HEMOPTYSIS, CAUSES AND MANAGEMENT A 2 YEARS RETROSPECTIVE STUDY IN GIZA CHEST HOSPITAL 2002 – 2003

THESIS

Submitted for Partial Fulfillment of Master Degree in
Chest Diseases

By

Khaled Ahmed Mohamed Al-Shahat
(M.B.B.ch)

Supervised By

Prof. Dr. Khaled Hassanein M. Hassanein
Professor of Chest Diseases
Faculty of Medicine, Cairo University

Prof. Dr. Yosri M. Akl
Professor of Chest Diseases
Faculty of Medicine, Cairo University

Assis. Prof. Hossam Hossny
Assistant Professor of Chest Diseases
Faculty of Medicine, Cairo University

Faculty of Medicine,
Cairo University
٢٠٠٧

بسم الله الرحمن الرحيم

(قالوا سبحانك لا علم لنا إلا ما علمتنا إنك أنت العليم الحكيم)

صدق الله العظيم

سورة البقرة – آية ٣٢

Abstract

Among our study, 15 cases had hemoptysis secondary to chest trauma **(Table 20)** of them, 11 patients had penetrating chest trauma (stab wound), developed Pneumothorax and managed by intercostal tube drainage, 4 patients had hemoptysis secondary to blunt trauma ,developed hemothorax, managed by intercostal tube drainage, but this was not enough and all of them (blunt to developed some sort of pleural fibrosis and managed by decortication to preserve lung function. This is In agreement with ***(Kaye, 1990)*** who said that haemoptysis follows a variety of chest injuries: contusions of a lung by severe blunt trauma to the chest from the steering wheel during an automobile collision sometimes lacerates or fractures the tracheo-bronchial tree and stab wounds often tear the lungs or airways.

Key werds:

MANAGEMENT YEARS RETROSPECTIVE STUDY IN GIZA CHEST HOSPITAL

ACKNOWLEDGEMENT

First of all I thank ALLAH *who helped me to bring this work to light.*

Deepest gratitude must be expressed to Prof. Dr. Khaled Hasanein, *Professor of Chest Disease, Chest Department, Cairo University, he has remained a real source of help and support throughout the work.*

Also, I wish to thank sincerely Co-Supervisor Prof. Dr. Yosri M. Akl, *Professor of Chest Disease. Cairo University for untiring efforts in reviewing and helping to make this work acceptable.*

Heart felt thanks are offered to Prof. Dr. Hossam Hosny Massoud, *Assistant Professor of Chest Diseases, Chest Department, Cairo University For verification of references and careful reading.*

I would Like also to thank all members of Giza Chest Hospital who gave me a hand while preparing this work.

List of Abbreviations

A.F.B	: Acid Fast Bacilli.
A.I.D.S	: Acquired Immune Deficiency Syndrome.
A.R.I	: Annual Risk of Infection.
A.R.T.I	: Annual Risk of tuberculosis Infection.
A.V.M	: Arterio-Venous Malformation.
B.A.L	: Broncho Alveolar Lavage.
B.C.G	: Bacillus Calmette and Guérin.
C.O.P.D	: Chronic Obstructive Plmonary Disease .
C.T	: Computed Tomography
D.O.T.S	: Direct Observed Therapy of Short course.
D.S.P.A	: Digital Subtraction Pulmonary Angiography.
D.V.T	: Deep Venous Thrombosis.
G.I.T	: Gastro-Intestinal tract.
H.R.C.T	: High Resolution Computed Tomography.
I.C.T	: Intercostal Tube.
I. C.U	: Intensive Care Unit.
I.P.F	: Idiopathic Pulmonary Fibrosis.
M.O.H.P	: Ministry of Health and population.
M.R.I	: Magnetic Resonance Imaging.
N.T.P	: National Tuberculosis control Program.
P.E	: Pulmonary Embolism.
T.B	: Tuberculosis.
T.S.T	: Tuberculin Skin Test.
S.L.E	: Systemic Lupus Erythematosus.
U.A.W	: Upper air way .
W.H.O	: World Health Organization.
Z.N	: Ziehl-Neelsen stain.
+Ve	: Positive.
-Ve	: Negative.

List of Charts

Chart No.	*Title*	*Page No.*
١.	Classification of cases in grouping according to causes	48
٢.	Cases distribution according to final diagnosis	51
٣.	Age distribution	52
٤.	Age distribution in subgroups	53
٥.	Incidence of diseases causing hemoptysis among age group between 20 -30 years	54
٦.	Sex distribution	55
٧.	Incidence of pulmonary tuberculosis	56
٨.	Incidence of smoking	57
٩.	Incidence of Dyspnea	58
١٠.	Incidence of toxemic manifestations	59
١١.	Incidence of Compression symptoms	60
١٢.	Incidence Of Fiber-optic Bronchoscopic Findings	61
١٣.	Incidence of chest X-ray findings	62
١٤.	Incidence of C-T scan findings	63
١٥.	Incidence of bronchography findings	64
١٦.	Distribution of cases < 50 years	66
١٧.	Distribution of cases ≥ 50 years	67
١٨.	The most common disease causing hemoptysis in patients > 60 years	68

Chart No.	*Title*	*Page No.*
١٩.	Incidence of surgical intervention of trauma (penetrating and blunt trauma)	69
٢٠.	Incidence of surgical intervention in hydatid disease	70
٢١.	Incidence of surgical intervention for Bronchiectasis	71
٢٢.	Incidence of surgical treatment of pulmonary tuberculosis	72

List of Tables

Table No.	*Title*	*Page No.*
١.	Classification of all 1000 cases in grouping according to causes	47
٢.	1000 cases (100%) were downgraded	50
٣.	Age distribution among the study group	52
٤.	The distribution of the age in grouping	53
٥.	Distribution of cases among the age group between(20-30) years	54
٦.	Sex distribution among the study group	55
٧.	Total number of pulmonary T.B	56
٨.	Incidence of smoking in all cases	57
٩.	Incidence of dyspnea among the study group	58
١٠.	Incidence of toxaemia among the study group	59
١١.	Incidence of compression symptoms among the study group	60
١٢.	Incidence of bronchoscopic findings (FOB) among the study group	61
١٣.	Incidence of CXR findings among the study group	62
١٤.	Incidence of C.T findings among the study group	63
١٥.	Bronchogram was done for 118 cases	64
١٦.	Incidence of rigid bronchoscopy findings among the study group	65

Table No.	*Title*	*Page No.*
١٧.	Distribution of cases < 50 years	66
١٨.	Distribution of cases and its percentages in the age group ≥ 50 years	67
١٩.	The most common disease causing hemoptysis in patients > 60 years	68
٢٠.	Incidence of surgical intervention for 15 cases of chest trauma	69
٢١.	Surgical intervention for patients complaining of hydatid disease	70
٢٢.	Cases of bronchiectasis were considered suitable for surgery	71
٢٣.	Incidence of surgical treatment of T.B cases	72
٢٤.	Surgical resection in the form of lobectomy	73
٢٥.	Lobectomy was done for 4 cases (0.4% of total)	73
٢٦.	Surgical resection of endobronchial mass (endobronchial teratoma)	73

Contents

	Page No.
INTRODUCTION ……...	1
AIM OF THE WORK …….	3
REVIEW OF LITERATURE …….	4
SUBJECTS AND METHODS ……	44
RESULTS ……	45
DISCUSSION ……...	74
SUMMARY …….	91
CONCLUSION ……	92
RECOMMENDATIONS …….	94
REFERENCES ……	95
ARABIC SUMMARY …….	

INTRODUCTION

The coughing up of blood is termed haemoptysis.

The material that is produced varies from blood tinged sputum to virtually pure blood. Although any portion of respiratory tract can be the source. Bleeding more often comes from a main bronchus or the lung than from the nose or throat. Massive or life threatening hemoptysis is defined as expectoration at rate of 300 to 600ml or more /24hours. Unfortunately such estimate relies on quantification by a frightened patient for practical purposes, an expectorated volume of 150ml or more is generally defined as life threatening. Asphyxia is the usual cause of death in massive hemoptysis. Blood stained sputum should be differentiated from bleeding from mouth or pharynx and from haematemsis. Usually but not always this can be a scertained from the history ***(Remy et al., 1991)***.

The most common causes of hemoptysis in respiratory practice are bronchial carcinoma, pulmonary infarction, tracheitis, tuberculosis, bronchiectasis, pneumonia, [specially pneumococcal] and trauma. Less common but important causes are cystic fibrosis, mitral valve disease, haemosidrosis, and good pasture's syndrome, aspirgiloma, inhaled foreign body, arterio venous malformation, and primary hemorrhagic disease ***(Cohen et al., 1990)***.

A chest radiograph is mandatory in any one with haemoptysis and often shows a lesion in adult over 40 years and in smokers. Bronchoscopy is usually indicated.

Others include bronchography, pulmonary or bronchial arteriography or ventellation perfusion scaning ***(Saumench et al., 1989)***.

The management of hemoptysis depends on primary condition.

Even massive haemoptysis is rarely fatal though it certainly can be, particularly when coming from bronchial arteries in aspirglomata and tuberculous cavities, or following iatrogenic trauma to vascular tumours, with biopsy forceps or to fibrotic lung with drill or needle ***(Remy et al., 1991)***.

AIM OF THE WORK

The aim of this study is to analyse, retrospectively, cases of hemoptysis who were admitted in Giza chest hospital during the previous two years (2002-2003)

REVIEW OF LITERATURE

Development of the lung

The lung appears first as an epithelial bud at the caudal end of the laryngotracheal groove on the 26th day after ovulation. This bud derived from the epithelium of the airway and of the acini ***(Boyden, 1987)***. The mesenchyme itself develops into the connective tissue, cartilage, smooth muscle, and vessels of the lung .In the first few weeks of the development nerve fibers arising from the ectoderm migrate into mesenchyme to give the lung its motor and sensory connection. The developing lung bud divided into two halves on either side of oesophagus. By about 33days the trachea become separated from foregut. The development of the full adult complement of the segments by 41 days and to completion of the bronchial trees as far as terminal bronchiole by 16 weeks ***(Longman, 1987)***.

While the embryonic lung developing changes are occurring in the circulatory system. The primitive bronchial arches come and go leaving third to form carotid the fourth the aorta the six the pulmonary trunk. This appears at about 32 days becoming separated from primitive truncus arerteriosus by development of a spiral septum and joins the vascular plexus that has already formed in the lung bud. By 37th days the single ventricle of heart has divided into two chambers the blood supply to the lung coming from right side. At this stage the right sixth arch artery has disappeared and the lung main blood supply the pulmonary artery comes solely from the left arch. Its branches divide approximately in

correspondence with those of the bronchial tree ultimately they will supply alveoli of neighboring acini ***(Hislopa and Redol, 1982)***.

The venous drainage of the developing lungs is initially into the systemic cardinal and post cardinal veins and the visceral veins of the abdomen these develop into the two vena cava, the innominate vein and their tributaries by about10 weeks a diverticulum arise from the left atrium that connect with those veins draining the lungs so that the four pulmonary veins finally enter the left atrium ***(Arey and Mossman, 1985)*.**

Cellular development of the lung

From 16 until about 26 weeks the mesenchyme becomes very vascular and as the more the peripheral airway develop their epithelium become very thin allowing close approximation of blood to the air space . by this time type I and type Π pneumocytes can be identified in the secular epithelium and osmiophilic bodies appears in the type Π cells indicating that they has developed the ability to secrete surfactant ***(Keuffman, 1987)***.

Postnatal development 127 million alveoli are present at about one year .the final adult complement of about 280 million may have developed by the age of eight. With first postnatal breaths the lung inflates and resistance to flow in pulmonary arteries falls. Within few days the pulmonary pressure has falls to half systemic pressure. Over the first few weeks ductus arteriosus and foremen ovale have closed the small muscular pulmonary arteries have dilated and their muscle coat thinned to adult dimension and the pulmonary arterial pressure has fallen almost to