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A CASE OF BACTEREMIA DUE TO ROSEOMONAS GILARDII IN A SENILE NIGERIAN PATIENT WITH MANY UNDERLYING MEDICAL ILLNESS

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ABSTRACT

Roseomonas gilardii is Gram-negative coccobacilli which produce non fermentative pink-pigmented colonies on blood agar, not grown (or very slowly grower) on macConkey agar. Human infections caused by Roseomonas are very rare. It has clinical importance as opportunistic pathogen which can lead to infections especially in immunosuppressed individuals. We reported a case of bacteremia that took place in Alansar hospital Madina, KSA. A Nigerian senile patient with old CVA, chronic AF and dilated cardiomyopathy with bacteremia due to Roseomonas gilardii. The bacterium was isolated from blood culture and identified by characteristics of colonies on blood agar , biochemical reactions and VITEK 2 (BioMerieux ,paris). Although he died 5 days before the result of the blood culture, it is unclear whether or not Roseomonas was the major contributory cause to his death. This report underlines the pathogenic potential of this organism, and it should be considered of possible clinical significance.

Keywords: R. gilardii, Bactermia, pink-pigmented colonies.

INTRODUCTION

Roseomonas is a proposed genus comprising pink pigmented,Gram-negative coccobacilli. The genus includes three named species, R. gilardii, R. cervicalis and R. fauriae, and three unnamed genomospecies (1). Although a few strains have been isolated from various environmental sources, such as potable water, saline contaminant and plastic ice balls (1,2) the natural reservoir for Roseomonas spp. is unknown. Although most isolations are from blood culture (3–6), the organism has also been isolated from wounds, exudates, abscesses, genitourinary specimens and recently from cranioplasty infection (7–11). Human infections with *Roseomonas* spp. which was reported in the past decade were mostly in immunocompromised persons with underlying diseases such as acute leukemia, cancer, and rheumatoid arthritis (12-15). A healthy woman was reported to be infected by *R. gilardii* after being bitten by a spider, which indicated possible transmission by an arthropod (16).

CASE REPORT

This is a case of 75 years old Nigerian man presented to emergency department at Alansar hospital Madina on 30 october ,2013 , complaining of dehyderation . He has a past history of CVA 3 years ago, chronic AF with pacemaker and dilated cardiomyopathy. The patient has no fever ,no past history of hypertension or diabetes . Pulse was 95 beats/min. Temp 37.3 and RR 24. No history of cellulitis or tick bite.

The patient was admitted to the medical ward On normal saline 50 ml/hour , digoxin , warfarin and oxygen mask . His CBC was normal with WBC 7.73 x 10^3 /ul and RBCs 5.14 X10^6 /ul and platlet 125 x10^3 /ul. blood sugar , renal and kidney functions all were normal and also the cardiac enzyme .

After 24 hour the patent was transferred to the ICU due to sever confusion .The patient was on ventilator , urinary catheter was inserted so prophylactic antibiotic was taken (ceftazidem). CBC still normal , neutrophils normal , temperature not rise but renal function impaired . The patient stay in ICU for about 30 hours but without any improvement .the patient suddenly had cardiac arrest with CPR done to the patient for 30 minutes according to the Saudi heart association national CPR committee protocol .but the ECG give flat line and dilated fixed pupil indicating patient death.
As a routine ,For our hospital , at admission to ICU and before any antibiotic was taken, urine , sputum and blood specimens from the patient were sent to the microbiological laboratory for culture.

Urine and sputum cultures were processed using standard microbiological methods. Blood culture was done using the Bactec 9120 (Becton Dickinson, Baltmore, Md., USA) using aerobic and anerobic blood culture bottles . The urine and sputum samples were negative but blood culture revealed positive results after 5 days incubation . Subculture of blood culture fluid was done on blood , chocolate and macConkey agar plates (Hi-Media, Mumbia, India) . After 48 h of incubation at 37 °C there was growth on blood and chocolate agar but no growth on macConkey agar . The organism has pink colonies on blood agar , gram stain reveal gram negative coccobacilli mostly arranged in pairs. Oxidase and catalase positive . The complete identification was done by VITEC 2 System (BioMerieux ,paris) using GN identification card which give the identification after 6 hours with 98% probabability and excellent identification confidance and bionumber 5000000200000001 . with the following biochemical reactions: PyrA , URE positive and CIT and suger fermentation negative.

Antibiotic susceptibility was done by disk diffusion and also by VATIC 2.0 using AST card GN26 and revealed that the organism was sensitive to Imepinaum , Amikacin , Tobramycin, Ciprofloxacin , Gentamicin, Norfloxacin, Cotrimoxazole , Ampicillin Augmentin and Ticarcillin but resistant to Ceftazidime ,Aztreonam, Cephalothin , Cefapime and Cefuroxime.

Patient' data were obtained from the patient file.

DISCUSSION

Despite the lack of sufficient clinical data to establish Roseomonas as an important cause of bacteremia, most strains of Roseomonas involved in septicemia were identified as R. gilardii and were recovered (in pure culture) from persons with clinical signs of sepsis and no other obvious causes of their observed symptoms (10).

In this case the patient was 75 nigerian patient with many underlying medical problems and presented to the hospital without fever, so this may be a case of Roseomonus bacteremia without obvious clinical symptoms due to senility and depressed immune status of the patient or the organism may be commensal as we weren't able to repeat the blood culture as the patient die before the result of the blood culture was reported . We can analyze this results in the light of the case report of Bar zag et al ,1993 (3), Roseomonas was isolated from two of three sets of aerobic blood culture bottles in a case involving a 56-year-old woman with end-stage renal disease. Although she subsequently died, it is unclear whether or not Roseomonas was the major contributory cause to her demise. In that case , although follow-up information was unavailable, they reported that no individual was recorded as his death was a direct cause of roseomonas septicemia; in one instance, a patient died at a later date during a new episode of septicemia not involving Roseomonas. Also Struthers , et al 1996 (10) who reviewed retrospectively 35 isolates of Roseomonas submitted to determine the clinical significance of this group of bacteria with regard to human infections. And the overall results were somewhat mixed , as at least 40% of all *Roseomonas* isolates in that survey appeared to be transient colonizers of mucosal surfaces or contaminants of sterile body sites. These commensal isolates included at least five strains (recovered from blood) to which no clinical significance could be ascribed. Individuals whose blood cultures were positive for *Roseomonas* of inapparent clinical significance did not exhibit overt signs of infection.

On the other hand Bard et al , 2010 (17) reported that *Roseomonas* spp. appear to have low pathogenic potential for humans, but some species may cause clinically significant or even fatal disease in immunocompromised patients . Also De et al, 2004 (13) studied 36 cases of bacteremia or catheter-related infection caused by *Roseomonas* species and concluded that Roseomonus mucosa and Roseomonus gilardii as the commonest isolated spp. They reported also 19% of the cases as asymptomatic patient fever was the most common symptom in the symtomatized patients [75%] . They speculate that the sliminess R. gilardii group and *R.* mucosa (R. mucosa is most prominent in this regard) is the factor that favors their attachment and colonization onto the CVC. The predominant isolation of R. gilardii from blood cultures and from persons with underlying disease suggests that this organism is probably the most common and inherently pathogenic species within the genus (10).

De et al, 2004 studied 36 cases of bacteremia and reviewed 44 of previously reported sensitivities. Together, the 80 strains are all susceptible to amikacin (100% of the strains) and are frequently susceptible to imipenem (99%), ciprofloxacin (90%), and ticarcillin (83%); but they are far less susceptible to ceftriaxone (38%), trimethoprim-sulfamethoxazole (30%), and ampicillin (13%), and they are essentially not susceptible to ceftazidime (5%) or cefepime (0%). Thus, a third- or fourth-generation cepholosporin (such as ceftazidime, ceftriaxone, or cefepime) would be a poor choice for treatment. In addition, of the *Roseomonas* strains, *R. mucosa* strains are the most resistant, whereas *R. gilardii* subspecies *gilardii* strains are the most susceptible . This result may facilitate treatment for infections due to *Roseomonas* species (13). In our case similarly the Rosiomonus gilardii isolate was susceptible to Imepinaum , Amikacin , Tobramycin, Ciprofloxacin , Gentamicin and Norfloxacin and resistant to Ceftazidime ,Aztreonam,

Cephalothin , Cefapime and Cefuroxime. But on contrary our isolate showed susceptibleity to Cotrimoxazole , Ampicillin and Ticarcllin which had less susceptablity pattern in that study.

CONCLUSION

We present a case of a nigerian senile patient with many underlying medical proplems , R. gilardii isolation from his blood culture which due to its slow growth was reported 5 days after patient death , it is unclear whether or not Roseomonas was the major contributory cause to his death . The patient was senile and immunocomprimised and that may be the cause of absence of fever .This report underlines the pathogenic potential of this organism, and it should be considered of possible clinical significance.

Figure (1): Roseomonus gilardii on blood and Muller hinton agar

The left picture show the pink colonies of R. Gilardii on Muller Hinton agar after 48 hour incubation.

The right pictures show the pink colonies of R. Gilardii on blood agar after 48 hour incubation .

Figure (2): Roseomonus gilardi identification Report by VITEK 2.0 System (BioMerieux ,paris)

Bionumber: 5000000200000001
Selected Organism: Roseomonas gilardii

Comments:					
Identification Information	Card:	GN	Lot Number:	241252310	Expires: Nov 10, 2013 CST
	Completed:	Nov 6, 2013 12:13 CST	Status:	Final	Analysis Time: 6.00 hours
Selected Organism	98% Probability	Roseomonas gilardii			
	Bionumber:	5000000200000001			Confidence: Excellent identification
SRF Organism					
Analysis Organisms and Tests to Separate:					
Analysis Messages:					
Contraindicating Typical Biopattern(s) Roseomonas gilardii APPA(17),					

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