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ELIZABETHKINGIA MENINGOSEPTICA, AN EMERGING PATHOGEN: A CASE REPORT

Upasana Bhumbla*[1], Aditi Mehta[2], Anamika Vyas[3] & A.S. Dalal[4]
[*1]Assistant Professor, Department of Microbiology, Geetanjali Medical College and Hospital, Udaipur
[2]Department of Microbiology, Geetanjali Medical College and Hospital, Udaipur
[3]Department of Microbiology, Geetanjali Medical College and Hospital, Udaipur
[4]Department of Microbiology, Geetanjali Medical College and Hospital, Udaipur

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Abstract
A 51 year old male was admitted to the intensive care unit of our hospital, in a conscious state. He had history history of dysphagia and dull chest pain. He was a diagnosed case of Adenosquamous carcinoma of oesophagus for which he got operated, 3 field oesophagectomy with two fold lymphadenopathy with gastric pull up.

Introduction

Elizabethkingia meningoseptica classified under Group IIa of CDC in 1959 formerly was named as Flavobacterium meningosepticum. In 1994 it was reclassified and was named as Chrysobacterium meningosepticum.[1] It is an emerging nosocomial pathogen among immunocompromised patients. It is a gram negative rod, non-fermenter, non-motile, oxidase positive and is widely distributed in nature, particularly in soil and water.[2] The organism has tendency to survive at places apart from water supplies, sinks, taps, saline solutions, disinfectants. It can also survive in chlorine treated municipal water supplies, often colonising sink basins, intubation tubes, humidifiers, incubators of new borns, where it has become a competent threat for infections in the hospital set up.[3-5]

Elizabethkingia meningoseptica is multidrug resistant organism including extended spectrum beta lactams and aminoglycosides, acting as a serious challenge for the clinicians to treat. Elizabethkingia spp. possess two different types of beta lactamases, namely class A extended spectrum beta lactamases (ESBLs) and class B metallo beta lactamases (MBLs); the latter confers resistance to carbapenems, which are widely used to treat infections caused by multidrug resistant gram negative bacteria. [4]

Case report

A 51 year old male was admitted to the intensive care unit of our hospital, in a conscious state. He had history history of dysphagia and dull chest pain. He was a diagnosed case of Adenosquamous carcinoma of oesophagus for which he got operated, 3 field oesophagectomy with two fold lymphadenopathy with gastric pull up. Surgery was uneventful, where after one day patient developed, shortness of breath and aspiration pneumonia, for which due to increased secretions was shifted to ventilator. His CECT was normal. His leukocyte count was raised at 19000 cu mm (normal range is 4000-11000 cu mm), had electrolyte imbalance whereas the other haematological and biochemical parameters were within normal limits. Patient was seronegative for HIV, Hepatitis B and Hepatitis C. Patient was handled under all aseptic precautions. Simultaneously, peripheral blood samples, were collected and cultured by an automated method (Bact/ALERT 3D; Biomeriux), which flagged positive within 24 hours. Sample was inoculated onto 5% Sheep Blood agar and Mac Conkey's agar at 37^0C, on which blood agar colonies appeared as 1-2 mm smooth, circular, greyish white, non-haemolytic colonies. No growth was seen on Mac Conkey's agar. It was a Gram negative bacillus which was non-motile, catalase positive, oxidase positive; indole, citrate, urease, mannitol negative. Biochemical reactions showed the reactions of a non-fermenter group. Identification and antimicrobial susceptibility testing was further confirmed by automated Vitek -2 compact system, Biomerieux using GN and N280 cards respectively. The organism was identified as Elizabethkingia meningoseptica which was susceptible to minocycline (MIC <=1), trimethoprim- sulfamethoxazole (MIC 40), intermediately sensitive to

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tigecycline (MIC=4) and resistant to imipenem (MIC>=16). Patient responded well to Tigecycline, Cotrimoxazole and Rifampicin and survived with this specific therapy.

Discussion

Elizabethkingia meningoseptica is an emerging pathogen which is primarily associated with neonatal meningitis and variety of infections as it is highly pathogenic for premature infants.[5] although neonatal meningitis is rarely encountered, it is important to diagnose the disease accurately because epidemics may occur in nurseries and a mortality rate is high as 55% has been reported. [6]

Different types of infection by this bacterium was either nosocomial or occurred in patients with known predisposing factors like malignancy , neutropenia, diabetes, steroid use, malnutrition and patients on dialysis. E.meningoseptica has a low degree of pathogenicity and only a small percentage of colonised patients develop sepsis, while others remain asymptomatic.[5, 7] Nosocomial infections due to E.meningoseptica have been linked to the use of indwelling devices during a hospital stay.[8]

Patients with E.meningoseptica bacteraemia have poor prognosis and use of inappropriate antibiotics further complicates. It is a multidrug resistance organism and according to Clinical Laboratory Standards Institute (CLSI), breakpoints for this organism are still not established, making the choice of antibiotic very difficult for both clinicians and microbiologists. [1, 9] E.meningoseptica is resistant to beta lactams and other antibiotics which are commonly used for the treatment of gram negative bacteria, whereas it is relatively susceptible to antibiotics which are susceptible to treat gram positive bacteria. Studies have shown that more than 80% of the isolates are susceptible to trimethoprim-sulphamethoxazole, minocycline, moxifloxacin and levofloxacin. This gram negative bacilli is vancomycin sensitive and resistant to colistin. Our study showed the susceptibility pattern with trimethoprim-sulphamethoxazole and tigecycline. Tigecycline and Cotrimoxazole was used as the treating regimen. Many studies showed vancomycin has marginal in vitro activity against Chrysobacterium spp. isolates.

Multivariate analysis from studies have proved that E. meningoseptica acquiring in ICU and in different hospital areas have played an emerging role for independent predictors of a 14 day mortality. Due to its multidrug resistance pattern, only a limited range of antibiotics are available for its treatment.

E. meningoseptica form biofilms, however it becomes mainly the reason associated with mortality of patient. Inappropriate antimicrobial therapy , use of central venous catheters, biofilm formation with E.meningoseptica bacteraemia has raised the urgency to define the epidemiology, risk factors and antimicrobial resistance patterns associated with this organism.[6,10] Efficient and active infection control measures like surveillance, inspection of hospital area and water tanks is required to control infection against this challenging bacteria.

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