



DISCOVERED OF SERRATIA MARCESCENS IN EAR: A CASE REPORT

Andriamampionona Ginnot B.*, Ralaivao Nasolo F. P.*, Mananjara Nandrianina R.*, Fare Avisoa T.*, Rakotoarisoa AHN**

*Otolaryngology Department, University Hospital, Andohatopenaka, Antananarivo, Madagascar.

**Otolaryngology Department, University Hospital, Place Kabary, Antsiranana, Madagascar.

***Corresponding Author: Andriamampionona Ginnot B.**

Otolaryngology Department, University Hospital, Andohatopenaka, Antananarivo, Madagascar.

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ABSTRACT

Serratia marcescens is an opportunistic pathogen in the form of a gram-negative bacillus belonging to the family Enterobacteriaceae. It is a germ responsible for nosocomial infections whose usual localization are respiratory, urinary, gastrointestinal and ocular systems. However, otological localization is unusual. We report a case of a 37-year-old woman with no particular history, who came to consult for acute left-sided otorrhea. He had received a classic treatment of a purulent otitis media, but no satisfactory improvement. The cyto-bacteriological examination by auricular outflow swab had found a *marcescens serratia* resistant to our first line anti-infectious treatment. This causal germ was sensitive to the fluoroquinolones according to the result of the antibiogram. The cure was significant after 10 days of local and general treatment adapted.

KEYWORDS: Bacteriological examination, Otorrhea, *Serratia marcescens*, Swabbing.

INTRODUCTION

Serratia marcescens is an optional gram-negative anaerobic saprophytic bacterium of the organism whose pathogenicity in humans was not revealed until 1951.^[1] It was discovered by Bartolomeo Bizios, an Italian pharmacist, in 1819.^[2]

In most cases, this germ accounted for 1-2% of nosocomial infections and concerns the respiratory, urinary, ocular, surgical and digestive tract.^[3]

Among the germs responsible for ear infections in humans, *serratia marcescens* was not mentioned. Although *serratia marcescens* shows low virulence, literature reports a mortality rate of 0-45% in hospital, electively pediatric population.^[4,5]

A particular feature of *serratia marcescens* is its ability to produce beta-lactamase which contributes to the difficulty of care.^[6,7]

Patient and observation

It is a 37-year-old woman who came for external consultation for left unilateral otorrhea of purulent characteristic, continuous, not smelly evolving for 7 days. The discharge was accompanied by earache, decreased hearing, tinnitus but no dizziness or stuffy nose. Note that the subject does not have a particular history such as a chronic disease affecting immunity, no context of taking an antibiotic or previous

hospitalization. The patient's overall condition was still well maintained.

The otoscopic examination of the affected ear was disturbed by the otorrhea filling the external auditory canal but after suction, the eardrum was clearly visible with a central punctiform perforation. The rest of the clinical examinations were without particularities.

Outpatient management consisted of administration of an amoxicillin-clavulanic acid antibiotic (Augmentin*) by a general dose of 3 grams/day. A local treatment was also adopted based on rifamycin atrial gout (Otofa*) due to 5 drops x 2/day. The clinical evolution after one week of treatment was marked by the persistence of otorrhea with the accompanying signs above.

After 72 hours of therapeutic cessation, a swab was taken from the otorrhea for a myco-bacteriological examination for *mycobacterium tuberculosis*.

Direct examination of the sample revealed the presence of leukocytes with a few polynuclear cells. After Gram staining, the sample found rare gram-positive cocci and rare gram-negative bacilli.

The identification of germs by culture has revealed *serratia marcescens* resistant to our antibiotic general first line. Total recovery was achieved after 10 days of adoption of antibiogram-based anti-infective treatments.

Antibiogram: <i>Serratia marcescens</i>	
Sensitive	Resistant
Cephalosporins 3 ^e generations Ciprofloxacin Ofloxacin Levofloxacin Gentamicine Amikacine Imipenème,	Ampicillin Amoxicillin Amoxicillin + clavulanic acid Cephalosporins 2 ^e generations Cephalosporins 1 ^e generations Cotrimoxazole Cyclines Phenicolés, Polymyxins

DISCUSSION

Serratia marcescens is saprophytic bacterium with nosocomial contamination.^[3] Our patient has no history of hospitalization either before or after the consultation. Purulent otitis of *serratia marcescens* origin can be caught in the environment outside hospital.

According to the authors, *serratia marcescens* mainly affects subjects with low immunity.^[8] In our case, the patient with no particular health problem causing immune failure. The otological localization of *serratia marcescens* occurs in immunocompetent.

In the literature, inappropriate antibiotic use was a risk factor for the development of *serratia marcescens*.^[9] It should be noted that, before the first consultation, the patient had not taken anti-infectives empirically. Probabilistic antibiotic use was not a risk factor for infection with *serratia marcescens* with otological localization.

According to some authors, the pediatric population is electively affected by this bacterium, particularly in neonatal hospitalization.^[8] Our case was an adult unlike the patient age reported by most authors. For a purulent otitis infection of *marcescens* origin, the age range was not a determining factor of the infection.

The authors report that this germ has a weak virulence but insensitive to certain antibiotics thanks to its ability to produce betalactamase.^[6-8] Our probabilistic treatment in purulent otitis is based on betalactamine generally associated with a fluoroquinolone local way. While this class of antibiotic was not correct to treat *serratia marcescens* hence the failure of our first treatment.

In literature, the classic localization of *serratia marcescens* are the respiratory tract, the urinary tract, gastrointestinal, ocular and blood circulation; more the contamination is mainly nosocomial.^[8,10] However, the otological localization of this bacterium was exceptional. The origin of this unusual localization for our patient was non-nosocomial because there was no concept of hospitalization. Manual contamination was very likely in the case of our patient.

CONCLUSION

A purulent otitis of origin *Serratia marcescens* is an exceptional clinico-biological pathology. Always question the presence of unusual germs in front of a dragging ear infection despite first choice anti-infectious treatments.

Although *serratia marcescens* is a low virulence bacterium; some broad-spectrum antibiotics were not necessarily sensitive.

The place of a myco-bacteriological sample with antibiogram are essential to correct the choice of anti-infectious drugs suitable. The interest of a biological examination is also to update the possible existence of new germs responsible for purulent otitis.

Conflicts of interest

The authors do not declare any conflict of interest.

Contributions from authors

All authors read and approved the final version of the manuscript.

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