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PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1067614>Available online at: <http://www.iajps.com>**Case Report****A CASE REPORT ON PYOTHORAX****Sivaranjani Vatam^{1*}, Vijaya lakshmi Sangaraju², S.Parveen³**^{1,2} Pharm D, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh – 516003³ Assistant Professor, P. Rami Reddy Memorial College of Pharmacy, Kadapa, Andhra Pradesh - 516003**Abstract:**

Pyothorax also called as Pleural Empyema or purulent pleuritis, a condition in which pus, a fluid that's filled with immune cells, dead cells, and bacteria gather in the pleural space. A pulmonary infection with secondary pleural involvement leads to considerable morbidity and mortality. Empyema is a complication of other medical conditions and doesn't occur on its own. Bacteria, fungi, or chemicals must get into the pleural space and cause inflammation, leading to the production of pus to develop empyema. Complete drainage of pus from the pleural cavity is essential for treatment along with antibiotics. Here we report an issue of 60 years male patient who admitted with the chief complaints of breathlessness since 1 week insidious in onset aggravated on walking relieved on lying down position, cough and intermittent fever since 1 week. He is a known smoker since 30 years. He is a known HTN & DM and was using T.Metformin 500mg BD, T.Glimiperide 1mg OD, T.Amlodipine 5mg OD. On general examination the patient was conscious and cooperative. On physical examination his BP-140/90 mmHg, PR-82bpm were found to be slightly increased and on systems examination CVS-S₁S₂+ ,RS – decreased breath sounds. Later he was referred for some lab investigations which shows increased RBS-204 mg/dl & ESR – 28Hr/mm .Pleural fluid analysis report shows pleural fluid is of neutrophilic and Exudative in nature. Chest X-ray reveals Pleural effusion on left side of the lungs. Organism that was isolated from the pus was Klebsiella pneumonia species. He was diagnosed with Pyothorax or Empyema to treat this condition intravenous antibiotics and intercostals drainage was done.

Key words: Pyothorax, Pus, Inter costal drainage, Antibiotics.**Corresponding author:****Vatam Sivaranjani,**

Pharm D intern

PRRMCP, KADAPA

Mail ID: vatamsivaranjani157@gmail.com

Phone No. 9703365492

QR code



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INTRODUCTION:

Pyothorax also called as empyema is characterized by an accumulation of septic exudate in the thoracic cavity [1]. Empyema has been reported to have an incidence of 0%–18%. Pleural empyema is a serious complication of infection adjacent to or within the chest that hardly ever resolves without appropriate medical therapy and drainage procedures. Host defenses are seriously compromised by the anatomy and physiology of an infected pleural space, and distinction of presentation may delay identification and appropriate management. Empyema is typically a complication of pneumonia but may occur due to infections at other sites [2]. Presentation and microbial etiology of the emyema are modified by local trauma or surgery or by underlying conditions such as malignancy, collagen vascular disease, immunodeficiency disorders, and adjacent infection involving the oropharynx, esophagus, mediastinum, or sub diaphragmatic tissues. Clinical features depend upon the primary organ or space infected and the microbial pathogen, and host defense defects. The clinical presentation of empyema includes unexplained fever, elevated white cell count, cough, chest pain and shortness of breath. Most patients with suspected empyema are critically ill [3]. The preliminary investigation for the suspected empyema remains chest X-ray, although it cannot differentiate an empyema from uninfected parapneumonic effusion. Ultrasound must be used to confirm the presence of a pleural fluid collection and can be used to estimate the size of the effusion, differentiate between free and loculated pleural fluid and to guide thoracocentesis if necessary. In most cases Chest CT and MRI do not provide additional information. The most frequently used "golden" criteria for empyema are pleural effusion with macroscopic presence of pus, a positive Gram stain or culture of pleural fluid, or a pleural fluid pH under 7.2 with normal peripheral blood pH. Blood and sputum culture has already been performed in the setting of community acquired pneumonia needing hospitalization. It should however be noted that the micro-organism responsible for development of empyema is not necessarily the same as the organism causing the pneumonia, especially in adults. Furthermore, diagnostic rates can be improved for specific pathogens using polymerase chain reaction or antigen detection [1]. The management of pyothorax or Empyema involves diagnostic or therapeutic aspiration and intercostal drainage (ICD) tube insertion. Treatment includes drainage via chest tube or CT-guided catheter, chest tube drainage with intrapleural fibrinolytic therapy, Video assisted thoracoscopic

surgery, or thoracotomy and decortication [4]. As the empyema progresses from an exudative effusion to a loculated effusion and then to an organized empyema, the pleural fluid becomes increasingly more viscous, and the intervention required becomes more invasive so, early diagnosis and treatment is thus important [5].

CASE REPORT:

A 60 years male patient got admitted in our hospital with the chief complaints of breathlessness since 1 week insidious in onset aggravated on walking relieved on lying down position, cough and intermittent fever since 1 week. He is a known smoker since 30 years. There was no history of trauma to the chest. He is a known HTN & DM and was using T.Metformin 500mg BD, T.Glimeperide 1mg OD, T.Amlodipine 5mg OD. On general examination the patient was conscious and cooperative. On physical examination his BP-140/90 mmHg, PR-82bpm were found to be slightly increased and on systems examination CVS-S₁S₂+, RS – decreased breath sounds. Later he was referred for some lab investigations which shows increased RBS-204 mg/dl & ESR – 28Hr/mm. Pleural fluid analysis report shows pleural fluid is of pus colour, opaque in appearance, pellicle formation present, total WBC count cannot be done as the pleural fluid is flooded with inflammatory cells, total proteins – 6.56 gm/dl which was found to be increased and the overall impression is that the pleural fluid is of neutrophilic and Exudative in nature. Chest X-ray reveals Pleural effusion on left side of the lungs which is shown in Figure 1. Organism that was isolated from the pus was Klebsiella pneumonia species. He was diagnosed with Pyothorax or Empyema and was treated with intravenous antibiotics Inj.ceferperazone + sulbactam 1.5gm IV BD, Inj.Amikacin 500mg BD, An anti pyretic T.PCT 500mg TID, a bronchodilator i.e Nebulisation with salbutamol 6th hourly, a mucolytic agent Syp. Ambroxyl 10ml TID along for a period of 6 days along with this Intercostal drainage – 2 litres thick pus coloured fluid was drained. Later as the patient was feeling better and was discharged with T.Augmentin 625mg BD, T.Azithromycin 500mg OD, T.Vit BC 67 mg OD and to treat his Diabetic condition T.Metformin 500mg bd, T.Glimiperide 2mg bd and T.Vagliabase 0.3mg OD was prescribed and the patient was asked to review after 15 days and on doing chest X-ray after 15 days Pleural effusion was resolved but there is blunting of left CP angle which was shown in figure 2.



Fig 1: Pleural effusion on the left side of the lung.



Fig2: Pleural effusion resolved with blunting of the left costophrenic angle

DISCUSSION:

Here in this issue the patient was diagnosed with Pyothorax which may be due to pneumonia as the pleural fluid which is pus coloured culture report shows the presence of Klebsiella pneumonia and the patient Chest X-ray shows pleural effusion and the pleural fluid analysis showed pleural fluid is of pus coloured and is neutrophilic and exudative in nature, this was supported by Ala Eldin H, Ahmed, Tariq E Yacoub *et.al.*, which says that Pyothorax or pleural Empyema may be due to pneumonia or due to local trauma or surgery or by underlying conditions such as malignancy, collagen vascular disease, immunodeficiency disorders, and adjacent infection involving the oropharynx, esophagus, mediastinum, or sub diaphragmatic tissues. Here the patient was treated with Inter costal drainage procedure and intravenous antibiotics this was supported by Richard E, Bryant, Christopher J. Salmon *et.al.*, explains that the management of pyothorax or Empyema involves diagnostic or therapeutic aspiration and intercostal drainage (ICD) tube insertion. Treatment includes drainage via chest tube or CT-guided catheter, chest

tube drainage with intrapleural fibrinolytic therapy, Video assisted thoracoscopic surgery, or thoracotomy and decortications.

CONCLUSION:

Pleural infections are escalating worldwide despite modern day clinical care and antimicrobial therapies. A high index of suspicion for and early identification of pleural space infection is mandatory for good clinical outcome. The goals of treatment of any Empyema comprise sterilizing the pleural cavity, controlling the infection, draining the fluid, thereby allowing the lung to expand and re-establish normal function. Delaying drainage increases the risk of incident of complications thereby increases morbidity and potentially mortality. Intrapleural fibrinolytic agents like streptokinase may be supportive as an adjunctive treatment in loculated empyema. Timely management and intervention with proper antibiotic cover can prevent such occurrences and thereby diminish the morbidity and mortality coupled with the disease.

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