

CASE REPORT

INFECTIVE ENDOCARDITIS IN A PATIENT DUE TO ROSEOMONAS GILARDII A TERTIARY CARE HOSPITAL

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Abstract:

Roseomonas gilardii a species of Gramnegative, strictly aerobic, coccobacilli-shaped, pink-pigmented bacterium pathogenic for humans, causing rare cause of bacteremia and other infections especially who are immunosuppressed. These bacterias are detected after several days growth in culture, and typical pink, mucoid colonies are found. In this case infective endocarditis in a patient due to *roseomonas gilardii* and the clinical course with isolation of the organism in Bangabandhu Sheikh Mujib Medical University (BSMMU) is reported.

Key words: *Roseomonas gilardii*, Infective Endocarditis, coccobacilli, Pink-pigmented bacterium.

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Introduction:

The genus *Roseomonas* is a pink-pigmented, oxidative, mucosal Gram-negative coccobacilli, which is mostly isolated from environmental samples, such as water, soil, air and plants

The genus *Roseomonas*, its type species *Roseomonas gilardii*, and *Roseomonas cervicalis* were described in 1993 in clinical samples though a new group of pink-pigmented non-fermentative bacteria was defined by the Centers for Disease Control and Prevention to indicate these bacteria about 10 years before.^{1,2}

The environmental source for infection is mainly considered in published data due to the origin of most *Roseomonas* species and to their affiliation to the family *Acetobacteraceae* in *Rhodospirillales*.³

Roseomonas gilardii is the most commonly isolated species and is strongly associated with septicemia and underlying illness.⁴

Humans infections have mainly been observed during primary or healthcare-associated infections in patients with comorbidity and/or indwelling devices.³

Detection of this bacteria required several days of growth in culture environment, where characteristic pink, mucoid colonies are found.⁵

The clinical specimens where the microorganism was isolated include wounds, exudates, abscesses and genitourinary specimens, blood. Moreover, infection can be associated with peritoneal dialysis and osteomyelitis. The clinical significance of these isolates is a crucial matter in individuals with underlying illness such as cancer and diabetes and in a study that reviewed of 35 cases from which *Roseomonas* strains were isolated, 60% were found to be related with underlying illness.⁴

In our case a patient with long history of high-grade fever that was not responding to several antibiotic

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who is finally diagnosed as infective endocarditis with *Roseomonasgilardii*s reported here.

Case report:

A 52-year-old type 2 diabetic, non-hypertensive, non-smoker, non-alcoholic man residing in laxmipur, Bangladesh presented with fever and weight loss for 6 months. Patient developed fever while he was in Saudi Arabia 6 month back which was high grade, continued associated with chills, rigor and profuse diaphoresis. The highest recorded temperature was 104⁰ F.

He was initially treated in Saudi Arabia by empirical antibiotic but the fever didnot resolve. Then he came back to Bangladesh and received treatment from local physician with inj.Meropenem; yet there was no improvement. After that, he got admitted in a private hospital three months ago and was diagnosed as a case of Brucellosis on the basis of positive serological test. He was treated there with doxycycline and inj. amikacin. His condition was improved and was afebrile for about one and half-months. But he again developed similar pattern of fever 25days back and was referred to Bangabandhu Sheikh Mujib Medical University (BSMM), Dhaka.

On admission his temperature was 99.5⁰ F, it occasionally rose to 103⁰F several times in a day associated with chills, rigorand profuse sweating during hospitalization. His BP was 120/75 mmHg, pulse 74 beat/min, regular. Systemic examination including precordium was unremarkable. His RT-PCR for SARS CoV 2 was negative, Hb was 11 gm/dl; WBC count 4.47 × 10⁶ / micro L with neutrophil count-55% and it remain normal, serum Ferritin was-1882ng/ml; lactic acid was-1.72 mmol/L; LDH was 248 U/L; RBS was 9.6 mmol/L, FBG 7.2 mmol/L - 2-hour postprandial glucose was 10.5 mmol/L - HBA1c- 6.3 %. Past medical history reveals he has been diagnosed type 2 DM for 4 years and diabetes was moderately controlled with taking tab.metformin 500mg bid.

His abdominal ultrasonogram and chest X ray was normal, ICT for malaria,kala-azar; antibody to Brucella, Rickettsia and Widal test came negative; there was also negative result of HIV antibody and Mantoux test.

Blood culture report was obtained which showed growth of *Staph.aureus* along with antibiotic susceptibility.Other 2 sets ofblood culture were sent to International Centre for Diarrhoeal Disease

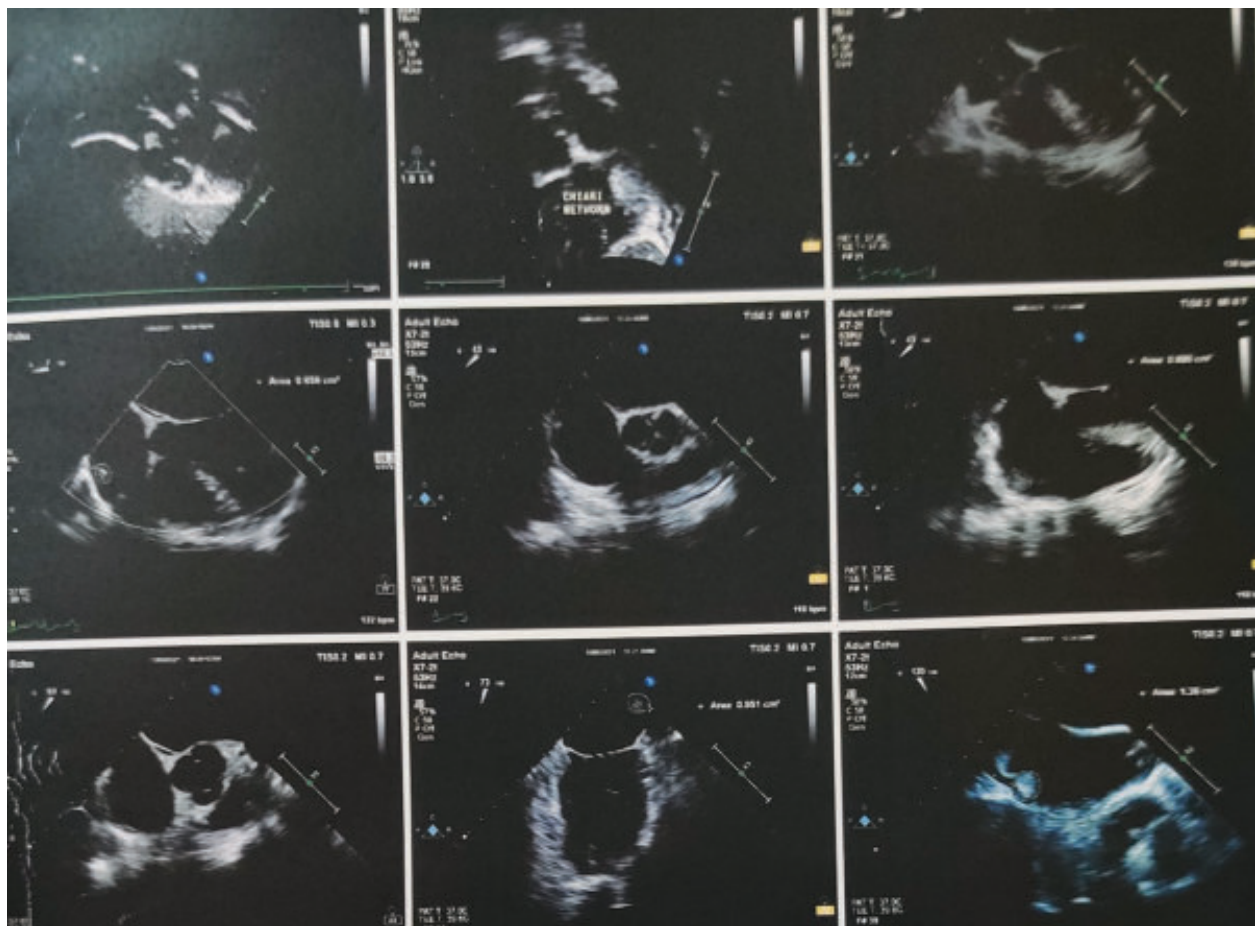


Fig.-1: Trans oesophageal echocardiogram before treatment

Research' Bangladesh (ICDDR, B) in both aerobic and anaerobic bottle.

Then a transoesophageal echocardiogram (TEE) was advised which revealed chiari network and irregular fluffy masses in RV and warfarin ridge of LA, also there were irregular fluffy mass in anterior leaflet of TV and sub-valvular structure present in tip of MV which was consistent with Subacute bacterial endocarditis (SBE).

Treatment was initiated with inj. Vancomycin 1gm twice daily intravenously and inj.Ceftriaxone 2gm twice daily intravenously as per susceptibility pattern of initial blood culture report. After observing 48 hours of treatment initiation there was no improvement of symptoms (high grade fever with chills, rigor and diaphoresis).

In the meantime, one of the two blood culture sets obtained from ICDDR, B and there was no organism isolated.

After 5 days, ICDDR B sent the remaining blood culture report where they found *Roseomonas gilardii* and did antibiotic susceptibility, that showed sensitivity to amikacin, ceftazidime, cefepime, meropenem, piperacillin, ciprofloxacin, tigecycline; but resistant to colistin. Sensitivity for ceftriaxone was not performed what was being received by the patient.

Then treatment was initiated with inj.ciprofloxacin 200mg BD and inj.tigecycline 50mg BD with a loading dose of 100mg IV along with ongoing inj. vancomycin; and ceftriaxone was stopped.

After starting this new regimen patient's condition started to improve, and on 5th day onward of new antibiotic, patient became completely afebrile. Patients renal function was monitored and glycaemic control was maintained very meticulously during this treatment course. The patient recovered completely thereafter.

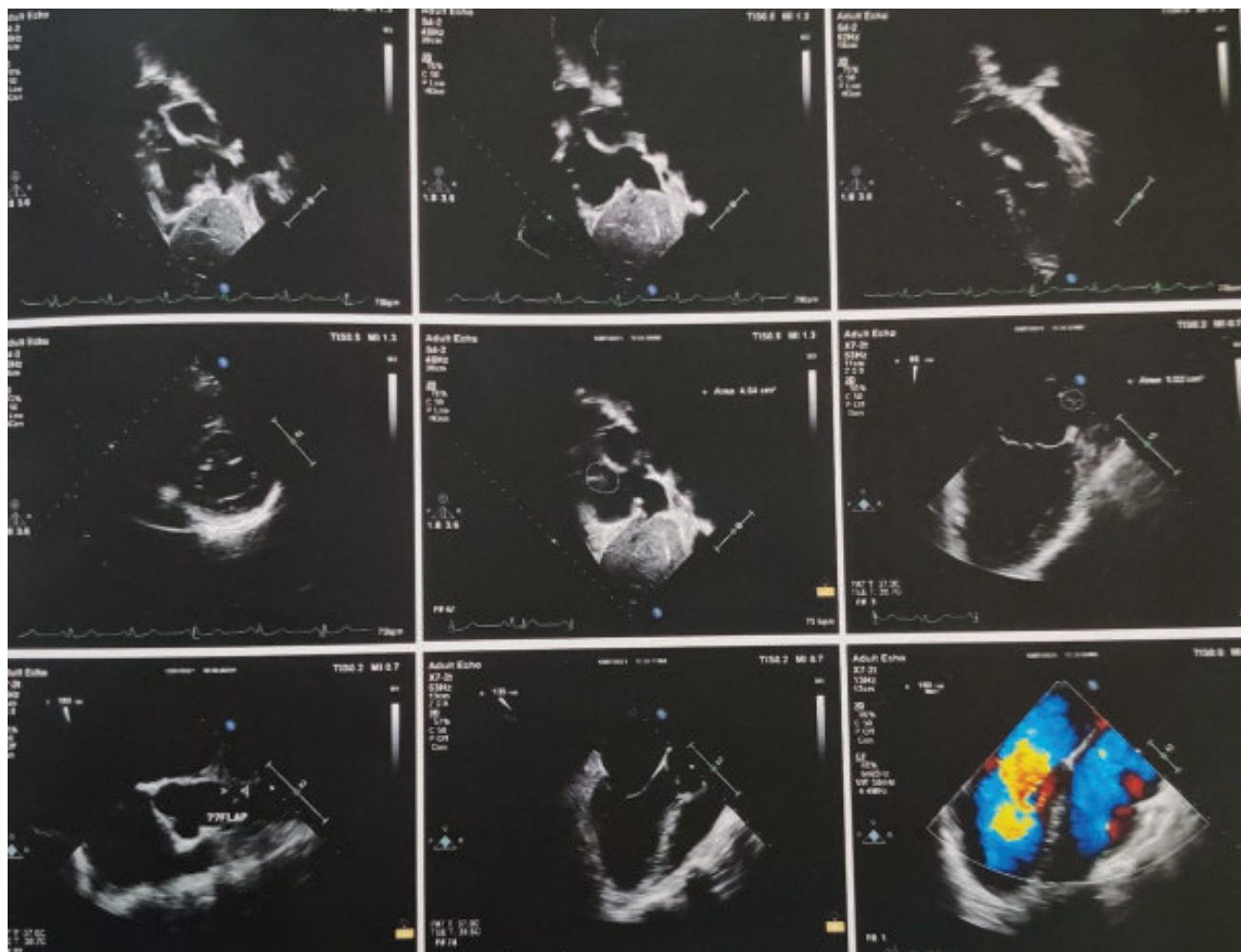


Fig 2: Follow up Trans oesophageal echocardiogram (valves become normal in morphology and function)

Discussion:

Roseomonas contains six species: *R. gilardii*, *R. cervicalis*, *R. fauriae* and unnamed genomospecies 4, 5 and 6. Among these six, *R. gilardii* is found commonly associated with human infection. Though *Roseomonas* is not so common, yet potentially bears the importance of disseminated infections, particularly in patient with coexisting illness. Most of the time it is isolated from blood in a patient with signs of sepsis.⁵

This bacterium grows very slowly and satisfactory growth require about 4 days of incubation in agar media. about the same duration noticed in our case that final comment about the colony required 5 days.⁶

As the patient has history of hospital admission several time in past 6 months and received iv medication, so it could be hospital acquired as previous reports showed, *Roseomonas* cases may be either community-acquired or nosocomial.⁷

Reported case in several literature reveals *R.* infection the initial symptoms were indicative of sepsis . Furthermore, most the patients reported had underlying illness, which includes malignancy, chronic renal disease, inflammatory bowel disease, diabetes and so. However, the patient in our report had type 2 diabetes for 4 years and presented with features of systemic infection.⁷

R. gilardii is usually susceptible to amikacin, ciprofloxacin and frequently susceptible to imipenem, ticarcillin-clavulanate, ampicillin, and ceftriaxone⁷. In our case, the antimicrobial sensitivity results correlated well with these susceptibility pattern.

Conclusion:

Roseomonas infection might present with a variety of clinical diseases including: bacteraemia, soft-tissue infection and bone or joint infection.^{7,8,9} It may be overlooked from a clinical and microbiological perspective as for the rarity and less frequent case report of this bacteria.

That's why diagnosis of *Roseomonas gilardii* infection requires careful evaluation and consideration of rare infection and microbiological correlation like prolonged incubation in an appropriate culture environment and obtaining of characteristic pink, mucoid colonies. Despite the fact that this infection seems to occur in debilitated patients, mortality from *R. gilardii* infection is low and patients do usually recover completely with appropriate treatment.

In summary, our report might be helpful to the recognition of *R. Gilardii* for clinicians as well as

microbiologists and help to delineate its role as a human pathogen.

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Declaration of interest:

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References:

1. Ece G, Ruksen M, Akay A. Case report: cranioplasty infection due to *Roseomonas gilardii* at a university hospital in Turkey. *Pan African Medical Journal*. 2013; 14:162. <https://doi.org/10.11604/pamj.2013.14.162.2730>. PMID:23819004 PMCid:PMC3696469.
2. Romano-Bertrand S, Bourdier A, Aujoulat F, Michon AL, Masnou A, Parer S, et al. Skin microbiota is the main reservoir of *Roseomonas mucosa*, an emerging opportunistic pathogen so far assumed to be environmental. *Clin Microbiol Infect*. 2016 Aug;22(8):737.e1-7. doi: 10.1016/j.cmi.2016.05.024. Epub 2016 Jun 3. PMID: 27269884. <https://doi.org/10.1016/j.cmi.2016.05.024>. PMID:27269884
3. Struthers M, Wong J, Janda JM. An initial appraisal of the clinical significance of *Roseomonas* species associated with human infections. *Clin Infect Dis*. 1996 Oct;23(4):729-33. doi: 10.1093/clinids/23.4.729. PMID: 8909835. <https://doi.org/10.1093/clinids/23.4.729>. PMID:8909835
4. Rihs JD, Brenner DJ, Weaver RE, Steigerwalt AG, Hollis DG, Yu VL. *Roseomonas*, a new genus associated with bacteremia and other human infections. *J Clin Microbiol* 1993; 31: 3275-83. <https://doi.org/10.1128/jcm.31.12.3275-3283.1993>. PMID:8308122 PMCid:PMC266400
5. Gilardi GL, Faur YC. *Pseudomonas mesophilica* and an unnamed taxon, clinical isolates of pink pigmented oxidative bacteria. *J Clin Microbiol*. 1984 Oct;20(4):626-9. <https://doi.org/10.1128/jcm.20.4.626-629.1984>. PMID:6490848 PMCid:PMC271398
6. Shokar NK, Shokar GS, Islam J, Cass AR. *Roseomonas gilardii* infection: case report and

- review. *J Clin Microbiol* 2002 ;40 : 4789-91. <https://doi.org/10.1128/JCM.40.12.4789-4791.2002>. PMID:12454198 PMCID:PMC154581
7. Han XY, Pham AS, Tarrand JJ, Rolston KV, Helsel LO, Levett PN. Bacteriologic characterization of 36 strains of *Roseomonas* species and proposal of *Roseomonas mucosa* sp. nov. and *Roseomonas gilardii* subspecies nov. *Am J Clin Pathol*. 2003 Aug;120(2):256-64. <https://doi.org/10.1309/731V-VGVC-KK35-1Y4J>. PMID:12931556
 8. Nahass RG, Wisneski R, Herman DJ, Hirsh E, Goldblatt K. Vertebral osteomyelitis due to *Roseomonas* species: case report and review of the evaluation of vertebral osteomyelitis. *Clin Infect Dis*. 1995 Dec;21(6):1474-6. <https://doi.org/10.1093/clinids/21.6.1474>. PMID:8749637
 9. Dé I, Rolston KV, Han XY. Clinical significance of *Roseomonas* species isolated from catheter and blood samples: analysis of 36 cases in patients with cancer. *Clin Infect Dis*. 2004 Jun 1;38(11):1579-84. <https://doi.org/10.1086/420824>. PMID:1515 6446