment. Asphyxia due to the flooding of the airways rather than exsanguination is usually the cause of death, and it is commonly accompanied by cardiovascular collapse. Fortunately, massive hemoptysis is rare, occurring in 1% to 4% of patients with hemoptysis<sup>42,68</sup>. However, mortality rates as high as 80% suggest that all hemoptysis, regardless of amount, should be taken seriously<sup>2,28</sup>.

In hemoptysis, the blood generally arises from the bronchial circulation, except when pulmonary arteries are damaged by trauma, by erosion of a granulomatous or calcified lymph node or tumour, or, rarely, by pulmonary arterial catheterization or when pulmonary capillaries are affected by inflammation. Bleeding from the pulmonary veins is best characterized in cardiac disease such as mitral stenosis or mitral regurgitation

**Differential Diagnosis of Hemoptysis:**

Source other than the lower respiratory tract: Upper airway (nasopharyngeal) bleeding, Gastrointestinal bleeding

**Tracheobronchial source:**

Neoplasm (bronchogenic carcinoma, Endobronchial metastatic tumour, Kaposi's sarcoma, Bronchial carcinoid, Bronchitis (acute or chronic), Bronchiectasis, Broncholithiasis, Airway trauma, Foreign body Pulmonary parenchymal source: Lung abscess, Pneumonia, Tuberculosis, Mycetoma ("fungus ball"), Good pasture's syndrome, Idiopathic pulmonary hemosiderosis, Wegener's granulomatosis, Lupus pneumonitis, Lung contusion.

Primary vascular source: Arteriovenous malformation, Pulmonary embolism, Elevated pulmonary venous pressure (especially mitral stenosis), Pulmonary arteries rupture secondary to balloon-tip pulmonary artery catheter manipulation.

Miscellaneous and rare causes: Pulmonary endometriosis, Systemic coagulopathy or Use of anticoagulants or thrombolytic agents.

Hemoptysis is usually considered as an indication of pulmonary tuberculosis, but may be associated with various other causes. Present study will draw attention towards various causes of hemoptysis. Evaluation is to find treatable cause and at times, to reassure the patient.

**Review of literature:**

In a study conducted by Rajendra Prasad et al<sup>66</sup>, of the 476 patients with hemoptysis included in this study, 352 were males and 124 were females. Pulmonary tuberculosis was the leading cause of hemoptysis. There were 377 (79.2%) patients in the pulmonary tuberculosis group, 25 (5.7%) in the neoplasm group, 19 (4.0%) in the chronic bronchitis group, 18 (3.8%) in the bronchiectasis group, and 35 (7.3%) patients with hemoptysis due to other causes.

In a study conducted by Conlan AA et al<sup>19</sup>, the causes of hemoptysis among 123 patients were active pulmonary tuberculosis (47), bronchiectasis (37), chronic necrotizing pneumonia (11), lung abscess (six), lung cancer (six), bronchovascular fistula (five), primary pulmonary fungal infection (four), and miscellaneous (seven).

In a study conducted by Pragati Rao et al<sup>21</sup> out of 140 patients with haemoptysis 121 (86.42%) were Males and 19 (13.5%) were Females. Amongst the known causes Pulmonary tuberculosis was highest 91 (65%), followed by lung neoplasm 14 (10%), pneumonia 9 (6.4%), bronchiectasis 6 (4.2%), lung abscess 4 (2.8%). COPD, Tropical pulmonary eosinophilia and Iatrogenic causes are 2 cases each (1.4%). Other causes like pulmonary embolism, bronchiolitis obliterans, systemic sclerosis, invasive aspergillosis, allergic broncho pulmonary aspergillosis (ABPA), Kartagener's syndrome, small airway disease are 1 case each (0.7%). 3 patients (2.1%) from total study had unknown aetiology.

During the 10-year study period by Xiao-Dong Xia et al<sup>94</sup> out of 112 patients, etiology of hemoptysis included bronchiectasis in 50 patients (44.6%), tuberculosis in 16 patients (14.3%), lung cancer in 5 patients (4.5%), bacterial pneumonia in 25 patients (22.3%), and aspergillosis in 4 patients, (3.6%). In 12 of 112 patients, the etiology remained cryptogenic, including 11 male and 1 female. The mean age was  $44.67 \pm 17.70$  years (range 21-85 years) with a mean smoking consumption of  $18.50 \pm 11.15$  pack-years (range 5-40 years).

In a study conducted by Santiago et al<sup>77</sup> out of 264 patients who underwent fiberoptic bronchoscopy for unexplained hemoptysis to determine the various causes of hemoptysis, bronchogenic carcinoma (29%), bronchitis (23%), and idiopathic hemoptysis (22%) accounted for the majority of causes of hemoptysis.

A retrospective analysis of 208 patients with hemoptysis by Hirshberg B et al<sup>37</sup> bronchiectasis (20%), lung cancer (19%), bronchitis (18%), and pneumonia (16%) accounted for most causes of hemoptysis. In contrast to older studies, active tuberculosis was a rare finding (1.4%). Bronchiectasis and bleeding diathesis were major causes of moderate to severe hemoptysis while bronchitis and lung cancer were commonly associated with milder degrees of bleeding. CT scan was the most sensitive diagnostic test when employed alone, with a positive yield of 67%. However, it failed to locate at least three cases of lung cancer. When combining a CT study together with a bronchoscopy, the positive yield increased to 93%.

According to study by Abal AT et.al<sup>11</sup> who evaluated 52 patients with haemoptysis, there were 42 males (80.8%) and 10 (19.2%) females, with a mean age of 42.2 (16-86) years. Of these, 26.9% were Kuwaiti nationals, 36.5% were Arab non-Kuwaiti nationals, 34.6% were Asians and 1.9% were other nationals. The aetiologies of haemoptysis were bronchiectasis (21.2%), old pulmonary tuberculosis with bronchiectasis (17.3%), active pulmonary tuberculosis (15.4%), bronchitis (5.8%), aspergilloma, rheumatic heart disease and carcinoid (1.9%). Aetiology could not be identified in 25% of patients.

A retrospective analysis of 108 patients by admitted to the hospital for hemoptysis was done by Fidan A et.al<sup>24</sup> in the year 2000. Of the cases, 79 were men and 29 were women, and the mean age was 51.74 +/- 17.51. In 77 of the cases it was the first attack, while in 31 it was recurrent. Lung cancer was the leading cause of hemoptysis (34.3%) followed by bronchiectasis (25.0%), tuberculosis (17.6%), pneumonia (10.2%) and pulmonary embolism (4.6%).

A study conducted by Bo Ram Lee et. Al<sup>8</sup> regarding the hemoptysis, 70 cases out of 221 cases were mild (31.5%), 36 cases moderate (16.2%), and 115 cases massive hemoptysis (52.0%). As for the causes, 72 cases were bronchiectasis (32.6%), 41 cases active pulmonary tuberculosis (18.5%), 24 cases fungus ball (10.8%), 13 cases lung cancer (5.9%), 45 cases other causes (20.3%), and 26 cases unknown cause (11.7%). Other causes included lung abscess, necrotizing pneumonia, pulmonary thromboembolism, pulmonary sequestration, arteriovenous malformation, catamenial pneumothorax, etc. As for the causes of 115 massive hemoptysis patients, 39 cases were bronchiectasis (39.9%), the highest frequency, followed by 24 cases of active pulmonary tuberculosis (20.9%), 16 cases of pulmonary fungus ball (13.9%), 7 cases of lung cancer (6.1%), 18 cases of other causes (15.7%), and 11 cases of unknown causes (9.6%).

### Methodology:-

This is a descriptive cross sectional study done on patients with at least one episode of hemoptysis attending to the Department of pulmonary medicine, Santhiram medical college and general hospital from January 2015 to August 2016.

### Sample size:

100 patients were included in the study.

### Inclusion criteria:

All the patients with at least one episode of hemoptysis attending the department of pulmonary medicine were included in the study.

### Exclusion criteria:

1. Patients with hematemesis were excluded from the study.
2. Patients with hemoptysis from upper airway bleed were excluded from the study.

### Data analysis:

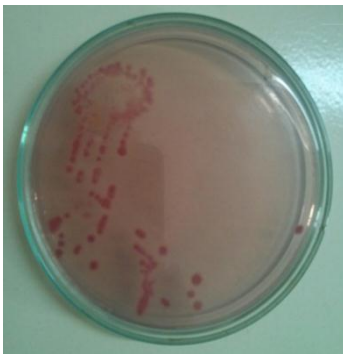
The following softwares were used for the data analysis:

1. Microsoft Excel-2013 for entering the data.
2. SPSS version 21 for cross tabulation and analysis.

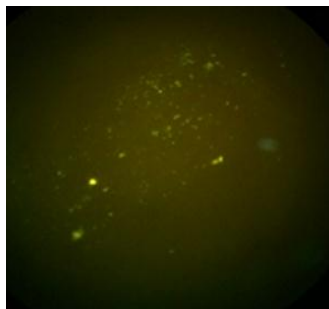
PATIENTS WERE EVALUATED BY Chest x-ray pa-view, CT-chest, Sputum for culture and sensitivity, Sputum for KOH mount, Sputum for AFB, Sputum for malignant cells, Bronchoscopy, Upper airway and nasal examination, Complete blood picture, Coagulation profile, ECG, Complete urine examination, ICTC, 2d-Echo (if necessary),USG guided FNAC.



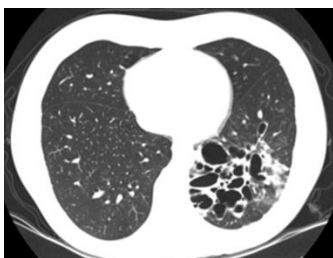
**Chest x-ray of carcinoid case:**



**Culture plate of klebsiella:**



**Afb under fluorescent microscopy:**



**Ct chest bronchiectasis:**

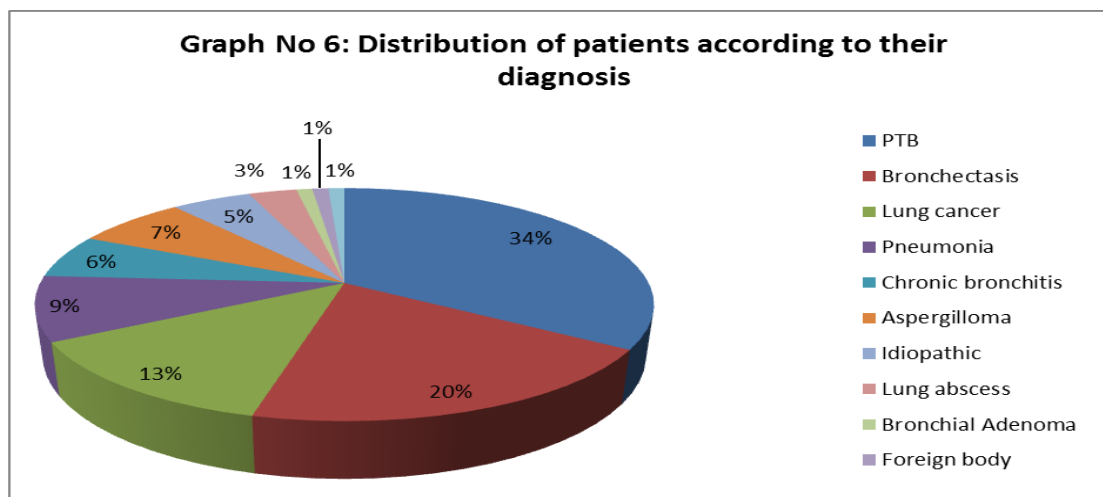


**Fob of endobronchial growth:**

#### **Results:-**

100 Patients were included in our study. Out of 100 patients 25% were in 21-40 year age group, 49% were in 41-60 year age group and 26% were in >60 year age group. The mean age of the patients was 49.42 years with a range of 24-75 years. Out of 100 patients 68% were males and 32% were females. Out of 100 patients history of smoking was present in 37%, 11% were ex-smokers. All the smokers in the study were males. 52% patients did not have smoking history. History of alcohol intake was present in 33%. In our study out of 100 patients 36% had history of pulmonary tuberculosis, 16% had history of COPD, 11% had history of asthma and 37% did not have any history of underlying lung disease. Among 100 patients of the study, 22% were known diabetics and 27% were known hypertensives. Chest X-ray PA view were done on all the 100 patients in which pulmonary lesions were detected in 75%. Chest CT scan was done in 71% of patients of which it was helpful for the diagnosis in 62% (87.32%) of

patients. Bronchoscopy was performed on 57 cases. In our study sputum for AFB was done in all the patients and in the suspected case, with sputum for AFB negative, bronchoscopy was done and BAL was collected for microscopic examination of stained smears for AFB. Among the 100 patients with hemoptysis, pulmonary tuberculosis(34%) was the most common cause of hemoptysis followed by bronchiectasis(20%), lung cancer(13%), pneumonia(9%), aspergilloma(7%), chronic bronchitis(5%), lung abscess(3%), pulmonary embolism(1%), foreign body(1%), adenoma(1%). Idiopathic hemoptysis was present in 5% of cases. Out of 100 cases with hemoptysis 34 were diagnosed with tuberculosis. 21% showed positive result in sputum test for AFB and 13% were diagnosed with the help of Fiber optic bronchoscopy(FOB). BAL for AFB was positive in 13 cases. Among the 34 cases diagnosed with tuberculosis 5 patients were retroviral positive. In our study, Consolidation was the most common (38.33%) radiographic feature among tuberculosis patients. 20 among 100 cases of the study were diagnosed with bronchiectasis. Out of 20 (20%) patients, diagnosis of bronchiectasis was done with HRCT in 16(16%) patients and in 4 (4%) patients based on clinical examination and Chest radiograph. Among 13 patients with lung cancer, all of them showed abnormalities from chest CT. Bronchoscopy was performed in all the 13 cases and in 12 cases it was helpful for the diagnosis. Positive results for malignant cytology were seen in 9 cases. Among 9 cases, 2 cases were diagnosed by bronchoalveolar lavage, 3 cases were diagnosed with bronchial brushings and remaining 4 cases were diagnosed with bronchial biopsy. 4 cases were diagnosed by USG guided FNAC. Most of the patients were found to have primary lung cancer and the squamous cell carcinoma was the predominant histological type. 2 cases among 13 cases had metastasis to lung. One case had cervical carcinoma as primary and the histology type was squamous cell carcinoma. Another case had pancreatic lung carcinoma as primary and the histological type was adeno carcinoma. All the 7(7%) cases of fungal ball were diagnosed with chest CT. Bronchoscopy was performed among 4 cases of which 2 were having active bleeding from bronchus. Among 6 cases diagnosed as chronic bronchitis, detailed history was taken, clinical examination and evaluation with chest radiograph, spirometry, chest CT, bronchoscopy and relevant blood and sputum investigations were done to confirm the diagnosis. All the 6 cases were males with positive history of smoking. In our study among 5 cases, chest CT, bronchoscopy and other relevant investigations showed no evidence of any clear cause and were diagnosed as idiopathic hemoptysis. 17 among 100 patients had history of recurrent hemoptysis. In our study higher rate 47.05%, of recurrent, hemoptysis was seen in patients with bronchiectasis. Out of 100 cases, 26 cases had streaky hemoptysis. Mild hemoptysis was present in 38 cases. Moderate hemoptysis was present in 24 cases. Severe hemoptysis was present in 9 cases. Life threatening hemoptysis was present in 3 cases. Among 34 tuberculosis patients with hemoptysis, streaky hemoptysis was present in 6 cases, mild hemoptysis was present in 12 cases, moderate hemoptysis was present in 26 cases. Severe hemoptysis was present in 8 cases. Life threatening hemoptysis was present in 3 cases.



### Discussion:-

Male to female ratio of our study was 2.125:1. In the study by Subodh K Nawal et al<sup>85</sup> male to female ratio was 2.23:1. Mean age of the patients in our study was 49.42 years. Mean age of the patients in the study by Y.J.Lee et al<sup>95</sup> of 228 patients mean age was 51.6 years and in study by Naveed Nazir Shah et al<sup>60</sup> the mean age was 58.76 years. In our study we had male preponderance and number of patients above the age of 40 years was more. The possible reason for this is smokers are predominantly males. However our study was conducted in a rural setup where females do not present early in the disease process.

In our study, history of smoking was present in 41% of patients. All the smokers in the study were males. In the study by Agarwala A et al<sup>4</sup> history of smoking was present in 46.66% (28) of patients and all the smokers were males. In a study conducted by Naveed Nazir Shah et al<sup>60</sup> history of smoking was present in 60.9% of patients and 90% were males. In our study 17% cases presented with recurrent hemoptysis. In the study conducted by Y.J. Lee et al<sup>95</sup> recurrent hemoptysis was present in 19.6% of patients. In our study higher rate of recurrent hemoptysis was seen in patients with bronchiectasis. In a study by Fidan A et al<sup>24</sup> high rate of recurrent hemoptysis was seen in patients with bronchiectasis similar to our study.

Out of 100 patients the most common etiology for hemoptysis in our study was, tuberculosis (34%) followed by bronchiectasis (20%), malignancy (13%), pneumonia (9%), aspergilloma (7%), chronic bronchitis (6%), idiopathic (5%), lung abscess (3%), adenoma (1%), foreign body (1%) and pulmonary thromboembolism (1%).

In our study, tuberculosis is the most common cause of hemoptysis in (34% of cases). In the study conducted by Naveed Nazir Shah et al<sup>60</sup> tuberculosis was the most common etiology hemoptysis and is seen in 27.6% cases. In the study conducted by K.R. Patel et al<sup>46</sup>, tuberculosis was associated in 60% of the patients with hemoptysis. In a study by Rajendra Prasad et al<sup>66</sup> Pulmonary tuberculosis was the leading cause of hemoptysis and was present in 79.2% of patients.

Bronchiectasis was the second common cause in our study. Among 20 (20%) of cases with bronchiectasis, 16 cases were diagnosed by HRCT and 4 cases were diagnosed based on clinical examination and chest X-ray PA view as the patients were not willing for chest CT. Bronchoscopy was performed in 8 cases with bronchiectasis out of which 5 cases showed abnormality. In a study by Bo Ram Lee et al<sup>8</sup> all the 72 cases of bronchiectasis were diagnosed by chest CT. Bronchoscopy was performed in (47.2%) 34 cases of which (70%) 24 cases showed abnormality. Bronchiectasis as a cause of hemoptysis, in a study done by Abal AT et al<sup>1</sup> was 21.2%, Bo Ram Lee et al<sup>8</sup> was 32.6%, Saunders and Smith<sup>82</sup> was 28.5%, Mc Guinness et al<sup>55</sup> was 25%, Boaz Hirshberg et al<sup>37</sup> was 20%. The rate of bronchiectasis is very low in the study by Santiago et al<sup>77</sup> (0.5%) and Johnston and Reisz<sup>43</sup> (1%).

In our study lung cancer was the cause of hemoptysis in 13% cases and most (84.61%) of the patients were found to have primary lung cancer and the squamous cell carcinoma was the predominant histological type. In a study by F. Soares Pires et al<sup>22</sup> Lung cancer was diagnosed in 33 patients with hemoptysis and is the 3rd most frequent diagnosis. Most (87.9 %) were found to have primary lung cancer, and adenocarcinoma was the predominant histological type.

In our study, among the patients with haemoptysis and normal CXR incidence of malignancy was 1 case (4%). Incidence of malignancy in patients with haemoptysis and normal CXR in study by Adelman et al was 1 (1.4%) and Jackson et al was 2 (4.1%).

In our study pneumonia was the cause of hemoptysis in 9% of patients and was bacterial in origin in all the cases. In a study by Boaz Hirshberg et al<sup>37</sup>, pneumonia was the cause of hemoptysis in 33 (16%) patients and was bacterial in origin in most cases. . Pneumonia accounted for 6.4 % (9) patients with hemoptysis in the study by D Pragathi rao et al<sup>21</sup>, 11% in study by Santiago et al. (6) and 5% in study by Johnston and Reisz<sup>43</sup>.

In our study, fungal ball was diagnosed in 7% of cases. All the 7 (7%) cases of fungal ball were diagnosed with chest CT. Aspergilloma accounted for 5 (2%) cases among 242 cases in a study by Naveed Nazir Shah et al<sup>60</sup> and 4 cases (3.6%) among 112 patients in the study by Xiao-Dong Xia et al<sup>94</sup>.

In our study bronchitis was present in 6% of cases with hemoptysis. Bronchitis accounts for 37 (18%) cases in the study conducted by Boaz Hirshberg et al<sup>37</sup>. In study conducted by Abal AT et al<sup>1</sup> bronchitis was seen in 3 out of 52 patients accounting for 5.8%. Bronchitis was the etiological factor in 19 (7.8%).

In our study lung abscess was seen in 3 cases (3%) out of 100 patients with hemoptysis and chest CT was done in all the 3 cases. Staphylococcus aureus was isolated by culture and sensitivity of sputum in 2 cases and 1 case showed mixed growth. In a study by Naveed Nazir Shah et al<sup>60</sup> lung abscess was seen in 8 (3.3%). In a study by D Pragathi Rao et al<sup>21</sup> 4 (2.8%) cases were diagnosed to have lung abscess among 140 cases of hemoptysis.

Bronchial adenoma was the cause of hemoptysis in 1% of cases in our study. Bronchial adenoma was seen in 4 (2%) out of 208 patients in a study conducted by Boaz Hirshberg et al<sup>37</sup>. In our study pulmonary thromboembolism is

seen in 1% of patients. In the study conducted by D Pragati rao et al<sup>21</sup> 1 (0.7%) case among 140 cases with hemoptysis was diagnosed as pulmonary embolism.

In our study foreign body was the cause of hemoptysis in 1 (1%) case which presented as atelectasis of lung in chest radiograph. Diagnosis was done with FOB and the foreign body (Analgesic tablet) was removed.

In our study out of 100 cases, 26 cases had streaky hemoptysis. Mild hemoptysis was present in 38 cases. Moderate hemoptysis was present in 24 cases. Severe hemoptysis was present in 9 cases. Life threatening hemoptysis was present in 3 cases.

Out of the 100 cases 80 cases were managed conservatively with supplemental oxygen, fluid resuscitation, positioning of patient on lateral decubitus towards the bleeding site, cough suppressants and styptics.

Ventilator support was provided to 19 cases. 1 case with recurrent hemoptysis was referred for therapeutic embolization.

### Conclusion:-

Tuberculosis was the most common final diagnosis in our study followed by Bronchiectasis, Malignancy, Pneumonia, Aspergilloma, Chronic bronchitis, Idiopathic, lung abscess, pulmonary embolism, adenoma, foreign body. It is also evident that Squamous cell carcinoma was the most common malignancy surfaced out in our study. Most of the cases presented with mild hemoptysis. Tuberculosis is the most common cause of life threatening hemoptysis.

### References:-

1. Abal AT, Nair PC and cherian J. Haemoptysis: aetiology, evaluation and outcome a prospective study in a third-world country. *Respiratory Medicine*. 2001; 95, 548– 52.
2. Adams FV: Respiratory tract hemorrhage: Guide to emergency management. *Hosp Med* 1978;14:66.
3. Adelman M, Haponik EF, Bleecker ER, Britt EJ. Cryptogenic hemoptysis. Clinical features, bronchoscopic findings, and natural history in 67 patients. *Ann Intern Med* 1985;102:829-34.
4. Agarwala A, Basuthakur S, Shamim S, Saha K, Bhattacharya S, Sengupta A. Diagnostic Yield of Fiberoptic Bronchoscopy and CECT Thorax in patients of Haemoptysis with Normal chest X ray. *Int J Med Res Rev* 2015;3(1):57-62.
5. Andersen, PE. Imaging and interventional radiological treatment of hemoptysis. *Acta Radiol* 2006; 47:780–792.
6. Basher AW, Oduwole A, Bhalodkar NC, et al: Fatal hemoptysis during coronary thrombolysis. *J Thromb Thrombolysis* 1996;3:87.
7. Baum GL, Racz I, Bubis JJ, et al: Cystic disease of the lung: Report of eighty-eight cases with an ethnologic relationship. *Am J Med* 1966;40:578.
8. Bo Ram Lee, Jin Yeong Yu, Hee Jung Ban, In Jae Oh, Kyu Sik Kim, Yong Soo Kwon et al.. Analysis of Patients with Hemoptysis in a Tertiary Referral Hospital. *Tuberculosis and Respiratory Diseases* Vol. 73. No. 2, Aug. 2012 Bond D, Vyas H. Viral pneumonia and hemoptysis. *Crit Care Med* 2001; 29:2040-1.
9. Brandstetter RD, Alarakhia N, Coli L, et al: Distal kinking of a pulmonary artery catheter as a cause of fatal hemoptysis. *N Y State J Med* 1984;84:521.
10. Bruzzi JF, Remy-Jardin M, Delhay D, Teisseire A, Khalil C, Remy J. Multi-detector row CT of hemoptysis. *Radiographics*. 2006;26:3–22
11. Cahill BC, Ingbar DH. Massive hemoptysis. Assessment and management. *Clin Chest Med* 1994;15:147-67.
12. Camacho JR, Prakash UB. 46-year-old man with chronic hemoptysis. *Mayo Clin Proc* 1995;70:83-6.
13. Cauldwell WE, Siekert RG, Lininger RE, et al: The bronchial arteries. *Surg Gynecol Obstet* 1948;86:395.
14. Celik P, Gonlugur U, Akin M, Orman A. Hemoptizi olgularmzn analizi. *Heybeliada Tp B'l* 1997; 3: 45–48.
15. Corder R. Hemoptysis. *Emerg Med Clin North Am* 2003;21:421-35.
16. Chun JY, Morgan R, Belli AM. Radiological management of hemoptysis: a comprehensive review of diagnostic imaging and bronchial arterial embolization. *Cardiovasc Intervent Radiol* 2010; 33:240– 250.
17. Cohn RC, Wong R, Spohn WA, et al: Death due to diffuse alveolar hemorrhage in a child with pulmonary veno-occlusive disease. *Chest* 1991;100:1456.
18. Conlan AA, Hurwitz SS, Krige L, Nicolaou N, Pool R. *The Journal of Thoracic and Cardiovascular Surgery* [1983, 85(1):120-124]



19. Culpepper JA, Setter M, Rinaldo JE: Massive hemoptysis and tension pneumothorax following pulmonary artery catheterization. *Chest* 1982;82:380.
20. D Pragati Rao, Ch Ram Niranjana Reddy & A Padmaja. Aetiology of Haemoptysis: Study in a Medical College. *International Journal of Current Medical And Applied Sciences*, 2015, September, 8(1),24-26
21. F. Soares Pires et.al. *Revista Portuguesa de Pneumologia (English Edition)* Volume 17, Issue 1, January–February 2011, Pages 7–14.
22. Ferretti GR, Arbib F, Bertrand B, et al: Haemoptysis associated with pulmonary varices: Demonstration using computed tomographic angiography. *Eur Respir J* 1998;12:989.
23. Fidan A, Ozdoğan S, Oruç O, Salepçi B, Ocal Z, Çağlayan B. Hemoptysis: a retrospective analysis of 108 cases. *Respir Med*. 2002;96(9):677-80
24. Field EC: Bronchiectasis. A long term follow-up of medical and surgical cases from childhood. *Arch Dis Child* 1969;44:551.
25. Finley TN, Aronow A, Cosentino AM, et al: Occult pulmonary haemorrhage in anticoagulated patients. *Am Rev Respir Dis* 1975;112:23.
26. Fireman Z, Yust I, Abramov AL: Lethal occult pulmonary hemorrhage in drug-induced thrombocytopenia. *Chest* 1981;78:358.
27. Gourin A, Garzon AA: Operative treatment of massive hemoptysis. *Ann Thorac Surg* 1974;18:52.
28. Hamilton W, Peters TJ, Round A, et al: What are the clinical features of lung cancer before the diagnosis is made? A population based case-control study. *Thorax* 2005;60:1059-1065.
29. Haponik EF, Chin R. Hemoptysis: clinicians' perspectives. *Chest* 1990; 97: 469–475.
30. Haponik EF, Britt EJ, Smith PL, Bleecker ER. Computed chest tomography in the evaluation of hemoptysis: impact on diagnosis and treatment. *Chest* 1987; 91: 80–85.
31. Harrison TR, Braunwald E. Principles of internal medicine, Hemoptysis. 16th ed., New York Chicago San Francisco London: McGraw-Hill 2005; 207.
32. Harrison TR, Braunwald E. Hemoptysis. In: Harrison's Principles of internal medicine. 15th ed. New York: McGraw-Hill, 2001:203-6.
33. Heimer D, Bar-Ziv J, Scharf SM. Fiberoptic bronchoscopy in patient with haemoptysis and non-localizing chest roentgenogram. *Arch Int Med* 1985; 145: 1427-8.
34. Hicks, GL Jr: Fibrosing mediastinitis causing pulmonary artery and vein obstruction with hemoptysis. *NY State J Med* 1983;83:242.
35. Herth F, Ernst A, Becker HD. Long-term outcome and lung cancer incidence in patients with hemoptysis of unknown origin. *Chest*. 2001;120:1592–1594.
36. Hirsberg B, Biran I, Glazer M, Kramer MR. Hemoptysis: etiology, evaluation, and outcome in a tertiary referral hospital. *Chest* 1997; 112: 440–444.
37. Hsiao EI, Kirsch CM, Kagawa FT, Wehner JH, Jensen WA, Baxter RB. Utility of fiberoptic bronchoscopy before bronchial artery embolization for massive hemoptysis. *AJR Am J Roentgenol*. 2001;177:861–867.
38. Ibrahim, WH. Massive haemoptysis: the definition should be revised. *Eur Respir J* 2008; 32:1131
39. Jean-Baptiste E. Clinical assessment and management of massive hemoptysis. *Crit Care Med* 2000; 28:1642–1647.
40. Jeudy J, Khan AR, Mohammed TL, et al. ACR Appropriateness Criteria hemoptysis. *J Thorac Imaging* 2010; 25:W67–69.
41. Johnston RN, Lockhart W, Ritchie RT, et al: Hemoptysis. *Br Med J* 1960;1:592.
42. Johnston H, Reisz G. Changing spectrum of hemoptysis. *Arch Intern Med* 1989; 149: 1666–1668.
43. Jougon J, Ballester M, Delcambre F, Mac Bride T, Valat P, Gomez F, et al. Massive hemoptysis: what place for medical and surgical treatment. *Eur J Cardiothorac Surg*. 2002;22(3):345-51.
44. Jones DK, Cavanagh P, Shneerson JM, et al: Does bronchography have a role in the assessment of patients with haemoptysis? *Thorax* 1985;40:668.
45. K.R. Patel, Anand K Patel, Nilesh Godhania, Evaluation of patients with hemoptysis attending the chest clinic of tertiary referral hospital. *Int J Res Med*.2015;4(2):91-93.
46. Kagalwalla AF, Rahman A, Taleb A, et al: Pulmonary hemorrhage in association with auto-immune chronic active hepatitis. *Chest* 1993;103:634.
47. Katoh O, Yamada H, Hiura K, et al: Bronchoscopic and angiographic comparison of bronchial arterial lesions in patients with hemoptysis. *Chest* 1987;91:486.
48. Khadra I, Braun SR. Haemoptysis In: Braun SR (ed). *Concise Textbook of Pulmonary Medicine* 1st Edn. Elsevier Science publishing Co., New York, 1989; 603-8.

50. Kron IL, Piepgrass W, Carabello B: False aneurysm of the pulmonary artery: A complication of pulmonary artery catheterization. *Ann Thorac Surg* 1982;33:629.
51. Liebow AA: Patterns of origin and distribution of the major bronchial arteries in man. *Am J Anat* 1965;117:19.
52. Lordan JL, Gascoigne A, Corris PA. The pulmonary physician in critical care \* Illustrative case 7: Assessment and management of massive haemoptysis. *Thorax* 2003; 58:814–819.
53. Massive haemoptysis (editorial). *Br Med J* 1978; 1: 1570.
54. McDonald, DM. Angiogenesis and remodelling of airway vasculature in chronic inflammation. *Am J Respir Care Med* 2001; 164:S39–S45.
55. McGuinness G, Beacher JR, Harkin TJ, Garay SM, Rom WN, Naidich DP. Hemoptysis: prospective high-resolution CT/ bronchoscopic correlation. *Chest* 1994; 105: 1155–1162
56. Miller RR, McGregor DH: Hemorrhage from carcinoma of the lung, *Cancer* 1980;46:200.
57. Moersch HJ: Clinical significance of hemoptysis. *JAMA* 1952;148:1461.
58. Morgenthaler TI, Ryu JH: Clinical characteristics of fatal pulmonary embolism in a referral hospital. *Mayo Clinic Proc* 1995;70:417.
59. Naidich DP, Funt S, Ettenger NA, Arranda C. Hemoptysis: CT bronchoscopic correlation in 58 patients. *Radiology* 1990; 177: 357–362.
60. Naveed Nazir Shah, Manzoor Ahmad Wani, Syed Quibtiya Khursheed, Rakesh Bhargava, Zuber Ahmad, Khurshid Ahmad Dar et al. Etiology of hemoptysis in India Revisited. *Int J Med health Sci* .2016;5(1)
61. Nelson JE, Forman M. Hemoptysis in HIV-infected patients. *Chest* 1996;110:737-43.
62. Palvio DH, Paulsen SM: Primary angiosarcoma of the lung presenting as intractable hemoptysis. *Thorac Cardiovasc Surg* 1987;35:105.
63. Panos RJ, Barr LF, Walsh TJ, Silberman HJ: Factors associated with fatal hemoptysis in cancer patients. *Chest* 1988;94:1008.
64. Poe RH, Israel RH, Marin MG, et al. Utility of fiberoptic bronchoscopy in patients with hemoptysis and a nonlocalizing chest roentgenogram. *Chest* 1988; 93: 70–75.
65. Porzezinska M, Gorzewska A, Drozdowski J, et al. Assessment of hemoptysis etiology among patients hospitalized in Pneumology Department of Medical University of Gdansk in the years 1998-2002. *Pol Arch Med Wewn*. 2005;114:658-63.
66. Prasad R, Garg R, Singhal S, Srivastava P. Lessons from patients with hemoptysis attending a chest clinic in India. *Ann Thorac Med* 2009;4:10-2
67. Pump KK. The bronchial arteries and their anastomoses in the human lung. *Dis Chest*. 1963;43:245–255.
68. Pursel SE, Lindeskog GE: Hemoptysis. *Am Rev Respir Dis* 1961;84:329.
69. Rafferty P, Biggs BA, Crompton GK, et al: What happens to patients with pulmonary aspergilloma? Analysis of 23 cases. *Thorax* 1983;38:579.
70. Reechaipichitkul W, Latong S. Etiology and treatment outcomes of massive hemoptysis. *Southeast Asian. J Trop Med Public Health*. 2005;36:474-80.
71. Reid JM, Jamieson MP, Cowan MD: Unilateral pulmonary vein stenosis. *Br Heart J* 1986;55:599.
72. Reisz G, Stevens D, Boutwell C, Nair V. The causes of hemoptysis revisited. A review of the etiologies of hemoptysis between 1986 and 1995. *Mo Med* 1997;94:633-5.
73. Remy J, Lemaitre L, Lafitte JJ, et al: Massive hemoptysis of pulmonary arterial origin: Diagnosis and treatment. *AJR* 1984;143:963.
74. Remy J, Remy-Jardin M, Voisin C: Endovascular management of bronchial bleeding. In Butler J (ed): *The Bronchial Circulation*. New York, Marcel Dekker, 1992.
75. Revel MP, Fournier LS, Hennebicque AS, et al. Can CT replace bronchoscopy in the detection of the site and cause of bleeding in patients with large or massive hemoptysis? *AJR Am J Roentgenol*. 2002;179:1217–1224.
76. Rogol PR: Fatal hemoptysis due to lung abscess and pulmonary artery fistula. *Chest* 1988;94:441.
77. Santiago S, Tobias J, Williams AJ. A reappraisal of the causes of hemoptysis. *Arch Intern Med* 1991; 151: 2449–2451.
78. Set PA, Flower CD, Smith IE, Chan AP, Twentyman OP, Shneerson JM. Hemoptysis: comparative study of the role of CT and fiberoptic bronchoscopy. *Radiology* 1993;189:677-80.
79. Shawn J Skerrett. Diagnostic testing for CAP. *Clinics in the chest medicine* 1999;20(3):531-543.
80. Sirajuddin A, Mohammed TL. A 44-year-old man with hemoptysis: a review of pertinent imaging studies and radiographic interventions. *Cleve Clin J Med*. 2008;75:601–607.
81. Small M, Lowe GD, Davidson K, et al: Bronchial carcinoma in von Willebrand's disease: Successful removal after hemostasis with lyophilized cryoprecipitate. *Arch Intern Med* 1983;143:1604.

82. Smith LJ, Katzenstein AA: Pathogenesis of massive pulmonary hemorrhage in acute leukemia. Arch Intern Med 1982;142:2149.
83. Spark RP, Sobonya RE, Armbruster RJ, et al: Pathologic bronchial vasculature in a case of massive hemoptysis due to chronic bronchitis. Chest 1991;99:504.
84. Stinghe RV, Manguile VG: Hemoptysis of bronchial origin occurring in patients with arrested tuberculosis. Am Rev Respir Dis 1970;101:84.
85. Subodh K. Nawal, Mamta R. Heda. Hemoptysis: A Prospective Analysis of 110 Cases. Asian Journal of Biomedical and Pharmaceutical Sciences, 2013, 3: (21), 1-3
86. Takahashi N, Akusawa H, Kisohara A, et al . A clinical review of hemoptysis. Journal of the Japan Broncho-Esophagological Society. 1999;50:391-5.
87. Thirumaran M, Sundar R, Sutcliffe IM, et al. Is investigation of patients with haemoptysis and normal chest radiograph justified? Thorax. 2009;64:829.
88. Thun-How Ong, Philip Eng. Massive hemoptysis requiring intensive care. Intensive care med 2003;29:317-320.
89. Tsoumakidou M, Chrysafakis G, Tsiligianni I, et al. A prospective analysis of 184 hemoptysis cases: diagnostic impact of chest X-ray, computed tomography, bronchoscopy. Respirat ion. 2006; 73:808-14.
90. Umay T, Monden Y, Harada K, et al: Pulmonary varices: A case report and review of the literature. Jpn J Surg 1988;18:359.
91. Unsal E, Köksal D, Cimen F, et al . Analysis of patients with hemoptysis in a reference hospital for chest diseases. Tuberk Toraks. 2006;54:34-42.
92. Weinberger SE. Etiology and evaluation of hemoptysis in adults. In :Mathur PN, ed. Up To Date. Wellesley, MA :2013
93. Wong CM, Lim KH, Lim CK. The causes of hemoptysis in Malaysian patients aged over 60 and the diagnostic yield of different investigations. Respirology. 2003;8:65-8.
94. Xiao-Dong Xia. Massive cryptogenic hemoptysis undergoing pulmonary resection: clinical and pathological characteristics and management. Int J Clin Exp Med 2015;8(10):18130-18136.
95. Yeon Joo Lee, Sang-min Lee, Jong Sun Park, Jae-Joon Yim, Seok-Chul Yang, Young Whan Kim et al. The clinical implications of bronchoscopy in hemoptysis patients with no explainable lesions in computed tomography. Res Med 2012;106:413-419.