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Case Study

Umbilical Cord Blood Infection Planned For Marrow Transplant By *Rothia Mucilaginosa*

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ABSTRACT

Rothia mucilaginosa (*R. mucilaginosa*) is a facultative, Gram-positive coccus that is considered to be part of the normal flora of the mouth and respiratory tract. There are sporadic reports of the organism causing endocarditis in patients with heart valve abnormalities, as well as meningitis, septicemia, and pneumonia associated with intravenous drug abuse. However, it is an unusual pathogen in cases of umbilical cord blood infection. Herein, we report a case of umbilical cord blood infection planned for marrow transplant by *Rothia mucilaginosa*.

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INTRODUCTION

Rothia mucilaginosa is a Gram-positive coagulase-negative coccus, known until 2000 as *Stomatococcus mucilaginosus*. It can be difficult to identify, and confusion with *Micrococcus*, *Streptococcus* or *Staphylococcus* may lead to underdiagnosis. The genus *Rothia* belongs to the *Micrococcaceae* family and at least four species have been recognized: *Rothia dentocariosa*, *mucilaginosa*, *nasimurium* and *amarae* [1]. The first two species form part of the oropharyngeal microflora, and have been described as the causative agents of several diseases in humans. It was first described as a source of infection in humans in a case of endocarditis published in 1978.1 In recent years it has been isolated primarily in immunocompromised patients and more rarely in immunocompetent subjects. Cases of bacteremia, endocarditis, central nervous system infections, urinary infections, osteomyelitis, peritonitis [1;2]. We describe here a case of placental blood infection due to *R. mucilaginosa*.

CASE REPORT:

This is a pregnancy programmed for donation of umbilical cord stem cells in a woman with no particular pathological history, especially non diabetic, not followed for a hematopathy, the recipient was his 3 year old son followed for acute

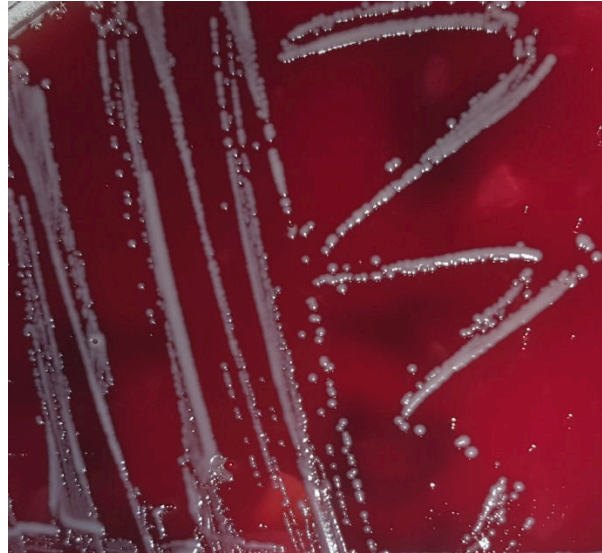
myeloid leukemia. The pregnancy proceeded without any complications, without any notion of maternal infection; she had no history of intrauterine device use. The removal of placental blood was performed in the delivery room under strict aseptic conditions.

After conditioning the sample, the microbiology department received the placental blood to eliminate any infection of the latter. The blood was placed in a blood culture flask and incubated in the BD BACTEC™ FX Instruments automaton, after 24 h the sampling was positive and the direct examination revealed gram positive cocci grouped in clusters, seeding was made on blood agar, chocolate agar and Mannitol Salt Agar. This bacterium grew after 24 hours on chocolate agar and blood agar without any growth on the Mannitol Salt Agar. The colonies were white, non-haemolytic, elastic and adherent to the agar. These colonies had a weakly positive catalase, with a negative oxidase. The identification of this bacterium was carried out in liquid medium on BD Phoenix™ ID & AST automaton, the antibiogram was performed by the blood agar diffusion technique. Antibiotic sensitivities of *R. mucilaginosa* are displayed in Tables 1 and 2, respectively

Table 1. Antibiotic susceptibility of Rothia mucigilanosa

Antibiotic	Susceptibility/Resistant
Ampicillin. CMI:094mg/l	Susceptible
Ampicillin-clavulanicacid	Susceptible
Ceftriaxone.CMI:0.38mg/l	Susceptible
Rifampicin	Susceptible
Imipenem.CMI:0.5mg/l	Susceptible
Erythromycin	Susceptible
Clindamycin	Susceptible
Pristinamycin	Susceptible
Tetracyclin	Susceptible
Kanamycin	Resistant

Tobramycin	Resistant
Gentamicin	Resistant
Vancomycin.CMI:0.5mg/l	Susceptible
Sulfamethoxazole-trimethoprim	Resistant



R. mucigilana colonies grown for 24 hours on blood agar and chocolate agar plate.

Table 2. Characteristics of Rothia Spp [6]

Characterstics	Presence/Absence
Nitrate Reduction	Absent
Pyrazinamidase	Present
Alanine-phenylalanine-proline arylamidase	Present
Alkaline phosphatase	Absent
β -Glucuronidase	Absent
β - Galactosidase	Absent
α - Glucosidase	present

N-Acetyl-D-glucosaminidase	Absent
Esculin hydrolysis	Present
Urease activity	Absent
Gelatin hydrolysis	Absent
Catalase	Absent
Fermentation of Glucose	Present
D-Ribose	Absent
D-Mannitol	Absent
D-Xylose	Absent
Maltose	Present
Lactose	Absent
Saccharose	Present
Glycogen	Absent

Unfortunately, infection of cord song is a contraindication to the transplantation of these stem cells.

DISCUSSION.

To the best of our knowledge, this is the first report of a *Rothia mucilaginosa* culture humain placental blood in human.

Common biochemical characteristics of *R. mucilaginosa* are displayed in Table 2. The antimicrobial susceptibility of the organism was assessed using the disk diffusion method. Because there are no Clinical and Laboratory Standards Institute criteria for *Rothia* spp. categorical interpretations (susceptible, intermediate, or resistant) for disk diffusion tests were the CASFM-EUCAST interpretative criteria for *staphylococcus* [3]. In Similarity to *Actinomyces species*, *Rothia* species are considered to be normal inhabitants of the oral cavities of humans [1] and rarely cause serious infections (endocarditis, sepsis, dialysis-related peritonitis, endophthalmitis, arthritis, and pneumonia) [4].

A recent report documented a case of intrauterine fetal death at full term with a possible association to *R. dentocariosa* [5]. And another Case Report of Sepsis Due to *Rothia aeria* in a Neonate [6]. In a recent

study was conducted in 59 women with preterm prelabor rupture of membranes, showed the presence of *Rothia mucigilanos* in the amniotic fluid in 1 of 59 women. However, we were unable to find any reported placental blood infection due to *R. mucilaginosa*. [7]

We suspect that direct hematogenous placental infection through the maternal blood supply or infectious placental contiguity from the uterine wall lesion was the more likely route of bacterial entry.

It is possible that the positive blood culture is the result of contamination of the placental blood during sampling. In any case the transplant from this blood was canceled to avoid any complications.

CONCLUSION:

Through this observation, we report a case of placental blood infection planned for bone marrow transplantation by *R. mucilaginosa*. This bacterium is recognized as an emerging opportunistic pathogen. It may be difficult to identify and can easily be mistaken for staphylococci or streptococci. The diagnosis of infections with emerging or sporadic germs such as *R. mucilaginosa* is all the more relevant.

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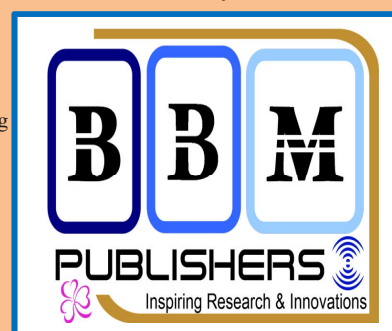
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