

# ***PARACOCCLUS YEEI* SPECIES CAUSING BACTERIAL CONJUNCTIVITIS WITH CELLULITIS**

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## **ABSTRACT**

*Paracoccus yeei* was isolated in pure culture from a 52- year- old woman presenting with conjunctivitis and cellulitis of the left eye. The organism was identified using the Vitek 2 automated system and by 16s rRNA gene sequencing. *Paracoccus yeei* infection is probably underdiagnosed because of the technical challenges in identifying the organism.

**Keywords:** *Conjunctivitis, cellulitis, Paracoccus yeei*

## 1. INTRODUCTION

*Paracoccus yeei* was reported to be a novel bacterial species associated with human infection over a decade ago (2). According to the literature, the majority of *Parococcus yeei* species documented were from the United States of America and Canada. Furthermore, there have been reports from countries such as France (4) and Germany (2) of *Parococcus yeei* as an unusual opportunistic pathogen. Although the natural habitat of *Paracoccus yeei* has not been fully established, the organism has been found in a variety of environments such as soil and brine (5). The organism is difficult to identify by conventional biochemical methods. However, *Parococcus spiececs* have been identified accurately using other methods such as the Vitek 2 automated system (BioMerieux,USA), cell wall fatty acid analysis and 16s rRNA sequencing . We describe a case of *Paracoccus yeei* conjunctivitis with cellulitis in a female from the community.

A 52 year- old woman presented to her general practitioner in the community with a sudden onset of redness, yellow purulent discharge, mild blurred vision on waking up, swelling to the lower eyelid, mild erythema and itching to the left eye. Her peripheral and visual acuity were intact and no evidence of diplopia or photophobia. The woman had experienced these symptoms three days before the current episode but they were mild. The tentative diagnosis was bacterial conjunctivitis with mild cellulitis of the left infra orbital region. A swab of the affected area was sent to the Department of Microbiology for culture and sensitivity. Empiric treatment with artificial tear drops and ciprofloxacin ophthalmic (0.3%)

solution was commenced . After overnight incubation, a pure culture of grey-white, mucoid colonies were seen on both blood agar and chocolate agar plates. Gram staining of the colonies on both agar plates showed Gram –negative cocobacilli, with a vacuolated appearance. A preliminary identification of the organism as *Paracoccus yeei* (excellent identification, probability, 99.4%) was made using the Vitek 2 automated analyzer. Susceptibility testing obtained from the Vitek 2 revealed that the organism was susceptible to ampicillin, cefazolin, augmentin, ceftriaxone and gentamicin. In addition, the organism was intermediately susceptible to ciprofloxacin. The patient was later treated with cloxacillin 250 mg orally 6 hourly for 5 days. A follow up culture at the end of therapy was negative and complete resolution was achieved. Definitive identification using 16s rRNA gene sequencing was subsequently performed by Focus Reference Laboratory, USA.

## 2. DISCUSSION

This is the first report regarding *Paracoccus yeei* causing human infection in Bermuda. Furthermore, a search of ([ncib.nlm.nih.gov/pubmed](http://ncib.nlm.nih.gov/pubmed)) did not reveal any report of *Paracoccus yeei* human infection in the Caribbean region. There are reports of *Paracoccus yeei* being associated with eye infections in the literature. One study reported the presence of a high amount of fastidious organisms in patients with culture negative uveitis using PCR and 16s rRNA gene sequencing. Interestingly, *Paracoccus yeei* was identified in one patient and it was concluded that that the uveitis was attributed to this organism (1). In another

study *Paracoccus yeei* was isolated from an aqueous humor specimen from a patient with corneal graft rejection who had undergone a penetrating keratoplasty (3). *Paracoccus yeei* has been reported to be the etiologic agent of peritonitis in an ambulatory peritoneal dialysis patient (4). It has been reported that *Paracoccus yeei* species are susceptible to various antibiotics such as ampicillin, amoxicillin-clavulanic acid, cefazolin, ceftazidime, doxycycline, ciprofloxacin, meropenem and gentamicin ( 5 ). In our case, good hygiene, especially hand washing and artificial tear drops were used to limit the transmission of the organism and decrease irritation of the eye. Later, the patient was treated with ciprofloxacin eye drops and her condition improved although the susceptibility results indicated that the organism was intermediately sensitive to ciprofloxacin. In addition, a complete resolution of her condition was obtained when treatment was changed to oral cloxacillin. *Paracoccus yeei* is found naturally in soil and the organism could have been transmitted from the hands of the patient to the eye. In conclusion, *Paracoccus yeei* can be described as an opportunistic pathogen which is difficult to identify using conventional methods. It is not beyond the bounds of cautious speculation that *Paracoccus yeei* infection is probably underdiagnosed because of the technical challenges in identifying the organism. The use of molecular methodologies will help with the identification of *Paracoccus yeei* and further establish its pathogenic potential. Conflict of interest: No conflict of interest to declare.

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