



CEPACIA- AN UNSOLVED PUZZLE

Internal Medicine

Mohammed Shanil P

DM Cardiology resident, Government Medical College, Kannur.

Farsana Jasmin K MD Radiotherapy resident, Government Medical College, Kozhikode.

ABSTRACT

Burkholderia cepacia is a pathogen usually causing infection to immunocompromised or hospitalized patients. Burkholderia is considered as one of the main causal agents of sepsis commonly associated with various health care products constant risk for people with certain predisposing characteristics, such as those suffering from chronic obstructive pulmonary disease (COPD), ventilator-associated pneumonia (VAP) or Cystic fibrosis. It is also associated with infections in patients with underlying lung disease, such as cystic fibrosis and chronic granulomatous disease. We present a case of *B. cepacia* sputum positivity in a patient with COPD who was hospitalized due to chronic infection. We speculate that *B. cepacia*, as a chronic colonizer, may cause infections in patients with lung disease other than cystic fibrosis.

KEYWORDS

Burkholderia cepacia , chronic obstructive pulmonary disease, Cystic fibrosis, sputum positivity, infections.

INTRODUCTION

In 1950, William Burkholder first described *Pseudomonas cepacia* as a plant pathogen capable of causing onion rot. However, when molecular taxonomic analysis was performed on these pseudomonas species, several, including *P. cepacia*, were transferred to a new genus, *Burkholderia*. *Burkholderia cepacia* is a Gram-negative, glucose-non-fermenting, motile, aerobic bacillus. It exhibits a high nutritional versatility and is resistant to many antibiotics and disinfectants, including povidone iodine and chlorhexidine. It was discovered by W.H. Burkholder in 1950 as the etiologic agent of sour skin disease in onions. It is associated mainly with infections in patients with underlying lung disease, such as cystic fibrosis and chronic granulomatous disease, as well as in immunocompromised individuals, hospitalized patients and drug addicts.

CASE

A 48-year-old male known case of COPD on inhalers presented to ER with high grade fever and chills along with productive cough for 2 weeks followed by pedal edema for 1 week. He had undergone pancreaticojejunostomy for chronic calcific pancreatitis 2 years back. General examination revealed pallor and bilateral pitting pedal edema along with a horizontal inverted V shaped scar over epigastrium. Vitals found to be stable. Chest examination revealed bilateral fine crackles.

OBSERVATION

Routine blood investigations revealed anemia, leukocytosis, high ESR (110mm/hr) and hypoalbuminemia. Additional investigations like S.TSH elevated with normal T3 and T4. CT chest showed multiple thick cavitary lesions involving both lung fields showing air fluid level with mild pleural effusion. Sputum examination showed Gram negative bacilli and no acid fast bacilli. Sputum culture yielded growth of non-fermentative Gram negative bacilli on two occasions, but blood culture was sterile. Sputum C&S revealed *Burkholderia cepacia* using PCR-RFLP. During the course in the hospital, she was treated with culture specific antibiotics, cotrimoxazole thus showing clinical improvement on follow-up.



Fig 1- Sputum gram stain- Gram negative Bacilli

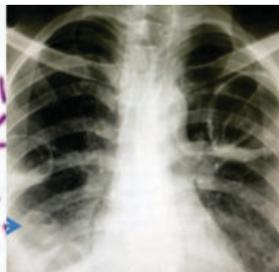


Fig 2- CXR-Multiple air-fluid levels with haziness

Clinical Significance

Physicians should have a high index of suspicion for *Burkholderia cepacia* infection while evaluating COPD patient with features of

chest infection in the setting of chronic calcific pancreatitis. The early and accurate microbiological diagnosis of pulmonary infection by *BC* in people with CF is complicated by the lack of international consensus on the optimal conditions for their isolation, since the species of this complex present a high diversity of phenotypes and genotypes that commonly result in misidentification. Early diagnosis and proper treatment is key to the success of therapy in this potentially devastating infection.

REFERENCES

- Niyas Khalid Ottu Para, Sreya Vemuri, Georger Koshy, Dima Ibrahim, Seema Oomen, Sudhakar V. Reddappa, Mohammad Shoaib Nadaf, Raja Muhammad Irfan, Nicholas Wyon, Mohammed Zeki Ahmed, Supriya Sundaram, Management of *Cepacia* syndrome in an immunocompetent non-cystic fibrosis adult patient, *International Journal of Infectious Diseases*, Volume 122, 2022, Pages 550-552, ISSN 1201-9712, <https://doi.org/10.1016/j.ijid.2022.07.004>.
- Datta Priya, Gupta Menal *, Kumar B. Mani, Gupta Varsha and Chander Jagdish, *Burkholderia cepacia* Complex Causing Pneumonia in an Immunocompetent Non-Cystic Fibrosis Patient: Case Report and Review of Literature, *Infectious Disorders - Drug Targets* 2020; 20 (1). <https://dx.doi.org/10.2174/1871526518666181022112857>.
- Abdallah, Mohammad, Hassan A. Abdallah, and Ziad A. Memish. "Burkholderia cepacia complex outbreaks among non-cystic fibrosis patients in the intensive care units: a review of adult and pediatric literature." *Infez Med* 26.4 (2018): 299-307.
- D.K. Matthaiou, E. Chasou, S. Atmatzidis, P. Tsolkas, A case of bacteremia due to *Burkholderia cepacia* in a patient without cystic fibrosis, *Respiratory Medicine CME*, Volume 4, Issue 3, 2011, Pages 144-145, ISSN 1755-0017, <https://doi.org/10.1016/j.rmedc.2010.11.002>.
- Bressler AM, Kaye KS, LiPuma JJ, et al. Risk Factors for *Burkholderia cepacia* Complex Bacteremia Among Intensive Care Unit Patients Without Cystic Fibrosis: A Case-Control Study. *Infection Control & Hospital Epidemiology*. 2007;28(8):951-958. doi:10.1086/519177.