NEONATE WITH PNEUMONIA CAUSED BY BURKHOLDERIA CEPACIA COMPLEX – A STITCH IN TIME

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SUMMARY: As rightly said, a stitch in time saves nine. On 22 November 2022, a neonate was brought by his parents to emergency department of Combined Military Hospital (CMH) Lahore, on third day of his life with symptoms of breathlessness for last two days and poor feeding for last one day. Baby was delivered by emergency Cesarean-section owing to premature rupture of membranes at 38 weeks of gestation, at a private medical center at Borewala, Punjab and the Apgar Score was 10/10. The diversity of etiology of neonatal respiratory distress paused a greater challenge for targeted management. Along with various radiological and laboratory investigations, single blood culture specimen taken by the microbiology team at CMH Lahore, timely and rightly identified the causative pathogen *Burkholderia cepacia* complex. Neonate was treated according to Antibiotic Sensitivity Testing (AST) given and was discharged from hospital as a healthy baby.

KEY WORDS: *Burkholderia cepacia* complex, respiratory distress, meropenem, blood culture

How to cite this article: Khawaja A, Younas A, Farooque MA**.** Neonate With Pneumonia Caused by Burkholderia Cepacia Complex – A Stitch in Time. Pak Postgrad Med J 2023;34(1): 218-219

DOI: https://doi.org/10.51642/ppmj.v34i04.573

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CASE REPORT

A normal first borne baby delivered at 38 weeks of gestation, developed mild breathlessness within 24 hours of his life followed by restlessness, irritability and poor feeding. The core body temperature was 102˚F (38.8˚C), pulse rate was 116 beats per minute, respiratory rate 65 breaths per minute and associated with labored breathing. Patient was admitted in Neonatal Intensive Care unit for management. Oxygen saturation on pulse oximeter was 93% and bilateral crackles on chest auscultation. X-ray chest findings were also consistent with lung pathology, revealed infiltrates in the lower lung fields bilaterally. Rest of the cardiac, gastrointestinal and central nervous system examination was unremarkable. Blood samples were drawn for various laboratory investigations and patient was given empirically injection Ceftriaxone 50mg/ kg intravenous divided into 12 hourly doses, however patient showed no signs of improvement. To help him coup up with the severe ongoing respiratory distress, neonate was given Continues positive airway pressure (CPAP) as respiratory support. Various laboratory investigations were done to monitor the condition of the infant.

Sample of blood for Culture & Sensitivity was processed in Microbiology Section pathology Department through Automated Blood Analyzer (BacT/ALERT® 3D), after flag positive beep, blood was inoculated on Blood, Chocolate and MacConkey agar (Fig 1 & 2). Culture yielded growth of non-Lactose Fermenting, non-hemolytic, late oxidase positive colonies. Microscopy of specimen and culture growth showed Gram negative rod. Biochemical tests were performed (catalase, oxidase, motility tests and bile esculin were positive; DNase test was negative) as per CMPH[1] guidelines along with Analytic profile index (API) 20 NE.

Antimicrobial Sensitivity Testing was applied following CLSI 2022 guidelines[2], all the tested drugs (Levofloxacin 5µg, Meropenem 10µg, Ceftazidime 30µg, Minocycline 30µg, Chloramphenicol 30µg, Co-trimoxazole 25µg) were sensitive. The clinician was informed immediately about the culture sensitivity report, antibiotics were changed and patient was started injection meropenem[3] and patient's condition improved remarkably with injectable antibiotics.

DISCUSSION

Burkholderia cepacia is a non-lactose fermenting, catalase-producing, Gram-negative bacillus.[4] This bacterium belongs to a complex group of ubiquitous organisms, commonly known as environmental saprophyte and found in soil, water, food and plants. This bug is notorious for causing infections in chronic granulomatous disease patients, cystic fibrosis, immunocompromised hosts, extremes of ages, malignancy and/ or device-associated infections.[5]

World-wide, other than outbreaks; case reports have been documented from different regions caused by *Burkholderia cepacia*. Ishtiaq et al has reported an unusual case presented as signs of meningeal irritation and later her blood culture became positive for *Burkholderia cepacia*.[6] Mali et al has documented an outbreak of *Burkholderia cepacia* complex in the pediatric unit of a tertiary care hospital. A systematic review of healthcare-associated *Burkholderia cepacia* complex outbreaks was published by Häfliger et al.[7]

Fig-1: Colony Morphology on Blood Agar

Fig-2: Colony Morphology on MacConkey Agar

Isolated case and especially outbreaks in health care settings caused by this uncommon pathogen are becoming a challenge for medical personnel as it is resistant to antibiotics of last resort such as colistin. Most of the studies have shown the association of medical instruments, contaminated disinfectants, medical solutions and medication, and probe gels. Infection control practices need to be revised and implemented with strict compliance to curtail the intrinsic and extrinsic factors, later becoming the reason of life-threatening situations.

CONCLUSION

Hospital acquired infections, if not diagnosed and treated rightly and timely can cause significant morbidity and mortality. Incorrect identification of pathogen with improper empirical therapy is further enhancing antimicrobial resistant among isolates. Correct identification of pathogen in time with targeted therapy can be proven as

Ethical Approval: *Submitted*
Conflict of Interest: *Authors declare no conflict of interest.*
Funding Source: *None*

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