



## ***Chromobacterium Violaceum* isolated from Young Adult with UTI from a Tertiary Care Center**

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### **INTRODUCTION**

*Chromobacterium violaceum*, a proteobacterium was first described in a fatal infection of a buffalo by Wooley in 1905, later in Malaysia (1927) it was reported as cause for human infection. It is a rare pathogen causing infection like sepsis with metastatic abscess, cellulitis, chronic granulomatous disease, urinary tract infection, conjunctivitis and meningitis in humans. The pathogen is Gram negative pleomorphic bacilli, common inhabitant of soil & water in tropical and subtropical countries. Less than two hundred cases have been reported worldwide. The organism is a facultative anaerobe, grows readily in ordinary medias like MacConkey agar, Muler Hinton agar following incubation at 37°C for 18-24 hours, produces a non diffusible violet pigment called as violacein, which cause apoptosis in tumor cell line recommended for using as chemotherapeutic agent.<sup>(1,2)</sup> Virulent strain has greater endotoxin activity & enhanced resistance to phagocytosis leading to life threatening complication like sepsis. The organism is intrinsically resistant to penicillin & first generation cephalosporins. It is

sensitive to fluoroquinolones, tetracyclines, aminoglycosides, cotrimoxazole & chloramphenicol.<sup>(1,2,7)</sup>

### **CASE REPORT**

A 17 year old male came with chief complaints of intermittent fever for 2 days, associated with history of burning micturition, chills, lower abdominal pain & History of taking bath in stagnant water before a week. No H/O sore throat, cough, diarrhoea & vomiting. Not a known case of diabetes mellitus/ hypertension/chronic medical condition. No H/o previous surgery. On examination patient was conscious, oriented, febrile with a temperature of 102°C. His vitals were normal, urine culture & sensitivity was requested and patient was prescribed Nitrofurantoin 100 mg, BD for 5 days.

Urine sample was inoculated on blood agar, Macconkey & nutrient agar incubated aerobically at 37°C for 24 hours. Dark purple to black coloured 2-3mm large, round, smooth & convex colonies were observed. Blood agar showed dark purple colonies with  $\beta$ -hemolysis. Isolated

organism was motile, Gram negative pleomorphic Bacilli, catalase & oxidase positive, other biochemical tests like Indole, Methyl red and Voges-Proskauer negative. Glucose & trehalose were fermented without gas, lactose & mannitol were not fermented. Triple sugar iron medium showed an alkaline slant and acid butt (K/A) without gas & H<sub>2</sub>S production. Arginine was decarboxylated but not lysine & ornithine, Nitrate was reduced & citrate was utilized. Antibiotic sensitivity was done according to CLSI guidelines using Kirby Bauer disc diffusion method, organism was resistant to Ampicillin & Cefuroxime, susceptible to Gentamicin, Nitrofurantoin, Norfloxacin & Nalidixic acid. Based on the colony characteristics, pigmentation & biochemical reactions organism was identified as *Chromobacterium violaceum*. Patient was advised to continue the same antimicrobial drug during follow up & recovered from UTI within the course of treatment, without any signs of progression to septicemia. Repeat urine culture was done after the course of treatment which turned out to be negative.



## DISCUSSION

*Chromobacterium violaceum* is a uncommon organism causing local infection leading to fatal sepsis and recurrence in healthy individuals. Early diagnosis and management of infection is of paramount importance to prevent complications. The infection starts as localized lesion then spreads to regional lymphnodes causing lymphadenopathy which result in, hematogenous spread to visceral organs. High mortality rate is due to rapid progression to sepsis & multiorgan failure. Commonest manifestation of *Chromobacterium violaceum* is localized wound infection in scalp & cellulitis following fish bite reported following injury rapidly progressing to sepsis due to inappropriate antimicrobial usage.<sup>(3,4)</sup> Rare cases of UTI due to *Chromobacterium violaceum* was reported in a 81 year old with chronic renal disease from Nepal & a young adult 19 year old immunocompetent adult from Bhuvaneswar.<sup>(5,6)</sup> Our patient was a immunocompetent 17 year old with typical history of taking bath in stagnant water during the follow up patient recovered eventually without dissemination & fatal sepsis due to early appropriate antibiotic therapy.

## CONCLUSION

*Chromobacterium violaceum* is a rare cause of UTI, but rapid progression of disease & resistance pattern towards antimicrobial drugs necessitates clinicians to be aware of this infection.

Early diagnosis and appropriate antimicrobial usage will result in better prognosis.

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