

Gluteal abscess caused by *Rothia dentocariosa* in a sick but immunocompetent adult: A case report and review of literature

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ABSTRACT

Rothia dentocariosa is a Gram-positive, coccoid to bacillus-shaped bacterium. It is a normal commensal of the oral cavity of humans. It is also an incidental and occasional cause of infections. We, here, report a case of gluteal abscess due to this bacterium, in an immunocompetent but debilitated host. The isolate was susceptible *in vitro* to Amoxicillin-clavulanic acid and the patient responded very well to this drug and the infection was resolved.

Keywords: Gluteal abscess, Microaerophilic, *Rothia*

Rothia dentocariosa is a Gram-positive, non-motile, and coccoid to bacillary-shaped bacterium causing occasional infections in debilitated and immunocompromised hosts [1]. It belongs to the group of Gram-positive Coryneform bacteria that also includes *Turicella* spp., *Oerskovia*, and *Cellulomonas* spp. [2]. It is normally found in human dental caries and is also reported from various sites such as cerebrospinal fluid, bloodstream, and pilonidal sinus as the causative agent of abscess and other infections.

We here report a case due to *R. dentocariosa* in a debilitated but otherwise immunocompetent patient living in an urban slum.

CASE REPORT

A 37-year-old male patient who was a resident of a slum area in Chetla, Kolkata presented to our urban outpatient department with the complaint of right-sided gluteal abscess causing throbbing pain for 15 days. He was also experiencing nausea and anorexia. The patient was suffering from intra-abdominal tuberculosis and was on antitubercular medication for the last 4 months. He was human immunodeficiency virus seronegative. There was a history of pulmonary tuberculosis in his immediate family contacts, and overcrowding was also present in his dwelling.


On visual examination, the patient looked weak and frail. His height was 5 feet (150 cm) and his body weight was 35 kg. At

the time of initiation of antitubercular therapy 4 months back, he had a body weight of 37 kg. Hence, he was losing weight and was also grossly underweight for his age. His body mass index was 16.4 kg/m² only. On examination, his blood pressure was 110/60 mm Hg, and so, he showed slight hypotension. The pulse rate was normal. The abscess was located in his right gluteal region and was 5 cm × 5 cm in size.

Pus was aspirated aseptically in the outpatient department from the abscess, collected in a sterile universal container, and then sent to the microbiology department for culture and susceptibility testing. The pus showed copious Gram-positive cocci with white blood corpuscles on Gram stain. On culture, no colonies grew after 24 h. However, after aerobic incubation of 48 h, small translucent colonies grew on blood agar but not MacConkey agar. The colonies turned brownish later on, with poor growth in microaerophilic conditions (Fig. 1). Gram stain from the colonies showed initially lanceolate Gram-positive cocci, and hence, bile solubility test was done. The isolate was slightly bile soluble. Later on, Diphtheroid-like bacillary forms were recovered from the culture. Indole production and urease were negative. Aesculin was hydrolyzed (Fig. 2). The isolate did not grow on MacConkey agar and was lactose non-fermenting. There was no H₂S production in triple sugar iron slant (without lead acetate paper). The isolate was also non-motile, non-spore-forming, and non-acid fast using 1% H₂SO₄ as a decolorizer. Antibiotic susceptibility was performed on Chocolate agar by Kirby–Bauer's disk diffusion method. It was susceptible to amoxicillin-clavulanic acid, amikacin, ciprofloxacin, tetracycline, and resistant to cotrimoxazole.

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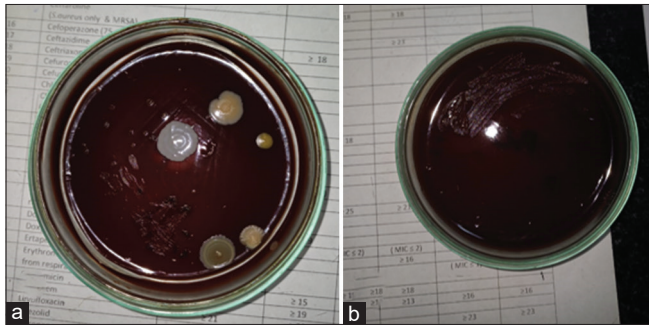


Figure 1: (a) Charcoal-like colonies of *Rothia dentocariosa* on Chocolate agar and (b) poor growth in microaerophilic conditions



Figure 2: Various biochemicals such as aesculin hydrolysis and inability to hydrolyze urea and break down lactose

Based on the susceptibility report, the patient was put on amoxicillin-clavulanic acid thrice daily, and he responded well after 7-day therapy with the drug. Pain and swelling in the affected area also subsided. The patient was on antitubercular medication throughout the course of this illness. On follow-up, he was doing well.

DISCUSSION

The genus *Rothia* was created in 1967 and was named after Roth. The genus resembles *Actinomyces* spp. but differs slightly from it [3]. *R. dentocariosa* is an important member of this genus. Earlier it was known by various names such as *Actinomyces dentocariosus*, *Nocardia dentocariosus*, and *N. saliva*. It was first isolated possibly from carious dentine in humans by Onisi in 1949 [4]. Colonies are smooth or creamy-white, and occasionally charcoal-like in color [5]. This bacterium may not grow on MacConkey agar. It differs from *Nocardia* spp. in being non-acid fast and from *Actinomyces* spp. in being poorly growing in microaerophilic conditions. It may confuse the laboratory scientist with other bacteria like *Streptococcus pneumoniae*. Reports have mentioned its good susceptibility to Penicillins [6]. However, beta-lactamases are now being reported in this bacterium. Our isolate was also susceptible *in vitro* as well as *in vivo* to amoxicillin-clavulanic acid. *R. dentocariosa* is mostly found from dental

caries and incriminated in periodontal diseases, along with other oral bacteria [7]. It is aerobic, coccoid to bacillary in morphology, non-sporing, non-motile, and catalase-positive; Gram-positive bacterium which is found in 30% of the oral cavity of healthy persons [8].

Reports of bacteremia and endocarditis due to this bacterium are also there. Reports of human disease caused by *R. dentocariosa* started getting published in the late 1970s, and about 30 case reports can now be seen in the literature. Many of these are described in patients with endocarditis [9]. This bacterium is also isolated frequently from Cat scratch disease in about 66% of cases [10]. Identification is usually confirmed by the analytical profile index Coryne system. This bacterium is usually resistant to Colistin, and hence, culture media supplemented with Colistin are used to isolate this bacterium from mixed cultures. Our isolate was confirmed based on colony features and biochemical traits and was also a diagnosis of exclusion. It was bile soluble and possibly that is why it did not grow on MacConkey agar, as is the norm with *R. dentocariosa*. In our case, the patient may have been immunosuppressed due to the combined effects of anorexia, poor food intake, and immunosuppressive effect of rifampicin/rifampin. The latter has been well-described in scientific literature [11]. Since the patient responded well to one antibiotic which was also effective *in vitro* against the pathogen, it was firmly established that *R. dentocariosa* was the causative agent behind the gluteal abscess in the patient. There are case reports of pilonidal abscess and periappendiceal abscess caused by *R. dentocariosa* [3]. As far as we know, this is the first case reporting *R. dentocariosa* in gluteal abscess in an immunocompetent patient and also highlights the need for strong suspicion and vigilant and meticulous laboratory identification for the management of such cases.

CONCLUSION

R. dentocariosa is a neglected cause of abscess and other infections and should not be overlooked while managing critically ill patients.

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