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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/20731
DOI URL: http://dx.doi.org/10.21474/IJAR01/20731

RESEARCH ARTICLE

MELIOIDOSIS ,THE GREAT MIMICKER:A CASE SERIES FROM A TERTIARY CARE CENTRE IN NORTH KERALA.

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Manuscript Info

Manuscript History
Received: 12 February 2025
Final Accepted: 16 March 2025
Published: April 2025

Abstract

Melioidosis, also called Whitmore's disease, is an infectious disease that can infect humans or animals. The disease is caused by the bacteria Burkholderia pseudomallei or B. pseudomallei, which is found in contaminated soil and water.Melioidosishas a wide range of clinical pre sentation, the infection may be acute or chronic, localized or disseminat ed. The disease mimics other infections like tuberculosis making the cli nical diagnosis very challenging.Hence a strong clinical suspicion is re quired to make correct diagnosis. The most important risk factors for melioidosis are diabetes, chronic alcohol use, chronic kidney disease, and chronic lung disease The incidence is more in the rainy season as the predominant mode of transmission is percutaneous inoculation during exposure to wet soils or contaminated water. Most primary and secondary healthcare centers are not sufficiently equipped to diagnose the disease, hence the true incidence of the disease may be an underestimate. There has been a steady increase in melioidosis cases in India with a large number of reports from the southern parts of the country.

Introduction:-

Melioidosis, also called Whitmore's disease, is an infectious disease that can infect humans or animals. The disease is caused by the bacteria Burkholderia pseudomallei or B. pseudomallei, which is found in contaminated soil and water.Melioidosis has a wide range of clinical presentation, the infection may be acute or chronic, localized or disseminated. The disease mimics other infections like tuberculosis making the clinical diagnosis very challenging. Hence a strong clinical suspicion is required to make correct diagnosis. The most important risk factors for melioidosis are diabetes, chronic alcohol use, chronic kidney disease, and chronic lung disease The incidence is more in the rainy season as the predominant mode of transmission is percutaneous inoculation during exposure to wet soils or contaminated water. Most primary and secondary healthcare centers are not sufficiently equipped to

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diagnose the disease, hence the true incidence of the disease may be an underestimate. There has been a steady increase in melioidosis cases in India with a large number of reports from the southern parts of the country.
We hereby report five cases of pulmonary melioidosis [all were from Kannur district] diagnosed and successfully managed in the Department Of Respiratory Medicine KANNUR GOVT MEDICAL COLLEGE during a span of three month period despite the various challenges faced during their management. This case series will help the physicians to raise their index of clinical suspicion of melioidosis in high risk patients presenting with various findings thus improving the chances of timely diagnosis and treatment.

CASE REPORT-1

A 49 year old female, known case of Diabetes mellitus on oral hypoglycemic agents, with previous history of clinically diagnosed Tuberculosis of lymph node (treatment completed), presented to our out patient department as a referred case from outside hospital. She was having complaints of cough with mucopurulent expectoration and intermittent fever of 1 week duration. On examination patient was conscious, oriented, Spo2 of 98% on room air. Her initial chest x-ray showed right upper zone consolidation for which she had already received 5 days of I.V Ceftriaxone from outside hospital.Her repeat chest x-ray was showing increasing right upper zone consolidation with central breakdown and fresh multiple nodular infiltrates in right lower zone. She was admitted to our ward initially, on evaluation her blood reports showed elevated total WBC counts,elevated renal parameters and elevated blood sugars. Sputum investigations for AFB smear, CB-NAAT and bacterial culture were sent. A provisional diagnosis of Pulmonary Tuberculosis vs other causes of cavitating pneumonia was kept in mind. She was initiated on I.V Piperacillin-Tazobactum and other supportive measures.Computed Tomography of thorax was also taken which was showing collapse consolidation in right upper lobe with cavitatory changes and multiple bilateral nodular infiltrates with tree in bud configuration. During hospital stay in the ward she developed multiple episodes of hemoptysis, for which she was shifted to Intensive Care Unit and hemoptysis was managed conservatively. Mean while her sputum reports came,which was negative for Acid fast bacilli in smear examination and 'MTB not Detected' in CB-NAAT, and bacterial culture report revealed predominant growth of Burkholderia pseudomallei sensitive to ceftazidime, meropenam&cotrimoxazole. Hence, she was started on Inj Ceftazidime (renal modified dose). USG abdomen was showing no evidence of any abdominal organ abscess. After giving I.V Ceftazidime for 14 days, she improved clinically and radiologically, and hence she was discharged on eradication phase therapy with oral co trimoxazole(renal modified dose) for 3months duration .We had asked for a review on 10^{th} day of discharge, and her review chest x-ray showed complete clearance

CASE REPORT-2

A 70 year old male farmer, former smoker ,alcoholic, and Diabettic on oral hypoglycemic agents was referred from outside hospital with complaints of productive cough for 2 weeks duration, hemoptysis and high grade fever of 3 days duration. His initial chest x-ray was showing right upper zone cavitating consolidation & nodular infiltrates in left middle zone. On presentation he was conscious, oriented and maintaining Spo2 of 93% on room air. Blood and sputum investigations were sent. It showed a raised total counts and blood sugars with normal renal and liver parameters. He was initially admitted to our ward and on second day of admission his general condition deteriorated and developed hypotension and he was shifted to Intensive Care Unit. He was started on I.V antibiotics, vasopressors for hypotension. On further taking the history it was found that patient had similar history of cough and fever for more than one month in November 2021, for which he was evaluated in multiple hospitals and in January 2022 he was diagnosed with Melioidosis by sputum culture testing. For the same he was provided with I.V Ceftazidime for 2 weeks, but no follow up done. He was also subjected to bronchoscopy and Bronchial wash CB-NAAT showed MTB detected rifampicin sensitive, for which he took ATT for 6 months and was declared cured. In 2023 May, he had similar episode of cough, fever and was admitted in local hospital with right upper lobe cavitating consolidation. He was again subjected to bronchoscopy &Bronchial wash showed growth of Burkholderia pseudomallei and again he was treated with I.V Ceftazidime for 45 days. During this admission, sputum for AFB stain was negative and MTB NOT DETECTED in sputum CB-NAATexamination . Sputum culture showed Burkholderia pseudomallei, which was showing intermediate resistant to Inj Ceftazidime and resistant to Co-trimoxazole. Hence he was started on combination therapy of Inj Meropenem with inj Ceftazidime after discussing with Microbiologist. Repeat chest x-ray was taken on day 7 of antibiotics, which showed minimal clearance compared to previous one .Plan was to continue for 3 weeks, but the patient and attenders requested discharge and hence patient was discharged against medical advice and not turned up for follow up.

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CASE REPORT-3

55 year old female with no known comorbidities presented with fever,cough and breathlessness of 2 months duration and minimal hemoptysis of 3 days duration ,for which she was initially admitted in local hospital twice 1 month apart (November and December 2023).Initial xray chest taken from the referred hospital showed bilateral upper zone and left midzone cavitating consolidation and high resolution computed tomography thorax showed large area of consolidation with thick walled cavity in right and left upper lobes and lingula along with bilateral multifocal consolidation with surrounding ground glass opacity noted in bilateral upper lobes and lower lobes, bilateral tubular and cystic bronchiectasis, prominent lymph nodes in right upper and lower para tracheal, subcarinal stations with largest node measuring 9.5mm in short axis dimension. Patient was managed with Non invasive ventilator support, iv antibiotics and other supportive measures in the referred hospital and Fibreoptic bronchoscopy done from there showed thick secretions present in bilateral all lung segments with Bronchial wash culture& sensitivity yielded pseudomonas and got treated with iv antibiotics (ceftazidime, amikacin) which resulted in mild improvement in dyspnea but cough persisted ,hence referred here in view of persistent symptoms and desaturation. On examination ,patient was conscious and oriented ,Spo2 - 93% with o2 via nasal prongs at 1L /min , PR- 95/min , BP - 130/90, RR - 24/min . On auscultation bilateral coarse crackles present. Blood investigation showed raised Total count (21000) ,Hb- 8.3. Chest xray showed right upper zone cavitating consolidation.Sputum culture yielded Burkholderia pseudomallei and treated with Inj .Ceftazidime 2g iv q8h for 14days . Patient symptomatically improved and was maintaining spo2 of 97% in room air , repeat blood investigation within normal limit and repeat chest xray showed clearance in left upper zone consolidation and reduced right upper zone consolidation compared to initial xray. Patient was discharged on eradication phase therapy with oral cotrimoxazole for 3months duration after completing intensive phase treatment with inj.ceftazidime

CASE REPORT 4

68 year old female known case of rheumatoid arthritis interstitial lung disease chronic kidney disease and hypertensive on regular medications presented with worsening of dyspnea ,cough and fever of 3weeks duration.

On physical examination patient was conscious and oriented .Spo2 98% RA, PR - 88/min, BP 170/90,chest - bilateral infrascapular area fine late inspiratory crackles present.

CXR showed bilateral lower zone reticular shadows.Sputum investigations including Acid fast bacilli staining, CBNAAT for MTb bacilli and bacterial culture & sensitivity were sent as outpatient basis.

Sputum AFB staining was negative and sputum CBNAAT MTB was not detected.

Sputum culture& sensitivity report came as growth of Burkholderia pseudomallei sensitive to ceftazidime, meropenom ,cotrimoxazole.Patientwas admitted in ward and started on inj. Ceftazidime 500mg iv OD (dose modified as per creatinine clearance) for 10 days. Patient improved symptomatically and got discharged with oral Cotrimoxazole for 3 months.

CASE REPORT 5:-

45 YR old female patient without any known co morbidities admitted with complaints of cough & breathlessness for one year.On examination patient was moderately built &nourished.Pallor present &respiratory system examination showed crackles left side.During the last one year patient was consulting multiple hospital & had taken oral antibiotics multiple times. Xray chest showed cavity in the left mid zone.High resolution Computed tomography thorax showed cavitating consolidation left upper lobe.Sputm staining for Acid Fast Bacilli were negative & MTB was not detected in Sputum CBNAAT examination. Sputum culture&sensitivity showed no growth. Bronchoscopy was done which showed plenty of purulent secretions from left upper lobe apical segment. Bronchial wash staining for Acid Fast Bacilli was negative& bronchial wash for CBNAAT report was MTB NOT detected. Bronchial wash bacterial culture& sensitivity showed growth of Burkholderia pseudomallei resistant to ceftazidime& sensitive to meropenom&cotrimoxazole.Patient was started on meropenom 1gm 8^{th}hrly for 2 weeks along with co-trimoxazole double strength 12^{th}hrly. After 2 weeks patient was discharged with co-trimoxazole for three months.Patient was followed up after 2 weeks and was clinically &radiologically better.

Discussion

The present study reports five cases of pulmonary melioidosis within a span of three month in Kannur district Kerala.Of the five patients 4 were females & two of them were below 50 years. Two patients were without any co-morbidity. Two patients were diabetic on oral hypoglycaemic agents &poorly controlled.

One patient was having Rheumatoid arthritis.Two patients were having altered renal function hence drugs were given in renal modified dose.

Chest xray of 4 patients were showing cavitating consolidation.

One patients xray chest showed reticular shadows in the right lower zone.

3 patients required intensive care unit admission.Two of them had hemoptysis during hospital stay.

3 patients were having symptoms more than 6 months & 2 patients were undergone bronchoscopy from another hospital before coming here & one patient was diagnosed of meliodosis but patient did not complete the treatment.we had done bronchoscopy for one patient& bronchial wash culture showed resistant forms of pseudomonas burkhodelria.Out of the 5 patients 4 patients were discharged after significant improvement with intensive phase therapy.One patient discharged against medical advise after one week& thereafter not turned for follow up.Immunocompromised patients and those with chronic kidney disease (CKD) are more susceptible to the disease.20 In our study also 3 patients were having co-morbidities like diabetes,ckd&RA

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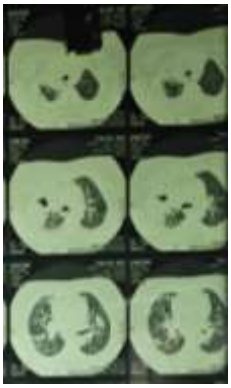
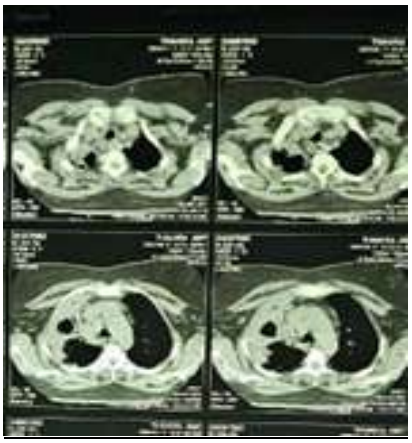
FIGURES

Case1





Casereport 2