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Septicaemia Due To Chryseobacterium Indologenes In A Woman With Carcinoma Stomach- A Case Report

Vikas Kumar Heer[1], Sujeet Kumar Bhat[2], Beena Jad[3], Meenakshi Lachotra[4]

1. *Junior Consultant ,Department of Surgical Oncology, SMVDNSH, Katra, Jammu, J&K*
2. *Associate Consultant, Department of Surgical Oncology, SMVDNSH, Katra, Jammu, J&K*
3. *Consultant ,Department of Microbiology, SMVDNSH, Katra, Jammu, J&K*
4. *Medical Officer, SMVDNSH, Katra, Jammu, J&K*

Corresponding Author- Dr. Vikas Kumar Heer

Chryseobacterium, are a group of aerobic, nonfermentative, nonmotile, catalase positive ,oxidase positive and indole positive Gram-negative bacilli, utilizes glucose oxidatively and does not grow on MacConkey agar. The organism produces a non diffusible yellow pigment (flexirubin) and, hence, was earlier called Flavobacterium indologenes. They are rare human pathogen, but widely distributed in soil, plants, food and potable water. It can cause serious infection in immunocompromised patients, but it has been increasingly isolated from patients with bacteraemia, pneumonia and long term intravascular devices such as venous catheters, intravascular implants, urinary catheters, intubation and mechanical ventilation devices. Despite their low virulence, Chryseobacteria are inherently resistant to many antimicrobial agents including Imipenem. We reported a case of pneumonia with septicaemia caused by C.Indologenes in postoperative patient of carcinoma stomach with indwelling internal jugular vein catheter.

Keywords- *Flexirubin, Immunocompromised ,Imipenem*

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I. Case Report

A 56 –year-old Female patient with no comorbidities presented with complaints of pain abdomen, dyspepsia and loss of appetite. She was evaluated and diagnosed with Carcinoma Stomach. After taking anaesthesia clearance and proper written informed consent ,she underwent surgery (radical gastrectomy with D2 dissection with Roux en Y esophagojejunal anastomosis with feeding jejunostomy). After surgery, she was extubated and shifted to surgical ICU for monitoring. She remained stable and shifted to ward on 3rd POD. On 5TH POD, she had an episode of syncope with respiratory distress ,shivering, hypotension, and fall in oxygen saturation . She was resuscitated and shifted to ICU, where she was put on NIV mode of ventilation and inotropic support (noradrenaline). Baseline investigations, and X ray chest was done. She was started empirically on broad spectrum antibiotics after sending blood and urine cultures. CVP line was removed, and subsequently catheter tip was sent for culture sensitivity.

On examination, the patient was febrile, her blood pressure was 86/60mmHg, pulse rate was 124bpm, respiratory rate 38/min, and SPO2 was 80% at room air , 96% on O2 inhalation @8lt/hr and temperature was 100^0 F. Examination of the cardiovascular system and central nervous system was normal. Chest was having bilateral crepts. X ray chest revealed consolidated patch left lower lobe .

Investigations revealed a haemoglobin of 9.6g/dl and total leukocyte count 19000/mm^3(with 88%Neutrophils and 08%Lymphocytes) with other biochemical parameters being normal.

After 48hrs of incubation period, blood culture showed the growth of Chryseobacterium indologenes by BD Phoenix 100 system. Antimicrobial susceptibility testing performed by determining the minimal inhibitory concentration (MIC) value using the microdilution method showed sensitivity only to Trimethoprim/Sulfamethoxazole with MIC <=1/19. The details of the MIC for various antimicrobial agents are shown in the below mentioned table.

ANTIBIOTICS	**MIC (u/ml)**	**INTERPRETATION**
CEFTAZIDIME	>64	**R**
CEPHALEXIN	>32	**R**
AMIKACIN	>32	**R**
TOBRAMYCIN	>8	**R**
CEFAZOLIN	>32	**R**
GENTAMICIN	>8	**R**
COLISTIN	>4	**R**
CEFTRIAXONE	>32	**R**

AZTREONAM	>16	**R**
ERTAPENEM	>4	
CHLORAMPHENICOL	>32	**R**
IMIPENEM	>16	**R**
AMPICILLIN	>16	**R**
AMOXICILLIN/CLAVULANATE	>16/8	**R**
TRIMETHOPRIM/SULFAMETHOXAZOLE	<=1/19	**S**
PIPERACILLIN/TAZOBACTAM	>64/4	**R**
TIGECYCLINE	4	

Table 1. Antimicrobial susceptibility of Chryseobacterium indologenes isolated from the patient's blood culture.

MIC: minimal inhibitory concentration, R: Resistant, S: Sensitive

Urine culture and catheter tip culture revealed no growth. She was started on susceptible antibiotic and showed considerable improvement within 48hrs. Total leukocytes count showed decreasing trends from 10,000/mm^3 on 2nd day of starting antibiotic to 8200/mm^3 on 5th day. Repeat X ray chest showed resolving consolidated patch. She was shifted to ward on 11th POD and subsequently discharged on 13th POD.

II. Discussion

C. indologenes is widely distributed in nature but is a rare human pathogen. Immune suppression, comorbidities, use of broad-spectrum antibiotics, indwelling devices,and extreme age are other important risk factors for Chryseobacterium infections [1]. It has been isolated from clinical specimens but rarely from blood [2] and has been associated with high mortality rate. In the hospital environment, it is frequently recovered from wet surfaces and water systems by virtue of its ability to contaminate [3] and persist in fluid-containing apparatuses and even resistant to chlorination[4] . Protease activity and production of biofilm by C. indologenes appear to be mechanisms relevant to its virulence; however, the exact mechanism of pathogenicity is not well documented [5,6]. In the literature, most cases of C. indologenes bacteremia were detected in hospitalized patients with a severe underlying disease, such as malignancies or diabetes mellitus, or indwelling devices [7]. Cases of contamination of surgically implanted devices such as IV catheters and prosthetic valves in immuno-compromised patients or in patients on prolonged broad-spectrum antibiotics have also been reported [8].The mortality rate of C. indologenes varies with different studies, however, in a 2011 study from Taiwan, which included 10 patients with C. indologenes with sepsis (mean age of 71.1 years), the mortality rate at 14 days was 40% [9] .The analysis of 215 other C. indologenes cases, also from Taiwan, revealed that in-hospital mortality rates from bacteraemia were as high as 63.6% and from pneumonia, 35.25% [10].

The clinical significance of C.indologenes yet needs to be established as it is an uncommon human pathogen and is not frequently obtained from clinical specimens. Although C. indologenes exhibits characteristics of low virulence, it may cause life-threatening infections due to its multidrug resistance [11,12].The treatment of choice in case of C.indologenes infection can be difficult, as it shows resistance to many broad spectrum antibiotics such as aminoglycosides, penicillins, aztreonam, first, second and third-generation cephalosporins (except for ceftazidime) and varying resistance to imipenem. Production of class A b-lactamase and class B carbapenem-hydrolyzing b-lactamase molecules causes intrinsic carbapenem and cephalosporin resistance. It is usually susceptible to levofloxacin, trimethoprim-sulfamethoxazole, and piperacillin tazobactam. Ciprofloxacin, cefepime, and ceftazidime have also high activity against C. indologenes. Therefore, it is usually resistant to aminoglycosides, other b-lactams, chloramphenicol, linezolid and glycopeptides [13,14,15].

A 5- year SENTRY program has reported C. indologenes to be an important clinical isolate as a nosocomial pathogen. Common risk factors for infection are use of invasive medical devices, comorbid illnesses (such as malignancy, chronic kidney disease, hypertension, and diabetes), immunocompromised state, and the use of broad- spectrum antibiotics.

In the present case, the patient was a case of malignancy and had an intravascular catheter (central venous line) in situ as the risk factors; therefore, in such cases C. indologenes should be considered as pathogenic. The fact is supported by the increase in the number of reported cases. Since C. indologenes does not form a part of human flora, it is recommended that the isolate should be viewed as a potential pathogen and its isolation from a clinical specimen should be taken as an indicator of breech in infection control procedures and practices. Moreover, the multidrug resistance makes this organism an ominous emerging pathogen.

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