Case Report

Corynebacterium falsenii Bacteremia Occurring in a Term Neonate Causing Late Onset Neonatal Sepsis

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Isolated from blood and Cerebrospinal Fluid (CSF) cultures of Leukemia and Lymphoma patients, *Corynebacterium falsenii* was first identified in 1998 as a new *Corynebacterium* species. In 2010, it was reported as a cause of Bacteremia in a 13-month-old infant on Vancomycin therapy. We are hereby describing a *Corynebacterium falsenii* bacteremia occurring in a 15-day-old term neonate causing late onset Sepsis.

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Key words **: Corynebacterium falsenii, Late onset neonatal sepsis.**

Case Report

A 25-year-old second gravida who had received two doses of Antenatal Tetanus Vaccine, with an uneventful previous birth history, presented with obstructed labor at 39 weeks of gestation at R.G. Kar Medical College and Hospital, Kolkata. A baby boy was delivered by Emergency Caesarean Section. The mother had received Injection Ceftriaxone before Caesarean Section.

The baby was of 2.1 kg body weight at birth, cried at birth, no cyanosis, pallor, icterus at birth. Baby received Day 0 doses of Vaccine. Mother and child were kept for observation. On the seventh day, baby was starting to develop intolerance to feeds and developed Hyperthermia from the Eighth day. The baby was lethargic and was put on Injection Piperacillin-Tazobactam and Injection Amikacin. There was no congestion in chest, bowel sounds were normal. Baby showed no signs of improvement after 5 days of Injection Piperacillin-Tazobactam and Injection Amikacin. The baby was suspected to have Late Onset Neonatal Sepsis and blood was sent for Culture and Sensitivity Testing.

After 5 days of aerobic incubation, culture in blood agar showed non-hemolytic pin-point translucent colonies which turned yellow after 36 hours of incubation. Colonies were catalase positive and coagulase negative and Gram stain showed Gram Positive Bacilli arranged in cuneiform patterns. The colonies were thus of Diphtheroid.

The bacteria did not reduce nitrate, fermented Glucose with acid and gas production, fermented Maltose and slowly fermented Lactose. It did not ferment Sucrose, Mannitol, Mannose, Sorbitol, Xylose, Arabinose. Urea was hydrolyzed after more than 48 hours of incubation (Fig 1).

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Editor's Comment :

- Proper sterilization must be maintained in neonatal care units and hand hygiene of the caregivers must be ensured. Also, the affected neonate should be isolated to prevent a pseudo-outbreak of the infection in Neonatal Intensive Care Unit (NICU).

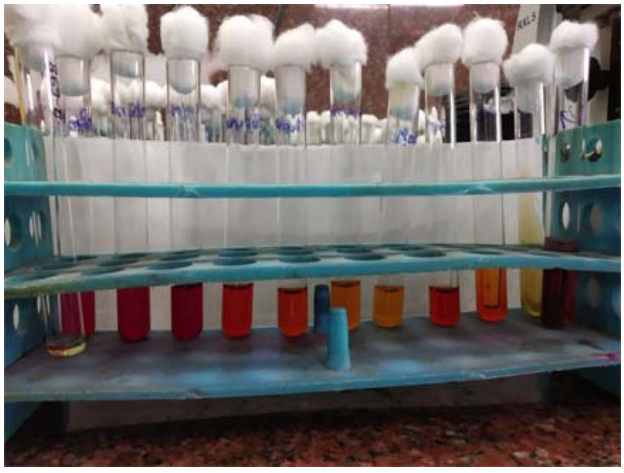

Fig 1 — Biochemical test results for the Corynebacteria isolate.

Antibiotic sensitivity testing revealed, the bacteria was susceptible to Gentamycin, Imipenem, Clindamycin, Vancomycin, Linezolid, Ciprofloxacin, Cefalexin and Meropenem and resistant to Erythromycin, Ampicillin, Chloramphenicol, Penicillin, Cotrimoxazole and Aztreonam[1] (Fig 2).

From the above observations, organism was identified to be *Corynebacterium falsenii.*

Piperacillin-Tazobactam and Amikacin therapy was discontinued and the neonate was put on various combination therapies of Vancomycin, Clindamycin, Meropenem and he showed good clinical response and subsequently defervesced.

Fig 2 — Antibiotic Susceptibility Pattern of the Corynebacteria isolate

Discussion

Corynebacterium species are commensals, and have been isolated from skin, mucous membranes as well as gastrointestinal tract[3]. *Corynebacterium falsenii* had been first characterized and isolated in 1998[5]. Based on 16s rRNA sequencing data, it is most closely phylogenetically related to *Corynebacterium jeikeium* with 2% sequence divergence genealogically[5]. Although it has been previously found among other animals like Eagles and storks[2], after being isolated from sterile sites including blood and CSF[3,5], *Corynebacterium falsenii* has been recognized as a potential human pathogen. Here was report a case of late onset Neonatal Sepsis caused by *Corynebacterium falsenii*.

Phenotypic species level identification of *Corynebacterium falsenii* can be difficult owing to weak/delayed and overlapping biochemical reactions among different *Corynebacterium* species[6-8]. Of all the *Corynebacteria* associated with human specimens, only *C xerosis* and *C falsenii* are non-lipophilic species with yellow pigmentation and the former is distinguished by its characteristic dry colony morphology[8,9]. In our case, the organism had features corroborating with reported expectations from *Corynebacterium falsenii* including smooth yellow pigmented colonies and delayed fermentation of Glucose and slow hydrolysis of Urea. Similar to *C jeikeium*, *C falsenii* is susceptible to Vancomycin, however unlike its close relative, *C falsenii* does not have intrinsic broad antimicrobial resistance[8,9].

In summary, the data reported here on Neonatal Sepsis caused by *Corynebacterium falsenii* supports the postulation that the organism is a cause of clinically significant disease.

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