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CHRYSEOBACTERIUM INDOLOGENES - A VERY UNCOMMON INFECTION IN ICU — CASE REPORT

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INTRODUCTION

Chryseobacterium indologenes is a nonfermentative Gram negative bacillus that although widely distributed in nature is a rare pathogen in humans. Initially described in Taiwan and in 1993 in India, in a immunocompromised host it is becoming more common in hospital environments. They have been recovered from water systems and humid surfaces. Most infections have been detected in hospitalized patients with severe underlying diseases having indwelling devices and implants. Formerly known as Flavobacterium indologenes, it has been phenotypically and genotypically differentiated from other members of this group.[1,2] There is scarcity of data in the Indian literature regarding infections by Chryseobacterium species. Here we describe a polytrauma patient with skin and soft tissue infection with Chryseobacterium indologenes who was treated and discharged home.

CASE REPORT

This was a 29yr old healthy gentleman with no comorbids who was brought to emergency with a history of road traffic accident(RTA) where he was hit by a truck while travelling, on his bike. He sustained head injury, with multiple long bone fractures and skin injuries. He had a history of loss of consciousness along with bleeding from his mouth. On arrival in ER his vitals were heart rate of 88/min, blood pressure of 100/70mmhg, saturation of 95% and he had a GCS OF 3/15. His pupillary response to light was 3mm non reacting on left and right 2mm briskly reacting to light. Computerised tomography (CT) brain showed right frontal subarachnoid hemorrhage. He had multiple long bone fractures (compound fracture right humerus, left forearm both bone fracture, right proximal tibia fracture, left distal femur compound fracture) and degloving injury in the right upper limb. He underwent left distal femur open reduction internal fixation with plate and screws and right arm wound debridement under general anaesthesia and was shifted to ICU.

In ICU he was managed conservatively with anticonvulsant and anti edema measures. He was gradually improvng. His fractures were treated with open reduction with internal fixation with plates and screws in multiple sittings in a phased manner. Patient was gradually improving and recovering. However, he started to develop fever on the ninth day. Blood investigations showed leukocytosis with predominantly neutrophils. Cultures from wound swab grew acinetobacter and klebsiella for which antibiotics were initiated as per sensitivity (meropenem and colistin). But the patient continued to have fever spikes. A repeat CT brain plain showed resolved right frontal subarachnoid hemorrhage. He had abdominal distention with a deranged liver functions for which an ultrasound abdomen and gastrointestinal surgeon opinion was sought and treated accordingly with significant resolution. In spite of all these measures his fever spikes continued and developed a small papillo macular rashes on his back and chest on day fourteen. Sepsis vs collagen vascular disease was suspected and a repeat detailed workup including ANA (antinuclear antibody) was sent. ANA screening was positive and rheumatology opined to be secondary to infections. A wound swab sent grew Chryseobacterium indologenes sensitive to only trimethoprim which was initiated on Day 20 at 10-15mg/kg/day. Patient was afebrile within 48hrs of starting trimethoprim. He gradually recovered with intensive physiotherapy, rehabilitation and other supportive measures. He was finally discharged from the hospital on day 40 of admission.

DISCUSSION

Chryseobacterium indologenes is a non-fermentative, oxidase-catalase- and indole-positive, non-motile bacillus that belongs to the genius of Chryseobacterium (previously known as Flavobacterium CDC group IIb). They produce a distinctive yellow to orange pigment on

blood agar. The most frequent isolates of Chryseobacterium species include Chryseobacterium indologenes, C. meningosepticum, and C. gleum. C. indologenes was formerly known as flavobacterium indologenes.[1]

Though they are widely found in nature in soil, water and plants, they rarely cause human disease.[2] These organisms are known to survive in chlorine treated water and hence can colonize water supplies, thus creating potential reservoirs for infections in hospital settings.[3] The colonization of patients through contaminated medical devices involving fluids such as respirators, endotracheal tubes, mist tents, humidifiers, incubators for newborns, ice chests, and syringes have been reported.[3,9] Contamination of medical devices involving fluids and of surgical implants has led to an increasing number of serious infections reported in recent years.[4] The infections caused by these organisms can range from from pneumonia, indwelling device associated infections, peritonitis, ocular infections, bacteremia uncommon infections including pyelonephritis, biliary tract infections, neurosurgical shunt infections and wound infections.[5] In a case series conducted in Taiwan has demonstrated extremes of age and an immunocompromised state to be common risk factors.[6] The highly active proteases of C. indologenes as well as its biofilm production capacity are both responsible for its virulence.[7] In India C. indologenes was first reported in 1993 by Bhagawati et al. in a patient presenting with ventilator-associated pneumonia.[8] Nosocomial infections due to C. indologenes have been linked to the use of indwelling devices during a hospital stay.

C. indologenes is known to exhibit natural resistance to a wide variety of broad spectrum antibiotics, including aminoglycosides, tetracyclines, chloramphenicol, macrolides, clindamycin and teicoplanin as well as to extended spectrum penicillins, first and second generation cephalosporins, aztreonam, ticarcillin-clavulanate and the carbapenems. Piperacillin-tazobactam, ceftazidime, minocycline, rifampicin, trimethoprim-sulfamethoxazole and quinolones usually remain effective.[3] The current usage of colistin and tigecycline against emerging multi drug resistant pathogens, such as Acinetobacter baumannii, extended spectrum β-lactamase producing Escherichia coli and Klebsiella pneumoniae, Chryseobacterium species have emerged as significant problems in critical care. setting.[10] Appropriate choice of effective antimicrobial agents for the treatment of infections by C. indologenes is difficult because of the resistance to various antimicrobials, which are commonly used empirically for serious Gram negative infections.

Our patient was a young male with no comorbidity and his skin and soft tissue culture grew C indologenes from his wound on the back (over the right scapula). The wound was muscle deep and required multiple dressing to heal. We suspected our old sink tap water to be the source of the organism and it was changed to a new source.

In conclusion, an awareness of the antibiogram of your organisation and early institution of the appropriate antibiotic can help in a quick recovery from this unusual infection.

CONFLICTS OF INTEREST – None To Declare

BIBLIOGRAPHY

1. Yabuuchi E, Hashimoto Y, Ezaki T, Ido Y, Takeuchi N. Genotypic and Phenotypic Differentiation of Flavobacterium indologenesYabuuchi et al 1983 from Flavobacterium gleum Holmes et al. Microbiology and Immunology, 1990; 34(1): 73-76.
2. Hsueh P, Hsiue T, Wu J, Teng L, Ho S, Hsieh W et al. Flavobacterium indologenes Bacteremia: Clinical and Microbiological Characteristics. Clinical Infectious Diseases, 1996; 23(3): 550-555.
3. Kirby J, Sader H, Walsh T, Jones R. Antimicrobial Susceptibility and Epidemiology of a Worldwide Collection of Chryseobacterium spp.: Report from the SENTRY Antimicrobial Surveillance Program (1997-2001). Journal of Clinical Microbiology, 2004; 42(1): 445-448.
4. Mandell GL, Dolin R. Principles and Practice of Infective Disease. 6th ed. New York: Elsevier, 2005; 2757-9.
5. Alon, D., Karniel, E., Zohar, I. and Stein, G., <i>Chryseobacterium indologenes</i> Bacteremia: Clinical and Microbiological Characteristics of an Emerging Infection. International Journal of Clinical Medicine, 2018; 09(06): 520-527.
6. Lin, Y., Jeng, Y., Lin, M., Yu, K., Wang, F. and Liu, C., Clinical and Microbiological Characteristics of Chryseobacterium indologenes Bacteremia. Journal of Microbiology, Immunology and Infection, 2010; 43(6): 498-505.
7. Hsueh, P., Wu, J., Hsiue, T. and Hsieh, W., Bacteremic Necrotizing Fasciitis Due to Flavobacterium odoratum. Clinical Infectious Diseases, 1995; 21(5): 1337-1338.
8. Bhagawati, G., Bhardwaj, A., Sajikumar, R., Singh, S. and Prajapati, S., Bacteraemia by Chryseobacterium indologenes in a patient with Lung Cancer: A Clinical and Microbiological Investigation. Indian Journal of Critical Care Medicine, 2019; 23(3): 157-159.
9. Mukerji, R., Kakarala, R., Smith, S. and Kusz, H., 2016. Chryseobacterium indologenes: an emerging infection in the USA. BMJ Case Reports, bcr2016214486.
10. Chen, F., Wang, G., Teng, S., Ou, T., Yu, F. and Lee, W., Clinical and epidemiological features of Chryseobacterium indologenes infections: Analysis of 215 cases. Journal of Microbiology, Immunology and Infection, 2013; 46(6): 425-432.