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**CASE REPORT****The great mimicker “*Burkholderia cepacia*”: A case of intra-abdominal abscesses**Divya Prabhu<sup>1</sup>, Guru Prasad Ravikumar<sup>1\*</sup>, Ashwin Kulkarni<sup>1</sup>, Megha Gopal<sup>2</sup><sup>1</sup>Department of General Medicine, <sup>2</sup>Department of Microbiology, M S Ramaiah Medical College, Bangalore-560054 (Karnataka) India

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**Abstract**

*Burkholderia cepacia* infections are underreported and often seen in immunocompromised or cystic fibrosis patients. We describe a case of intra-abdominal abscesses and bacteraemia due to *Burkholderia cepacia* in a non-cystic fibrosis patient. A middle aged farmer with uncontrolled diabetes presented with 1 month of fever, abdominal pain, anorexia and weight loss. Examination revealed hepatosplenomegaly. Imaging showed multiple abscesses in liver and spleen. *Burkholderia cepacia* grew in the blood cultures. Patient showed clinical and radiological resolution post treatment with meropenem and subsequently co-trimoxazole. Clinicians' awareness, targeted investigations and early therapeutic intervention are essential for diagnosis and management of *Burkholderia cepacia* infections.

**Keywords:** *Burkholderia cepacia*, Diabetic, Immunocompromised, Abscess

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**Introduction**

Lesser known than other gram-negative bacilli, *Burkholderia cepacia* Complex (BCC) are ubiquitous organisms and one of the non-fermenters with very few reported infections in humans [1-2]. It consists of 10 different genomovars which are antimicrobial – resistant [3-4]. They are often misidentified as other pathogenic organisms including pseudomonas. Infections are generally seen in cystic fibrosis patients. Clinical manifestations vary from asymptomatic infection to life threatening respiratory infections. Intra-abdominal infection due to *Burkholderia cepacia* is uncommon. *Burkholderia* infection mimics tuberculosis closely due to similar clinical profile and long-standing symptoms especially in endemic regions of the world. Its inconspicuous nature, clinical similarity with tuberculosis, inadequate physician awareness and inherent anti-microbial resistance have interfered with its recognition as an important human pathogen [5-6]. We report a case of

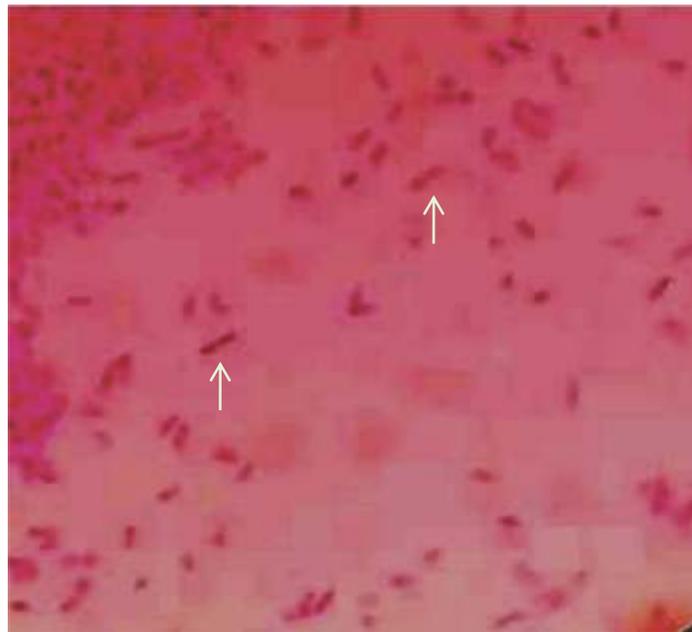
*Burkholderia cepacia* infection with intra-abdominal abscesses in a patient with uncontrolled diabetes.

**Case Report**

A 37-year-old farmer with diabetes since 8 years, presented with history of high-grade fever, chills and rigor since 1 month. Patient complained of abdominal pain initially in right upper quadrant which progressed over 1 month to involve the whole of upper part of abdomen. Patient also had anorexia and noticed weight loss of 13 kg in the past 1 month. Patient was prescribed oral hypoglycaemic agents. However, he was non-compliant to therapy. On visiting the local physician for the above complaints, patient was treated with injection ceftriaxone for 1 week. Despite treatment patient noticed no symptomatic improvement. On examination, pulse was 108/min, blood pressure was 136/70 mm Hg, respiratory rate 26/min, temperature 100° F, with pallor and

leukonychia. Abdominal examination showed epigastric, right and left hypochondriac tenderness, with hepatosplenomegaly and no evidence of free fluid in the abdomen. Investigations revealed microcytic hypochromic anaemia, with neutrophilic leucocytosis, normal renal and liver functions, normal serum amylase and lipase levels. Glycated Haemoglobin (HbA1c) was 10% and abdominal ultrasonography unveiled multiple liver and splenic abscesses. Contrast Enhanced Computerized Tomography (CECT) abdomen was suggestive of multiple cystic lesions in liver with largest having a diameter of 48 mm and multiple hypoattenuating lesions in spleen with largest measuring 60 × 54 mm. *Burkholderia cepacia* grew in the blood culture. The isolate was identified using Vitek 2 compact automated machine and confirmed by manual phenotypic methods. The phenotypical methods confirmed that it was

catalase positive, oxidase positive, non-lactose fermenting colonies showing non fermenting pattern and the lysine decarboxylated, beta galactosidase activity was positive and growth at 42 degree Celsius was positive. Sensitivity testing was done using Kirby Bauer disc diffusion test. It was sensitive to meropenem, imipenem, ciprofloxacin, amikacin and co-trimoxazole. The patient was given meropenem 1g intravenous thrice daily for 14 days. As the hepatic abscess was large, with a risk of rupture, CT guided aspiration was done and a pig tail catheter was placed, and removed after 3 days as the collection in the bag had significantly reduced. Patient was afebrile since day 5 of antibiotics and was discharged with oral trimethoprim-sulfamethoxazole for 3 months. On follow up after a month, patient remained symptom free and repeat sonography was suggestive of resolution of liver and splenic abscesses.



**Figure 1: Gram-negative bacilli staining in a bipolar manner, resembling safety pins**



**Figure 2: Multiple hepatic and splenic abscesses seen on contrast enhanced computed tomography**

### Discussion

Upon discovery in 1950 by William Burkholder, *Burkholderia cepacia* was called *Pseudomonas cepacia* initially and considered a plant pathogen. However, in recent times, it has been found to be an important pathogen, especially in immunocompromised or cystic fibrosis patients. In India, there have been only few recorded cases of intra-abdominal abscesses caused by *Burkholderia cepacia* in non-cystic fibrosis patients [4, 7]. A case series by Dhanawat *et al.*, reported six cases of intra-abdominal abscesses secondary to *Burkholderia cepacia* complex, with uncontrolled diabetes being the common factor among all cases [6].

*Burkholderia* is also a masquerader. Due to similar clinical manifestations and slow nature of the disease, it often poses a diagnostic challenge in tuberculosis endemic area [8].

The clinician is also tasked with differentiating it from enteric fever [6, 9]. Antibiotics for treating *Burkholderia cepacia* include co-trimoxazole, ceftazidime and meropenem used alone or in combination. It is innately resistant to various antimicrobial agents including polymyxins, aminoglycosides, chloramphenicol and beta-lactams [3, 10].

### Conclusion

Physicians' awareness is cardinal to the diagnosis of infection with *Burkholderia cepacia* complex. It is less known, not routinely isolated and often misdiagnosed as tuberculosis or enteric fever. Liaison with microbiologist is essential for early identification and institution of therapy. Treatment usually is long term to ensure resolution and to prevent complications including death.

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