

## A Case of Scalp Abscesses in an Immunocompetent Neonate Caused by *Morganella morganii*

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### Abstract

*Morganella morganii* is an infrequent cause of disease in healthy humans, however, it can cause fatal infections in immunocompromised hosts, such as premature newborns. A full-term with a neonatal infection by *M. morganii* is extremely rare and upon review we found only 15 such cases in the literature. In this report, we present an immunocompetent 3 week old with no significant past medical history that presented with a scalp abscess by *M. morganii*. This case is remarkable in its uncharacteristic presentation with no obvious medical conditions that would set the patient up for such an infection.

**Keywords:** *Morganella morganii*; Cephalohematoma; Abscess; Neonate

### Abbreviations

MRI: Magnetic Resonance Imaging; CT: Computed Tomography; MRSA: Methicillin Resistant *Staphylococcus aureus*

### Introduction

*MORGANELLA MORGANII* IS AN INFREQUENT CAUSE OF DISEASE IN HEALTHY HUMANS. ONE STUDY ONLY ATTRIBUTED *MORGANELLA MORGANII* FOR 0.69% OF ALL BACTEREMIA FOUND [1-5]. HOWEVER, IT IS A GRAM-NEGATIVE BACILLUS THAT CAN CAUSE FATAL INFECTIONS IN IMMUNOCOMPROMISED HOSTS, SUCH AS PREMATURE NEWBORNS. FULL TERM NEONATAL INFECTION WITH *M. MORGANII* IS EXTREMELY RARE AND UPON REVIEW WE FOUND ONLY 15 CASES OF NEONATAL INFECTION. OF THESE 15 CASES, MOST RESULTED IN NEONATAL SEPSIS AND ONE RESULTED IN BRAIN ABSCESS, BUT NO REPORTED CASES OF SCALP ABSCESES. *M. MORGANII* IS COMMONLY RESISTANT TO PENICILLINS AND EARLY GENERATION CEPHALOSPORINS. A STUDY DONE WITH 8000 NEWBORN INFANTS AT THE NEONATOLOGY DEPARTMENT OF THE UKC TUZLA FOUND 3.6% OF *M. MORGANII* BACTEREMIA AMONG NOSOCOMIAL INFECTIONS IN NEWBORNS [6]. IN THIS CASE REPORT, WE PRESENT A 3 WEEK OLD INFANT WITH NO COMPLICATIONS DURING DELIVERY THAT DEVELOPED MULTIPLE SCALP ABSCESES DUE TO *M. MORGANII* INFECTION. WE BELIEVE THAT THIS IS THE FIRST CASE OF *M. MORGANII* THAT PRESENTED AS SCALP ABSCESES IN A NEWBORN AND ONE OF THE ONLY THAT DID NOT HAVE SERIOUS MANIFESTATION SUCH AS SEPSIS OR BRAIN ABSCESS.

### Case Report

A 3-week-old infant, born near-term, presented to the emergency department with swollen lesions on her head that developed and enlarged over 5 days. 4 days prior to admission the patient had presented to the ED for an evaluation of the scalp lesions. A non-contrast CT of the head showed a cephalohematoma. No further interventions were done and the patient was discharged home. On the

day of admission, the lesions were larger and had purulent green drainage. Empiric cefepime and vancomycin were started. An MRI of the head showed thinning and erosion of the parieto-occipital calvarium with no extension beyond the bone. Bacterial cultures of the drainage isolated *M. morganii*, and a 14-day course of cefepime and clindamycin was given, with clindamycin to cover for any possible *Staphylococcus aureus*, including MRSA, that may not have grown in the cultures but which are typical pathogens of soft tissue infections. The infant responded to antibiotic therapy well, and was discharged home

## Discussion

*Morganella morganii* is a gram-negative bacillus that causes fatal infections in immunocompromised hosts, such as premature newborns. However, full term neonatal infection with *M. morganii* is rare. As with other neonatal infections, the clinical signs of *M. morganii* sepsis are non-specific. The most common presenting features were fever, perinatal depression and respiratory distress. One neonate presented with fever, anorexia and vomiting, and was later found to have a brain abscess. Abnormal findings in the peripheral blood were very common including leukocytosis. Leukopenia, neutropenia and bandemia. Isolation of microorganisms was diagnostic. A 36% mortality was reported.

Early identification and proper antibiotic use are crucial in order to have full recovery. However, there is no standard antibiotic choice or duration for treating neonatal *M. morganii* infections. Since *M. morganii* is characteristically resistant to many beta-lactam antibiotics, a third generation cephalosporin alone or with gentamicin for 10 - 14 days is effective treatment in patients without complications.

Our patient had early identification of *Morganella* due to aggressive culturing before empiric antibiotics were utilized. We believe early appropriate antibiotics lead to avoidance of serious complications such as sepsis, brain abscess or death. Given the lack of immunocompromised state we believe this child may have had complications of trauma from birth (cephalohematoma) as a possible contributory factor. This case demonstrates that a high index of suspicion to culture may yield positive results in neonatal cutaneous *Morganella morganii* infections.

## Conclusions

Lessons for the clinician to take from this case report include

- 1) *Morganella morganii* is a rare cause of disease in full-term infants which has poor outcomes if with up to 36% mortality if not identified early.
- 2) *M. morganii* is characteristically resistant to many beta-lactam antibiotics, a third generation cephalosporin alone or with gentamicin for 10 - 14 days is effective treatment in patients without complications.

## Author's Contribution

- Harris Khawaja: Visualization, Writing-Original draft preparation.
- Rupesh Natarajan: Writing-Reviewing, Editing, Resources.
- Rita Shah: Supervisor.
- Alvaro Galvis: Conceptualization, Writing-Original draft preparation.

## Conflict of Interest

All authors have no conflict of interest to disclose.

## Informed Consent

Written informed consent was obtained from the patient's family for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal upon request.

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