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### PULMONARY INFECTION CAUSED BY *SERRATIA MARCESCENS* IN A TERTIARY CARE CENTER IN NAVI MUMBAI, INDIA

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**Abstract:** A case of pulmonary infection, presenting with fever and productive cough (pseudohaemoptysis) was diagnosed as having infection with *Serratia marcescens* on performing culture and sensitivity tests. The organism was confirmed up to species level using the standard biochemical tests.

**Keywords:** Pulmonary Infection, *Serratia marcescens*,



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## INTRODUCTION

*Serratia marcescens* is a Gram-negative, rod-shaped bacterium in the family Enterobacteriaceae. It was originally considered to be an innocuous, non pathogenic, saprophytic water organism and it was often used as a biological marker because of its easily recognizable red colonies. The recent interest in this species is due to the increased frequency of it being reported as a cause of nosocomial pathogen. Very few reports are available in the Indian literature. To the best of our knowledge, this is the first time; *Serratia Marcescens* is being reported in sputum in Maharashtra and second in India (First being reported in Rajasthan in 2002)

### Case Report:

A sixty seven year old female visited the outpatient department of medicine in a tertiary care center on 2013. She was complaining of productive cough with blood tinged sputum and recurring fever. Patient had no known past history of tuberculosis and was a non smoker.

The sputum when examined was pinkish in color. Smears were prepared and were subjected to Ziehl Neelsen staining. No acid fast bacilli were seen. Gram staining of the sputum revealed several gram negative bacilli along with pus cells and few Gram positive cocci were seen. Direct wet mount preparation of the sputum showed no red blood corpuscles.

The sputum sample was then inoculated onto blood agar, Mac Conkey's agar and Chocolate agar and Nutrient agar. After aerobic incubation at 37<sup>0</sup>C for 24 hours, the blood agar showed large beta-haemolytic as On Gram staining, the former were of gram negative bacilli. The MacConkey's agar plate showed pink colonies. Nutrient agar also showed dark pink colonies. The isolate was subjected to a battery of biochemical tests, viz. indole, methyl red, citrate-utilization, urease, triple sugar iron agar, gelatin-liquefaction, DNase and lipase-production tests were done with the red pigment-producing colonies and based on the results of the above mentioned tests, the isolate was identified as *S. marcescens*.

Antimicrobial susceptibility test was performed with modified Kirby-Bauer technique and the organism was found to be sensitive to Cefotaxime, Cefoperazone, Lomifloxacin, Ciprofloxacin, Ofloxacin, Cefuroxime, Pefloxacin, Netillin, cotrimoxazole, Gentamicin, Amikacin, Linezolid. It was resistant to Amoxicillin – Clavulanic acid.

The patient was put on cefotaxime and responded well to the treatment.

### Discussion:

The sample was repeated to make sure that the isolate was not a contaminant due to the fact that it is a normal commensal of the alimentary canal. The isolate was obtained in pure culture confirming its role in the disease causation. Haemoptosis, as

complained by the patient was in fact psuedohemoptysis, since there were no red blood corpuscles in the sample as confirmed by direct microscopy. The sputum was red-tinged due to the red pigment, Prodigiosin produced by *Serratia marcescens*. It was not known that whether the patient was hospitalized earlier or undergone any invasive procedures which might have led to an infection in the patient as it is a well known nosocomial agent.<sup>2</sup>

*Serratia* is an uncommon opportunistic organism which can cause a wide variety of infections if ignored. To conclude we strongly recommend performing culture and antimicrobial susceptibility test as before treating the patients empirically as *Serratia marcescens* which was earlier considered innocuous is now gaining momentum in causing human infections.

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