

## Case Report

# Abscess with parotid involvement caused by *Chromobacterium violaceum*: a rare pathogen

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## Introduction

*Chromobacterium violaceum* is a large, gram negative, facultative anaerobic bacillus motile with a single polar flagellum and one or two lateral flagella. It produces a purple pigment called violacein<sup>1</sup>.

*C. violaceum* is considered as part of the normal flora of soil and water in tropical and sub-tropical areas<sup>2</sup>. It rarely causes infection in humans. Such infections carry a high mortality rate due to their fulminating clinical course. A high index of suspicion is required for diagnosis, which is based on recovering the organism from blood cultures or other appropriate specimens.

## Case report

On 30 April 2013, a four year old girl, with high fever of 101<sup>0</sup> F and a large abscess measuring 5cm x 7cm in the left cervical region, was transferred to General Hospital Polonnaruwa, from a peripheral hospital. Ultrasonography confirmed involvement of the parotid gland (Figure 1).

Investigations revealed a white blood cell count of 21,400 x 10<sup>3</sup> / $\mu$ l with 77.5% neutrophils, a C - reactive protein level of 25.8 mg/dl and an erythrocyte sedimentation rate of 55mm/1hr. Her liver enzymes were marginally elevated and ultrasonography revealed mild hepatic enlargement. Drainage of the abscess was not considered immediately and she was treated empirically with intra-venous flucloxacillin and oral clindamycin. On 02 May 2013, as there was no clinical improvement, incision and drainage of the abscess was performed and pus was sent for bacteriological culture (Figure 2).

On 04 May 2013, the culture grew smooth, shiny, dark violet 2-5 mm, oxidase positive colonies (Figure 3). Complete haemolysis was noted on blood agar. Morphological identification of *Chromobacterium violaceum* was confirmed by API 20 NE. Sensitivity to gentamicin, netilmicin, amikacin, ceftazidime, meropenem, chloramphenicol, tetracycline, cefoxitin, erythromycin and ciprofloxacin and resistance to ampicillin, amoxicillin-clavulanic acid, ticarcillin-clavulanic acid, vancomycin, clindamycin, penicillin, oxacillin and cefuroxime was noted on antibiotic sensitivity testing (ABST).



Figure 1: Abscess with parotid gland involvement after debridement

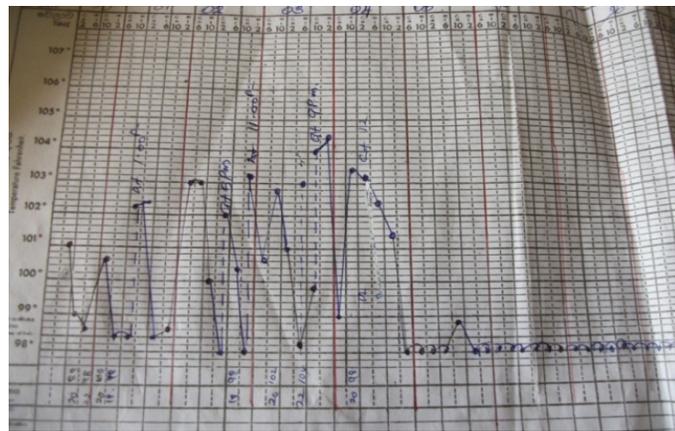


Figure 2: Temperature chart



Figure 3: Culture on chrome agar

When culture yielded dark violet colonies, treatment with intra-venous meropenem was commenced and flucloxacillin and clindamycin discontinued, resulting in a dramatic clinical response (Figure 2). As the standard treatment for sepsis due to *Chromobacterium* is not established<sup>3,4</sup>, intra-venous ciprofloxacin was added.

By 15 May 2013, the child had improved clinically, was afebrile and had a white blood cell count of  $9,700 \times 10^3 /\mu\text{l}$  with 41% neutrophils, C- reactive protein level of 6mg/l and a erythrocyte sedimentation rate of 18mm/1hr. Her neutrophil function tests, immunoglobulin levels and complement levels were within normal limits. She was discharged from hospital on 18 May 2013 on oral ciprofloxacin to be continued for a further two weeks.

## Discussion

Despite being a saprophytic organism, about 150 cases of infection with *Chromobacterium violaceum* have been reported worldwide, mainly in Asia including Sri Lanka, the United States, Australia and Africa. This case may be related to exposure to stagnant water<sup>1,4</sup> which is the main water source for this child's family. Although data suggests that chronic granulomatous disease and G-6PD deficiency are risk factors, infection is also reported in apparently healthy people<sup>4</sup>. However, investigation of immune status may be useful, especially in children. It is important to exclude other, deep seated abscesses by imaging. Blood and pus cultures are important to isolate the organism, especially considering the unusual organisms associated with parotid abscess. The antibiotic regime should be optimised with the aid of the ABST pattern<sup>2,3</sup> and continued for an adequate duration to prevent recurrences.

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