

Thoracic Empyema

Thoracic empyemas are defined as purulent pleural effusions or effusions with positive bacteriology.

Pathogenesis

- Contamination from a source contiguous to the pleural space 60%
 - Lung
 - Mediastinum (esophagus, L.N)
 - Deep cervical region
 - Chest wall and spine
 - sub phrenic, paracolic abscesses
- Direct inoculation in the pleural space [35-40%]
 - Minor diagnostic procedures
 - Postoperative infection
 - Penetrating chest injuries
- Hematogenous seeding in the pleural space [1%]
 - Late post pneumonectomy empyema

Stages of disease

Three distinct stages are indicative of disease progression within pleural space.

Stage I. pre empyema phase there is considerable swelling of the pleural membranes with out pouring of exudative fluid.

Stage II. Fibrinopurulent phase, bacterial invasion is added to this inflammatory process. There are heavy fibrin deposits over all pleural surfaces and some degree of lung entrapment

Stage III. Chronic phase there is massive in growth of neo capillaries and fibroblasts. The lung is imprisoned within thick peel and is virtually functionless.

Empyema necessitates. Is characterized by the dissection of pus through the soft tissues of the chest wall and eventually through the skin.

Diagnosis. The possibility of empyema should always be raised in the presence of an acute illness with associated pleural effusion. Typical symptoms such as high fever, toxicity or local tenderness are often present. The initial step in work up is to document the presence of fluid in pleural

cavity, this is best accomplished by U.S. which can easily distinguish between pleural thickening and parenchymal consolidation or pleural fluid. Once the presence of pleural fluid has been confirmed thoracentesis should be carried out. The aspirated fluid should be sent for gram stain, aerobic and an aerobic cultures and antibiotic sensitivity.

Management of acute empyema (stage I and stage II)

١. Drainage of the collection by chest tube.
٢. Control of infective organism with sensitive antibiotic.
٣. Investigation and treatment of the primary source of the infection.
٤. Treatment of associated respiratory difficulties and the over all medical condition.
٥. Early decortications in selected patients.

Management of chronic empyema

When empyema has reached this stage simple forms of treatment like rib resection drainage or window thoracostomy may be useful initially. Decortications of the lung, space obliteration by muscle transplantation, space collapse are alternative treatment.

Lung abscess

Lung abscess is a localized area of pulmonary parenchymal necrosis caused by infectious organisms. An abscess that is present for more than 6 weeks is considered chronic.

Causes of lung abscess

Lung abscesses are further classified as primary or secondary. Primary lung abscess occurs for example in immune compromised patient, in patient as a result of high virulent organisms inciting a necrotizing pneumonia or in a patient who have a predisposition to aspirate oro pharyngeal or gastro intestinal secretion.

Secondary lung abscess occurs in a patient with underlying condition such as patient with bronchial

obstruction, lung infarction or adjacent suppurative infection (sub phrenic or hepatic abscess).

Clinical features and diagnosis.

Typical presentation include productive cough, fever, chills, leukocytosis (more than 15000 cell/cubic mm), weight loss, fatigue, malaise, pleuritic chest pain and dyspnea.

Sever complications such as massive hemoptysis, endo bronchial spread to other portions of the lung, rupture to pleural space and development of pyopneumothoracic or septic shock and respiratory failure are rare in modern antibiotic era.

The chest x-ray is the primary tool for diagnosis, it is distinguish a characteristic density with a relative thin wall cavity, air fluid level may be observed indicating a communication with the trachea bronchial tree.

C.T. scan is useful to clarify the diagnosis.

Management. Systemic antibiotics directed against the causative organism represent the main stay of therapy.

The duration of anti microbial therapy is variable, 1 to 2 weeks for simple aspiration pneumonia and 3 to 12 weeks for necrotizing pneumonia and lung abscess.

Surgical drainage of lung abscess is uncommon since drainage usually occurs spontaneously via the tracheo bronchial tree.

Indication for intervention include failure of medical therapy, abscess increasing in size, contralateral lung contamination, hemoptysis, abscess rupture or pyopneumothoracic. External drainage may be accomplished with tube thoracostomy or percutaneous drainage. Surgical