

## *Chromobacterium violaceum* Sepsis in an Infant

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*Chromobacterium violaceum* is a rare pathogen that can cause potentially fatal infections in humans. Till date, 150 cases are reported worldwide including 7 from India. We report a 6 month old infant who presented with high grade fever, respiratory distress and multiple vesicular skin lesions. *Chromobacterium violaceum* was isolated from blood, bone marrow aspirate and from skin lesions. Infant responded to treatment with piperacillin and ciprofloxacin, and is doing well on follow up.

**Key words:** *Chromobacterium, violaceum, Infant, Sepsis.*

**C***hromobacterium violaceum* is a common inhabitant of water and soil. Occasionally, it can cause human infections including septicemia, lung abscess, liver abscess, dental abscess, skin infection, urinary tract infection and diarrhea. *Chromobacterium* infections are notorious for their high mortality. About 150 cases have been reported in world literature including 7 from India(1) We report *Chromobacterium violaceum* sepsis in a six month-old infant who was treated successfully.

### CASE REPORT

A 6 month-old male infant was admitted with a short history of fever, cough, breathing difficulty, loose stools and multiple skin lesions. Three months prior to present admission, the infant was admitted with high grade fever. On evaluation, he was found to have an abscess in the right lobe of liver measuring 30×19×35 millimetres by CT scan of the abdomen. This was aspirated under ultrasound guidance. Pus culture grew *Staphylococcus aureus* and the infant was treated for six weeks with cloxacillin. Follow up ultrasonogram of the liver done twelve days later showed complete resolution. At initial assessment

during the present admission, infant was sick and febrile. The right upper arm was swollen. Respiratory rate was 64 per minute and pulse rate was 130 per minute. Violet colored vesicular skin lesions of varying size were present over abdomen and both arms with an erythematous base. Some lesions had necrotic center. Systemic examination revealed bilateral crepitations, firm hepatomegaly (span 8 cm), and splenomegaly (4cm).

We made a provisional diagnosis of sepsis with osteomyelitis. *Pseudomonas* sepsis was considered on account of the distinctive skin lesions. Another possibility entertained was disseminated varicella. After taking blood for routine investigations and culture, empirical parenteral antibiotics were started (ceftazidime and cloxacillin). Blood investigations revealed, hemoglobin of 9g/dL, white blood cell count of  $28.4 \times 10^3/\mu\text{L}$ , with a differential count of polymorphs 71% , lymphocytes 25% and monocytes of 4%. Erythrocyte sedimentation rate was 50 mm at the end of first hour. Peripheral smear revealed microcytic hypochromic anemia with neutrophilic leucocytosis. Chest X-ray showed bilateral infiltrates consistent with bronchopneumonia. Ultrasonogram of abdomen showed hepatosplenomegaly.

There were no focal lesions in the liver. Tzanck smear from vesicular lesions was negative for varicella. Bone marrow aspirate showed myeloid hyperplasia with toxic granulation. Pus collected from the skin pustule was inoculated on sheep blood agar and McConkey agar plates. Blood and bone marrow aspirate were cultured by conventional method in two bottles containing 45 mL each of tryptone soy broth, and bile broth and subcultures made on sheep blood agar and McConkey agar plates. Sheep blood agar plates were incubated with 7 per cent CO<sub>2</sub> at 35°C. All other media were incubated at 35°C aerobically.

*Chromobacterium* grew on sheep blood agar and McConkey agar plates from blood and pus with characteristic violet colored colonies. The organism was a facultatively anaerobic (non-pigmented anaerobically), motile, Gram negative rod. It was sensitive to ciprofloxacin, cefoperazone-sulbactam, meropenem, piperacillin – tazobactam, amikacin, gentamicin, netilmicin and tetracycline; and resistant to ceftazidime, cefepime, ampicillin and cefazolin. In view of history of liver abscess and isolation of this rare organism, infant was evaluated for underlying immunodeficiency. DNA PCR was negative for HIV.

Total lymphocyte count, serum immunoglobulin, and G6PD assay were normal. Leucocyte adhesion defect was ruled out with flow cytometry. NBT stain showed normal neutrophilic function. Infant was treated with ciprofloxacin and piperacillin for 21 days. The child responded well to treatment and is doing well on follow up.

## DISCUSSION

*Chromobacterium violaceum* is acquired mostly through exposure of broken skin to contaminated water and soil and rarely through ingestion of contaminated water(1,3). Cases with G6PD deficiency and chronic granulomatous disease are prone to develop this infection(3). Most infections are reported in young population. Usual mode of presentation includes fever and abscesses of skin and internal organs(1). Isolated diarrhea and

nasopharyngeal abscess are also reported(1,4). Mortality rate in sepsis cases is reported to be as high as 57%.

Generally, the organism is susceptible to quinolones trimethoprim, sulfamethoxazole, tetracycline, chloramphenicol, cefepime and imipenem. It is resistant to penicillins and narrow spectrum cephalosporins. Susceptibility to third generation cephalosporins and aminoglycosides is variable(3). This organism is described as one of the emerging pathogens, and being potentially fatal, it is important to be aware of this infection. Similarity of skin lesions of varicella and *Pseudomonas* is noteworthy.

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