



A Case of Chronic Klebsiella Pneumonia Showing B/L Thick Walled Pulmonary Cavity-A Rare Case Report

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Abstract

A pulmonary cavity is a gas filled area of the lung in the centre of either a nodule or consolidation which could be either due to infection or non infection process diagnosed clinically or radiologically.

Thick walled cavities are typically seen in mycobacterial infection, malignancies, fungal infection. Necrotizing infection of lungs caused by gram negative bacteria may also produce cavities of varying thickness. Here we present a rare case of chronic klebsiella pneumonia infection causing B/L thick walled pulmonary cavity in a Type 2 Diabetes Mellitus patient.

Case Report

A 60 years male presented with C/o cough with expectoration for 20 days producing thick black coloured sputum, not blood stained with history of breathlessness for 20 days, h/o fever on & off, k/c/o type 2 diabetes mellitus for 10 years on regular treatment. On examination he was conscious, oriented, afebrile, no pallor/icterus/clubbing/cyanosis/lymphadenopathy/pedal edema, PR-106/min(regular), BP-130/80 mm/Hg, RR-20/min, SpO2-98% in room air, CVS- S1 S2, RS- NVBS+, crepitation + Left interscapular region. He had radiographic finding of thick walled cavities along with diabetes mellitus. Also computerized tomography of his lungs showed

thick walled cavities suggestive of infective etiology. Sputum culture showed high growth of Klebsiella pneumoniae organism and sputum is negative for any Acid Fast Bacilli, Malignant cells or fungal growth. Our patient was then treated with appropriate antibiotics according to the culture and sensitivity

Investigations

Total count -19500

Hb – 13.8 g%

Platelet count – 3.34 lakhs

RBSmg/dl- 112

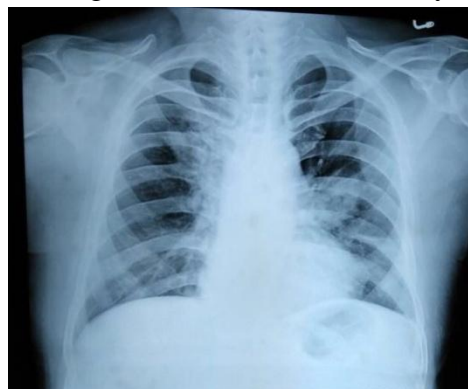
FBS – 148

PPBS – 228

Plasma Acetone - Negative

Urea (mg/dl) - 58, 49(after 3 days)

Creatinine (mg/dl) - 1.2, 1.4 (after 3 days)



CXR Plain PA view



Repeat CXR Plain PA view After 2 weeks showing B/L thick walled pulmonary cavity



HRCT Thorax showing B/L pulmonary cavity probably due to consolidation breaking to cavity due to infectious etiology

Urine Blood Eye specimen Culture/sensitivity
 Sputum CSF Ear Nose Throat Anaerobes C & S
 Pus Fluids Biopsy Fungus culture
 Genital Faeces Others

Clinical details: *few Pus cells Gram Negative Bacilli*

Smear/ Hanging Drops: _____ Colony count: _____

Culture Organism Isolated	Growth	ANTIBIOTIC SUSCEPTIBILITY		
		A	B	C
A <i>Klebsiella</i>	H			
1. PENICILLIN(P)				R
2. ERYTHROMYCIN(E)				S
3. TETRACYCLINE(TE)				S
4. CLOXACILLIN(COX)				S
5. OXACILLIN(OX)				S
6. AMPICILLIN(AMP)		R	S	
7. AMIKACIN(AK)		S		
8. LINEZOLID(LZ)		S		
9. GENTAMICIN(GEN)		S		
10. IMIPENEM(I)		S		
11. CEFUROXIME(CXM)		S		
12. EFEPERAZONE(CPZ)		S		
13. NALEDIXIC ACID(NA)		S		
14. PIPERACILLIN TAZOBACTAM(PT)		S		
15. NITROFURANTOIN(NIT)				R
16. NORFLOXACIN(NX)				S
17. CIPROFLOXACIN(CIP)				S
18. PEFLOXACIN(PF)				S
19. FLOXACIN(OF)				S
20. CEFOTAXIME(CTX)				S
21. CEFOTAZIDIME(CAZ)				S
22. CEFTRIAXONE(CTR)				S
23. VANCOMYCIN(VA)				S
24. CLINDAMYCIN(CD)				S
25. TOBRAMYCIN(TOB)				S
26. CHLORAMPHENICOL(C)				S
27. CO-TRIMOXAZOLE(COT)				R

DATE RECEIVED: 12/10/12
 DATE REPORTED: 15/10/12
 COMMENTS: _____
 GROWTH CODE: H-HEAVY
 SENSITIVITY CODE: S-SENSITIVE

Sputum Culture showing heavy growth of klebsiella organism

Discussion

A cavity is defined as “a gas-filled space, seen as a lucency or low-attenuation area, within pulmonary consolidation, a mass, or a nodule” [1]. The cavity wall thickness may vary considerably. Cavitory lesions in radiographs of the lungs can be seen in infections, inflammation or malignancy of the lungs. However certain conditions are more frequently associated with cavities than others. Infection with Mycobacterium tuberculosis and fungi, malignancies tend to be chronic and are common causes of cavity formation in the lungs (2). Cavities may be thin walled (<4mm) or thick walled (>4mm). In practice we frequently encounter cavitating lesions of the lung with a clinical picture suggestive of mycobacterial etiology. Although pulmonary Koch's would be the first in the list of differential diagnosis, especially in endemic areas, in sputum negative cases an attempt should be made to aggressively look for a possible microbiological cause of the infection, other than Koch's. Common pathogens that cause community-acquired pneumonia, such as *Streptococcus pneumoniae*, *Klebsiella pneumoniae*, *Haemophilus influenzae*, and

Staphylococcus aureus, can develop a necrotic process and result in a prolonged clinical course, the process usually follows the course of acute pneumonia and turns rapidly progressive, with patients tending to develop acute respiratory distress⁽³⁾

K. pneumoniae (previously known as Friedländer's bacillus) can present as two forms of community-acquired pneumonia. The acute form, a well-known disease entity, usually develops quickly and lasts less than two weeks. A minority of patients with this form may develop necrotizing pneumonia and run a protracted clinical course (1-3). In contrast, the chronic form is not well recognized and has rarely been reported^(4,5).

Our patient came with clinical history of fever and cough for 2 weeks in spite of receiving treatment. He had radiographic finding of thick walled cavities along with diabetes mellitus. Also computerized tomography of his lungs showed thick walled cavities suggestive of infective etiology. So his sputum sample was sent for the gene-expert RIF test, which again did not detect any *Mycobacterium tuberculosis*. Therefore we looked at the possibility of other common causes for thick walled cavities namely fungal infection and malignancy. Both aspergilloma of the lung and primary malignancy of the lung are also frequently known to present with cavitation in the lungs with thickening of the cavity walls^[2]. The sputum sample was sent for fungal stains and it was found to be negative for fungal elements.

Sputum culture showed high growth of *Klebsiella pneumoniae* organism and sputum is negative for any Acid Fast Bacilli, Malignant cells or fungal growth. Our patient was then treated with appropriate antibiotics according to the culture and sensitivity. Indian guidelines for management of tuberculosis recommends that in individuals with clinical symptoms suggestive of tuberculosis (cough for more than two weeks not responding to antibiotic therapy) and showing radiographic findings of pulmonary tuberculosis, if the sputum is negative for AFB should be classified as 'sputum negative pulmonary tuberculosis' and

started on ATT^[6]. By using all the diagnostic methods available at our disposal it may be possible to pin the diagnosis in many cases for effective treatment and to avoid over treatment.

Conclusion

We wish to report this case of *Klebsiella pneumoniae* infection as a rare cause of thick cavitating pneumonia in an individual with diabetes mellitus. As *Klebsiella pneumoniae* infections become common in community settings it becomes important to consider this organism as a potential cause for necrotizing pneumonia with cavity formation, albeit rare. Although rare, physicians should keep this form of *Klebsiella pneumoniae* in mind because it can mimic other chronic pulmonary infections and malignancies. The diagnosis of chronic *Klebsiella pneumoniae* is established by positive microbiological culture. By using all the diagnostic methods available at our disposal it may be possible to pin the diagnosis in many cases for effective treatment and to avoid over treatment.

Reference

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