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Case Report

Urosepsis caused by Lactococcus garvieae

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Abstract: Lactococcus garvieae is a Gram-positive coccus [GPC] that has morphological and biochemical similarities to enterococci. L.garvieae strains are rare human pathogens, with only a few cases reported in the literature, mainly as a cause of infective endocarditis but a well-known pathogen in aquaculture. It is well known as a fish pathogen, and in some of the reported cases, the patients had history of contact with raw fish. We report a case of L. garvieae urosepsis in a patient with no history of contact with raw fish**.**
Keywords: Lactococcus garvieae, Urosepsis.

INTRODUCTION

Genus lactoccus was separated from streptococcus genus in 1985 on the basis of genetic analysis [1]. It is a major pathogen in aquaculture. Lactococcus is a GPC which is composed of 8 species and subspecies of which L. lactis and L. garvieae are involved in human pathology [2] and seem to behave like opportunistic agents with low virulence [3]. Eating or handling raw fish has been associated with human cases of infection [4, 5]. There have been only a few reports of human infection [4, 6]. The most common presentation is endocarditis, involving either native or prosthetic valves [5, 7] but bone involvement [8-10], septicaemia [6] and peritonitis [11] have also been reported.We report a case of urosepsis caused by L. garvieae.

CASE REPORT

A 51 year old female presented to the hospital with complaints of high fever with chills and rigors on and off, cough, headache, myalgia and decreased urinary output. She was a known case of pulmoalveolitis (right middle and lower zone). Her past medical history was significant for hypertension (12 years), diabetes (on insulin) and coronary artery disease.

On examination, her vitals were as follows. Temperature 102 ^{0} F, PR 100/min, BP 120/80mm Hg, RR 25/min, CVS S1S2 +, Respiratory system – bilateral basal crepts + and wheeze +, CNS examination was unremarkable.

Initially patient was treated with Inj. levoflox 750 mg IV OD, T. doxycycline 100 mg BD, Inj. falcigo 150 mg IV OD, Inj. tazomac 4.5 gms in 200 ml NS, along with diuretic (Inj. DYTOR 20 mg IV), antipyretic, insulin (injection H. MIXTARD) and O_2 inhalation. Five days latter fever subsided but presented with shortness of breath IV, palpitations, haemoptysis, followed by starry look, rolling eyes, froth from mouth. Patient was put on ventilator. Haemogram disclosed 6.8g/dl, WBC 28,900, neutrophils 90%, lymphocytes 5%, eosinophils 1% and monocytes 4%. Creatinine 2.1mg/dl, S.urea 107mg/dl, S.albumin 1.6gm/dl and S.globulin 4.8gm/dl. Her provisional diagnosis was rightsided pelviolitis and pyelonephritis. Chest x-ray showed bilateral basal pneumonitis. CT pulmonary angiogram revealed alveolar oedema, soft tissue opacities and negative for pulmonary thromboembolism. 2D echo showed Grade I LV diastolic dysfunction, Right atrial, Right ventricular dilatation, moderate Pulmonary artery hypertension and Tricuspid regurgitation.

Her drug regimen was changed to Inj. gentamicin IV BD, Inj. azithromycin 1 gm IV OD, Inj. fluconazole 200 mg IV OD along with diuretic, insulin and IV fluids.

Fig-1: Colonies of *L. garvieae* on blood agar

Endotracheal aspirate [ET], blood and urine specimens were sent for culture. Inoculated onto 5% sheep blood agar and MacConkey agar. Gram stain showed Gram-positive cocci arranged in pairs and short chains. Small, medium sized transparent colonies with smooth, shiny surface and alpha-hemolytic colonies grew on blood agar [Fig 1]. Isolates were identified by subjecting the colonies to automated vitek 2 systems (Biomerieux). ET and blood cultures yielded A. baumannii sensitive to colistin and Eschericia coli sensitive to amikacin, colistin, tigecycline. Urine culture has grown Lactococcus garvieae which was sensitive to imipenem, teicoplanin, and nitrofurantoin and resistant to clindamycin.

Following culture reports, patient was switched over to Inj. micromax 500 mg OID, Inj. Targocid 400 mg BD, Inj. colistin 2 million units IV/BB over ½ hr along with methyl prednisolone and anticoagulant (Inj. Clexane). After 8 days patient recovered, extubated put on O_2 support and discharged.

DISCUSSION

L. garvieae is a major pathogen in aquaculture. It is a well-known fish pathogen, especially in cultured marine and fresh water fish species and it is also found as a contaminant in dairy products. It is a rare human pathogen with a low virulence [12]. It has been reported to be associated with infective endocarditis, bacteremia, peritonitis, osteomyelitis and spondylodiscitis [13]. Only two or three cases of urinary tract sepsis have been reported so far but there have been examples of co-infections with other organisms, including klebsiella pneumeniae in two cases.

At our laboratory, the presumptive identification of this organism was enterococcus species. The colonies on blood agar were small transparent with a smooth shiny surface and alpha hemolytic after 24 hrs of aerobic incubation. A Gram stain of the colonies showed Gram positive cocci in pairs and short chains with a slight elongated appearence. However our vitek 2 identified the organism as L.garvieae with a good percentage of probability [98%].

Routine testing of lactococcus species remains a challenge in the laboratory. In most routine clinical microbiology laboratories, most of the phenotypical tests for the identification of lactococcus species wouldn't be performed outside a "kit" system or automated identification system. Misidentification of lactococcus species may also occur as happened in our case. Genus level identification of lactococcus by any automated method or commercial kit should always be confirmed with a different method such as matrix-assisted laser desorption ionization time of flight mass spectrometry [MALDI-TOF MS] and molecular methods based on 16sr RNA gene sequencing [14, 15]. Because of lack of such facilities in our institution we failed to do so.

The majority of the reported cases have been associated with fish exposure by either ingestion or handling [4,5]. The patient denied knowledge of any handling or ingestion of raw fish.She gave history of bathing in Krishna pushkaram [river water] several times, one week prior to the episode. Since it is a major pathogen in marine and fresh water, it is possible that the source of infection in this case could be fresh water.

CONCLUSION

It is possible that lactococci exist in environments other than those previously described, being able to identify them as pathogens will help us understand their relationship with human disease. Because of the increasing development of aquafarming, human cases of L. garvieae infections are expected to rise.

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