Case Report

ISSN (0): 2347-3363; ISSN (P): 2347-3355

Elizabethkingia Meningoseptica: An Emerging Pathogen Causing Neonatal Meningitis. A Case Report

Vishnu K P[1], Bindu A[2], Dhanya[3], Purushothaman[4]

[1]Junior Resident, Department of Paediatrics, MES Medical College, Perinthalmanna, India.

[2]Professor, Department of Paediatrics, MES Medical College, Perinthalmanna, India.

[3]Assistant Professor, Department of Paediatrics, MES Medical College, Perinthalmanna, India.

[4]Professor & HOD, Department of Paediatrics, MES Medical College, Perinthalmanna, India.

Abstract

Background: Elizabethkingia meningoseptica is a non-fermentative gram-negative bacillus ubiquitously found in hospital environment and commonly resistant to multiple antibiotics. Early diagnosis and institution of antibiotic therapy for appropriate duration is essential. We report two cases of bacteremia of Elizabethkingia. meningoseptica treated successfully with antibiotics and supportive meassures.

Keywords: Elizabethkingia meningoseptica, Meningitis, Prematurity, Multidrugresistant.

Corresponding Author: Dr. Vishnu K P, MES Medical College, Perinthalmanna, India.
Email: kpvishnumkd@gmail.com

Received: 20 January 2023 **Revised: 08 March 2023** **Accepted: 21 March 2023** **Published: 31 March 2023**

Introduction

Elizabethkingia menigioseptica is ubiquitous gram-negative bacilli widely distributed in nature, particularly in soil and water[1] and more commonly infectimmuno compromised babies.[2] It has a unique antibiotic susceptibility pattern.[3-6] and has high mortality rate because of multi drug resistance.[7-10]This case report highlights the importance of early detection of this organism and appropriate antibiotic treatment to decrease mortality and morbidity in babies.

CASE1

5 day old male baby of 34weekgestation born to mother with antenatal history of foetal distress and preterm labour pain. Baby cried soon after birth, developed respiratory and was admitted.

After an initial period of improvement, on day six baby developed poor feeding and abnormal jerky movements of all four limbs. On examination was in active seizure, had respiratory distress with DOWNE score 6, associated with features of shock.

Blood investigations showed anemia, positive sepsis screen and severe metabolic acidosis. Chest xray showed bilateral heterogenousopacities with adequate lung expansion. Echocardiogram showed moderate sized ventricular septal defect, small a trial septal defect and small patentductusarteriosus.

Clinical suspicion of neonatal sepsis with meningitis was made. Blood culture isolated E. meningoseptica species. Cerebral spinal fluid analysis showed features of meningitis. Neurosonogram showed echogenic leptomeningial thickening with mild lateral and third ventriculomegally which were confirmed by magnetic resonance imaging which also showed venousthrombosis. Baby was treated with sensitive antibiotics for six weeks. Baby improved gradually repeated csf analysis before discharge showed normal study. On follow up during the initial 4 months, baby was found to have normal growth, development, vision and hearing. Repeat neurosonogram showed mild lateral ventriculomegaly only.

CASE 2

A 32 week, AGA baby born to mother with antenatal history of hepatitis A and urinary tract infection by preterm vaginal delivery with meconium stained amniotic fluid. Baby had respiratory distress soon after birth with DOWNE score of 5 and was admitted in NICU. Baby was shifted to mother side after one week. Developed poor feeding, lethargy on day ten of life and evaluated.

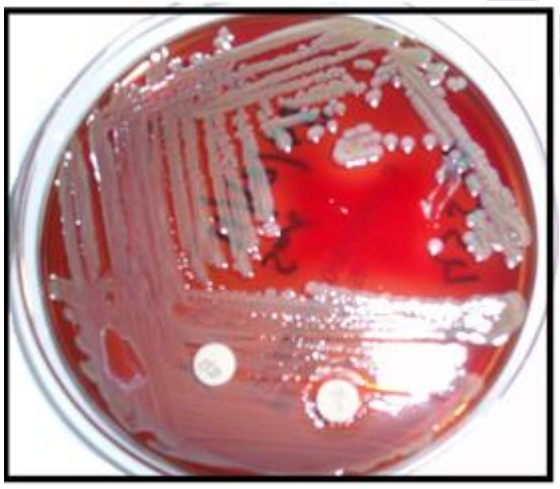
Investigations done showed positive sepsis screen. Chest x ray showed right sided opacity. Blood culture done isolated Elizabethkingia meningoseptica growth. CSF analysis showed features suggestive of meningitis.

Baby was initially started on empirical antibiotics and later changed to sensitive antibiotics (ivcotrimoxazole) and given for three weeks and repeated sepsis screen was negative. During follow up baby was active, thriving well, development was normal, neurosonogram also within normal limit.

Discussion

Elizabethkingia meningoseptica is well known to cause infections in premature newborns and infants, meningitis being the most common infection with a reported death rate of 57%.[11] Lin et al.[12] reported a 28 day mortality of 41% for healthcare associated Elizabethkingia meningoseptica bacteramia. Healthcare associated elizabethkingia meningoseptica infection has been reported to have higher mortality of approximately43% in some studies as opposed to 9.1% for community acquired infection.[13] The clinical spectrum of disease due to elizabethkingia meningoseptica may range from simple colonisation to symptomatic acute infection and further more to infection related sequelae.[14]

Elizabethkingia meningoseptica infection is very challenging to both clinicians and microbiologists. It is resistant to commonly used antibiotics for treating gram – negative bacterial infections, including extended spectrum β-lactam (ESBL) agents (due to production of two beta- lactamases: one ESBL and one carbapenem- hydrolyzing metalloβ-lactamase), aminoglycosides, tetracycline, and chloramphenicol. Only limited antibiotic classes are available as treatment options. Presently, ciprofloxacin, cotrimoxazole, minocycline, and rifampin are being considered as good alternatives.



Blood agar showing the isolate of Elizabethkingia meningoseptica organism.

In our case report, both of them were preterm babies, developed features of sepsis during the second week of kife. Both had features of meningitis, and responded to cotrimoxazole very well.

Therefore it should always be considered in the etiological diagnosis of septicemia in babies who are immune compromised, preterm, and those on central catheter.

Inappropriate use of antimicrobial therapy may lead to negative consequences on mortality and morbidity in babies infected with this pathogen.

Conclusion

These case reports underscore the importance of early detection of this organism which will help us to start antibiotic therapy early and prevent complications. Trimethoprim and sulfamethoxazole is highly efficacious against E. meningoseptica and may be started empirically in case of an outbreak. Future studies are required to determine the clinical response to different treatment modalities and to decide about empirical treatment approach.

References

1. Issack MI, NeetooY. Anoutbreakof ElizabethkingiameningosepticaneonatalmeningitisinMauritius.J InfectDevCtries2011; 5:834-9.
2. Ceyhan M, Celik M. Elizabethkingiameningosepticum (Chryseobacteriummeningosepticum)InfectionsinChildren.IntJ Pediatr2011;2011:215237
3. SarmaS, KumarN, Jha A, Baveja U, Sharma S. Elizabethkingia meningosepticum: An emerging cause of septicemia in critically III patients. J Lab Physicians 2011;3:62-3.
4. Lin PY, Chu C, Su LH, Huang CT, Chang WY, Chiu CH. Clinical and microbiologicalanalysisofbloodstreaminfectionscausedby Chryseobacteriummeningosepticuminnonneonatalpatients.JClinMicrobiol2004; 42:3353-5.
5. Jean SS, Hsieh TC, Ning YZ, Hsueh PR. Role of vancomycin in the treatment of bacteraemia and meningitis caused by Elizabethkingia meningoseptica. International Journal of Antimicrobial Agents. 2017 Oct 1;50(4):507-11.
6. Hsu MS, Liao CH, Huang YT, Liu CY, Yang CJ, Kao KL, Hsueh PR. Clinical features, antimicrobial susceptibilities, and outcomes of Elizabethkingia meningoseptica (Chryseo bacterium meningosepticum) bacteremia at a medical center in Taiwan, 1999–2006. European journal of clinical microbiology & infectious diseases. 2011 Oct;30:1271-8.
7. Jean SS, Lee WS, Chen FL, Ou TY, Hsueh PR.Elizabethkingia meningoseptica: an important emerging pathogen causing healthcare-associated infections. Journal of Hospital Infection. 2014 Apr1; 86(4):244-9.
8. Jean SS, Hsieh TC, Ning YZ, Hsueh PR. Role of vancomycin in the treatment of bacteraemia and meningitis caused by Elizabethkingiameningoseptica. International Journal of Antimicrobial Agents. 2017 Oct 1;50(4):507-11.
9. Khan ID, Lall M, Sen S, Ninawe SM, Chandola P. Multiresistant Elizabethkingi ameningoseptica infections in tertiary care. Medical journal armed forces india. 2015 Jul 1;71(3):282-6.
10. Lin JN, Lai CH, Yang CH, Huang YH. Comparison of clinical manifestations, antimicrobial susceptibility patterns, and mutations of fluoroquinolone target genes between Elizabethkingia meningoseptica and Elizabethkingia anophelis isolated in Taiwan. Journal of clinical medicine. 2018 Dec 11;7(12):538.
11. Bloch KC, Nadarajah R, Jacobs R. Chryseobacteriummeningosepticum: an emerging pathogen among immunocompromised adults. Report of 6 cases and literature review. Medicine (Baltimore) 1997;2013:30–41
12. Lin YT, Chiu CH, Chan YJ, et al. Clinical and microbiological

analysis of Elizabethkingia meningoseptica bacteremia in adult patients in Taiwan. Scand J Infect Dis 2009;2013:628–34
13. Hung PP, Lin YH, Lin CF, et al. Chryseobacteriummeningo septicum infection: antibiotic susceptibility and risk factors for mortality. J Micro boil Immunol Infect 2008;2013:137–44
14. Cabrera HA, Davis GH. Epidemic meningitis of the newborn caused by flavobacteria. I. Epidemiology and bacteriology. Am J Dis Child 1961;2013:289–95.

How to cite this article: Vishnu, Bindu, Dhanya, Purushothaman. Elizabethkingiameningo septica: An emerging pathogen causing neonatal meningitis. A Case Report. Asian J. Clin. Pediatr. Neonatol.2023;11(1):1-3.

DOI: dx.doi.org/10.47009/ajcpn.2023.11.1.1

Source of Support: Nil, **Conflict of Interest:** None declared.