DIOLOGICAL IMAGING OF CAVITARY LUNG DISEASE

M.S. thesis
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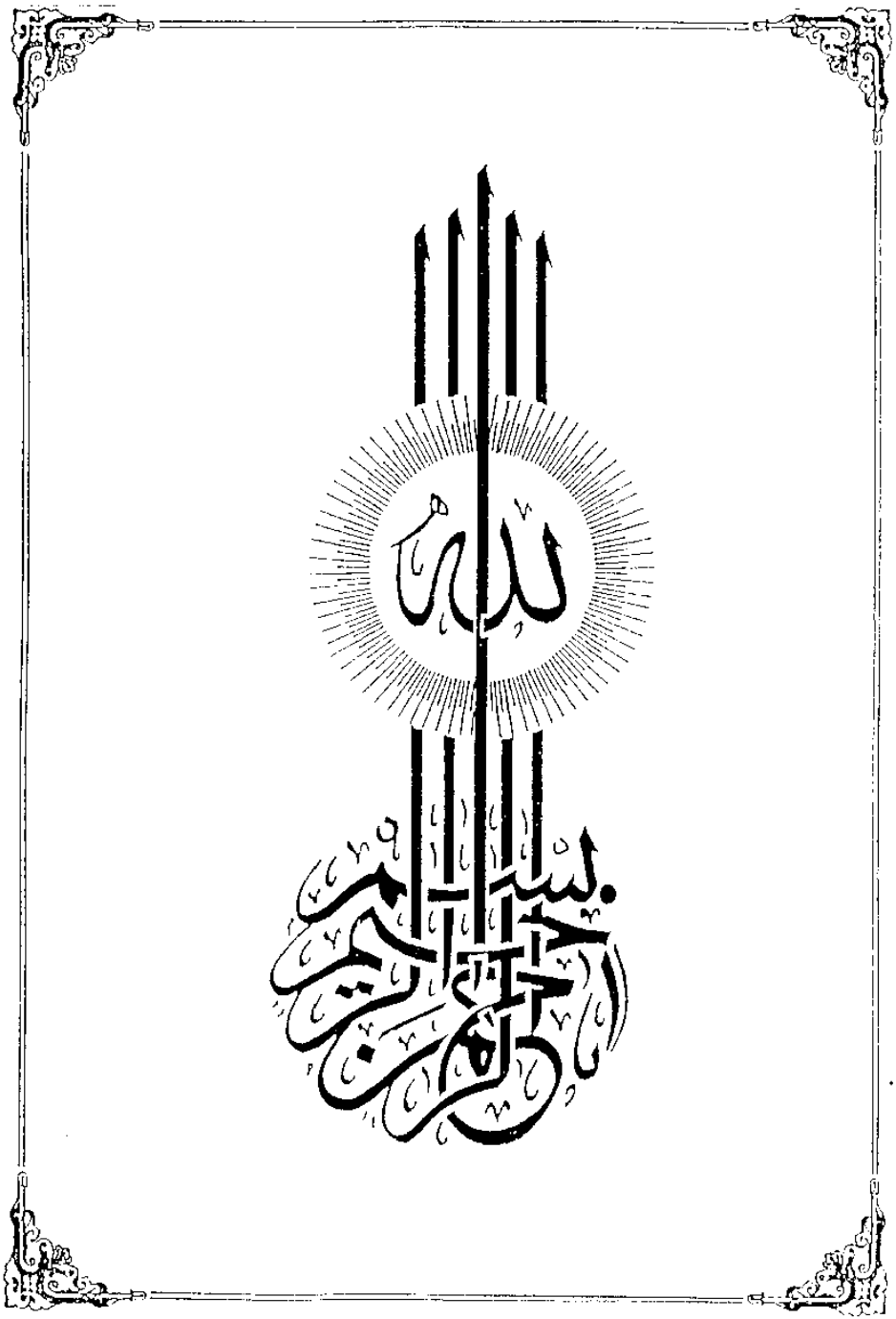

CONTENT

INTRODUCTION, AIM OF WORK

INTRODUCTION

Radiology undoubtedly plays a major role in the diagnosis and management of cavitary lung diseases, together with their site and extent and throw light on possible aetiology, so is indispensable to the clinical examination. The aim of this work is to show the role of radiological imaging in the diagnosis of lung cavitaties and to compare this with the clinical diagnosis. Besides, its value in the assessment of the progress and management of the cases is essential.

THOGENESIS OF CAVITARY LUNG DISEASI

PATHOGENESIS OF CAVITARY LUNG DISEASE

A group of chronic term disease characterised by cough, ring or cavity (which is a space or hollow, espically a space within the body or one of its organs; in dentisty, the lesion produced by caries) Dorland's Med. Dictionary 1980, 119.

The pathogenesis can most easily be divided into the classical pathological system of (out line of radiology resp. syst. 1980, 20):-

A) Congenital

- Bronchogenic cyst.
- Sequestrated lung segment.

B) Traumatic

- Haematoma of lung.

C) Inflammatory

I) Acute:

Abscess: Staphylococcal pneumonia.

Friedlander pneumonia.

II) Chronic:

Bacterial: Tuberculous

III) Fungal:

- Histoplasmosis.
- Mycetoma.

IV) Parasitic:

- Hydatid.
- Paragonimiasis.

D) Neoplastic:

I) Bengin:

- Hamartoma.
- Adenoma.

II) Malignant:

- Primary: Bronchiogenic Carcinoma.
- Secondary.

E) Degenerative:

- Bullous Cysts.

F) Others:

- Pneumoconiosis.
- Rheumatoid nodule.
- Encapsulated empyema.
- Cavitary infarction.
- Rare lesions.

A) CONGENITAL:

1- Bronchiogenic Cyst (Bronchial Cyst):

Tracheobronchial cyst is attached to the trachea near its bifurcation or to a main bronchus. This is really an accessory bronchial bud, although it rarely communicating with lumen. Its unilocular sphere containing water fluid and may having an attenuted wall of bronchial type, include surface. Epithlium, glands, muscle and cartilage which cause trabeculation of the lining. If detached it appear as a mediastinal bronchiogenic cyst.

Other cysts, is exaclty the same position, are found to be enterogenic cysts of foregut origin lined by gastric or intestinal epth. Some are paraoesophageal and other intraoesophageal. Solitary bronchial cyst may be with in the lung converted into lung abscess. (Anderson II, 1977).

It may result as pinching of nests of epith. cells or the consequence of balloning out malformed bronchi under the continuous thrust of the inspiratory pressure. (Robbins 1964).

2- Pulmonary Sequestration (Sequestrated Lung Segment):

This is a partial or complete separation of pulmonary segment or segments from normal continuty with the rest of the bronchial tree. In intralober sequestration the mass lies within the pleura, where as

in extralobar sequestration the anomalous mass is enclosed in its own pleural sheath and may be below the lower lobe, either above or below the diaphragm the former is more frequent. The accessory lung received blood supply from aorta or branches of coeliac axis, by way of an anomalous or usually enters the affected lower lobe by way of pulmonary ligament. This tissue is often rudimentary and undifferentiated, and it may show cystic or cavity formation. Its usually soild and may be confused with pneumonia or neoplastic consolidation. Angiography may or may not show the vasuclar supply of the mass isolated subdiaphragmatic pulmonary tissue are rarely found.

Sequestration communicating with oesophagus or stomach this is a rare condition in which the sequestration either (extra or intralobar) type served by bronchus growing directly out of the mid oesophagus or lower oesophagus or gastric fundus this may be termed bronchiopulmonary-foregut wall formation. (David Son, 1981).

B) Traumatic: Traumatic Haemothorax (Haematoma of Lung)

Apart from road accidents chest injuries are not common in civil practice; in war, however, they constitute nearly 10 percent of all wounds, whilst of those killed in battle, 25 percent have chest injuries. They are often associated with injuries elsewhere,

particularly the head and abdoman.

Blood in the pleural cavity may occur in a variety of conditions and is often associated with air as well. The respiratory and cardiac movements defibrinate the blood as it reaches the pleural cavity so that the collection remains fluid. Massive clotting only occasionally occurs. Blood is a pleural irritant and its presence produce pain and shock in the early stages and later excites the formation of a considerable effusion. It is also an excellent culture medium, and infection is relatively common.

CAUSES:

1) Trauma.

2) Post-operatively, following pulmonary, cardiac or oesophageal operation

Thoracoscopy for division of adhesions, cervical sympathectomy and after refills of an artificial pneumothorax.

3) Leaking aneurysms.

4) Spontaneous

Treatment: Should be aimed at relieving pain, shock and blood loss. Aspiration of blood for theraputic purposed is indicated in early stages if respiration is embarrassed. If signs of persistent bleeding are present, Thoracotomy is advised. (Bailey, Love 1981).

C- INFLAMMATORY

I- PATHOLOGY OF LUNG ABSCESS

The term lung abscess describes a "local suppurative process within the lung characterized by necrosis of lung tissue. lung abscess may develop at any age and especially frequent in young adults. Surgical procedures, oropharyngeal, dental sepsis, sinobronchial infections and bronchiectasis play important roles in their developments, males are more often affected than females.

A etiology and Pathogenesis:

Although any pathogen, under appropriate circumstances; may produce an abscess, the commonly isolated organisms are in order of frequency streptococcus viridans, staph. aureus, streptococcus haemolyticus, pneumococci, some of anaerobic streptococci and a last of less common gram negatives.

(Schweppe et al, 1965). Mixed infections occur often because of the important role that inhalation of foreign material plays. The spirocheates and fusiform bacilli of vincents infection are often identified in these lesions, but their significance is as controversial here as it is in bronchiectasis.

The causative organisms are introduced into their sites of focal destruction by the following mechanisms (Anderson, 1977).

(1) Aspiration of infective material:

This is particularly common in acute alochclism, coma, anaesthesia, sinusitis, gingividental disease and debilitation in which cough reflexes are depressed. Aspiration of gastric contents is particularly serious because the gastric acidity adds to the irritant role of the food particles and, in the course of aspiration, mouth organisms are inevitably introduced.

(2) Antecedent primary bacterial infection:

Postpneumonic abscesses formation are particularly associated with staph aureus, H.Klebsiella and the type III pneumococcus. Mycotic infections and bronchiectasis are additional antecedents to lung abscess formation. When staphylococcal infection supervenes on virus infection, it alters the clinical picture; The patient from moderatelly ill, becomes desperatelly ill and cyanosed. A milliary pattern of patch areas of bronchopneumonia are superimposed on the interstitial appearances due to the virus. Large segmental consolidation seldom occur and the pneumatoceles of primary staphylococcal pneumonia seldom develop (Shanks S.G & Kerley, 1973).

Fridlanders Bacillus pneumonia:

The causative organism is klebsiella pneumoniae. It has a number of types. The disease which is fortionately uncommon, used to have a mortality rate 80% and even with modern treatment this has only been lowered to 20%. The patches of consolidation, most frequent in upper lobe have a