

Bacteremia due to *Kocuria rosea* in a HIV positive patient with low CD4 count: A case report.

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Abstract:

Introduction: Gender *Kocuria* includes 11 species, of which to date only *K. rosea* variants *K.* and *K. kristinae*, are pathogenic, although infrequently cause disease in immunocompromised patient

Materials and Methods: The blood sample was collected from the patient and inoculated into the Brain Heart infusion biphasic media and after positive growth it was subjected to phenotypic identified by Vitek-2.

Objectives: To detect the presence of systemic blood stream infection in the immunocompromised patient.

Results: There was positive growth on the Brain Heart biphasic media and then when it was subjected to Vitek-2 it was found to be *Kocuria rosea* with 97% probability and excellent identification confidence

Conclusions: The present case signifies the importance of *Kocuria rosea* as a important cause of bacteremia in immunocompromised patients though it is very rare.

Keywords: Blood stream infection, immunocompromised, bacteremia

I. Case report:

A 42 yr old HIV positive male on 2nd line ART with present CD 4 cell count of 62 cells/ μ l on the date of examination presented with fever and weakness of all the four limbs and oral lesions in the out patient dept of Regional Institute of Medical Sciences Hospital, Imphal following which he was admitted for further investigations and treatment. He was confirmed as HIV positive 8 months back. The patient had non productive cough for one year with weight loss and white patchy oral lesions. All other examinations conducted revealed normal clinical parameters. There was no other major complaints suggestive of pulmonary, cardiovascular, gastrointestinal, genitourinary systems involvement. Patient is neither hypertensive nor diabetic. 5ml of venous blood from antecubital vein was collected under strict aseptic precautions by the use of both rectified spirit and povidone iodine and was cultured on brain heart infusion biphasic media. Subculture was done on alternate days from the BHI biphasic media by tilting of the bottle and to see for any growth. On the fifth day salmon pink coloured growth was observed on the slant and increase in turbidity in the broth (Fig.1) following which it was subcultured on 5% sheep blood agar and Mac Conkey agar. The plates were incubated at 35°C for 48 h. On blood agar the colony was smooth, shiny, circular, entire and pink and non hemolytic. (Fig.2) There was no growth on Mac Conkey. On further examination of the growth on blood agar it, was found to be gram positive cocci arranged in tetrads on gram staining (Fig.3), non acid fast, were non-hemolytic on blood agar, catalase positive, coagulase negative, oxidase negative, urease negative, bile insoluble, lactose and mannitol not fermented and were non motile. Further identification was performed using the Biomerieux Vitek 2 system (GPI card) in which the organism was identified as *Kocuria rosea* with excellent identification confidence level and 97% probability; however, the alternative means of identification 16s rRNA sequencing was not performed. Culture of the oral swab from the whitish oral lesions on Sabourad Dextrose Agar showed white creamy coloured growth which on gram stain showed to have gram positive budding cells and on further processing for germ tube test was found to show germ tube formation thus thereby indicating the infection by *Candida albicans* which is quite common infection among HIV positive patients.

II. Discussion:

Kocuria spp. are gram-positive, strictly aerobic microorganisms and previously were classified into genus *Micrococcus*, but have now been removed from *Micrococcus* based on phylogenetic and chemotaxonomic analysis¹. The organism is widespread in nature and is frequently found as normal skin flora in humans and other mammals. On microbiological examination the organism was found to be gram-positive cocci arranged in tetrads on Gram staining, aerobic, non-motile, catalase positive, coagulase negative, negative nitrate reduction. Documented cases of infections due to *Kocuria* species are limited. The type species, *Kocuria rosea* has been reported to cause catheter-related bacteremia². Another member of the genus, *Kocuria kristinae*, has also been reported to cause a catheter-related bacteremia in patients with ovarian cancer³. In 2009, two cases of

peritonitis caused by *Kocuria marina* were reported by Lee et al. ⁴. More recently, in 2010, Lai et al. ⁵ also reported catheter-related bacteremia and infective endocarditis caused by *Kocuria* spp. Tsai et al. ⁶ reported a *Kocuria varians* infection associated with brain abscess. Most patients with catheter-related bacteremia were immunocompromised with malignancy or a metabolic disorder.

Kocuria rosea is a rarely reported human pathogen that is difficult to isolate using standard microbiologic methods because of its similarities to other commonly reported. However, they can be an important cause of opportunistic infections in immunocompromised patients, though documented cases of infections are rare.

III. Conclusion:

Though *Kocuria rosea* is a normal commensal of the skin flora, it can cause systemic bacteremia in immunocompromised patients especially in HIV positive patients with a low CD 4 cell count. It is very important especially in HIV endemic area and should be considered in differential diagnosis in bacteremia of a HIV positive individual with a low CD4 cell count, and its antibiotic susceptibility profile should also be investigated and studied thoroughly for early initiation of treatment and follow up.



Fig.1: Salmon coloured growth on solid slant of BHI biphasic media



Fig.2: Salmon coloured growth on subculture on Blood agar

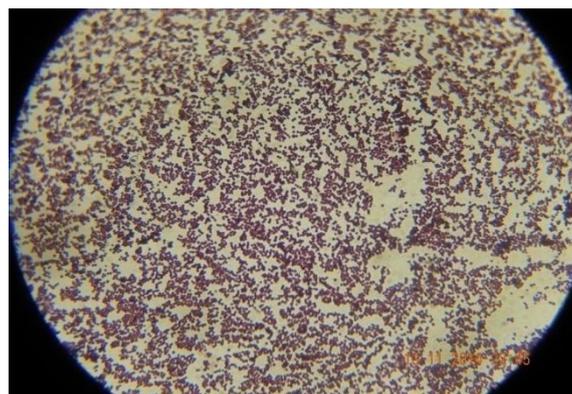


Fig.3: Gram stain of subculture growth from Blood agar showing gram positive cocci in pairs and chains

Table 1: Biochemical report suggesting *Kocuria rosea* on Vitek 2 Biomerieux Ltd.

2	AMY	-	4	PIPLC	-	5	dXYL	-	8	ADH1	-	9	BGAL	-	11	AGLU	-
13	APPA	-	14	CDEX	-	15	AspA	-	16	BGAR	-	17	AMAN	-	19	PHOS	-
20	LeuA	+	23	Pro	-	24	BGURr	-	25	AGAL	-	26	PyrA	-	27	BGUR	-
28	AlaA	-	29	TyrA	-	30	dSOR	-	31	URE	-	32	POLYB	-	37	dGAL	-
38	dRIB	-	39	ILATk	-	42	LAC	-	44	NAG	-	45	dMAL	-	46	BACI	-
47	NOVO	-	50	NC6.5	-	52	dMAN	-	53	dMNE	-	54	MBdG	-	56	PUL	-
57	dRAF	-	58	O129R	-	59	SAL	-	60	SAC	-	62	dTRE	-	63	ADH2s	-
64	OPTO	-															

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