American Journal of
Biomedical Science & Research

www.biomedgrid.com
ISSN: 2642-1747

Case Report

A Case of Serratia Fonticola Urinary Tract Infection in an Elderly Patient

Athanasia Sergounioti[1]*, Dimitrios Kontogiannis[2] and Christos Kakkanas[2]

[1]*Department of Clinical Microbiology, General Hospital of Amfissa, Greece*

[2]*Department of Internal Medicine, General Hospital of Amfissa, Greece*

***Corresponding author:** Athanasia Sergounioti, Department of Clinical Microbiology, General Hospital of Amfissa, Amfissa, Greece.

To Cite This Article: *Sergounioti A, Kontogiannis D, Kakkanas C. A Case of Serratia Fonticola Urinary Tract Infection in an Elderly Patient. Am J Biomed Sci & Res. 2023 7(6) AJBSR.MS.ID.002409,* DOI: 10.34297/AJBSR.2023.17.002409

Received: December 23, 2022; **Published:** January 19, 2023

Abstract

Serratia fonticola is a member of the Enterobacteriaceae family, widely spread in nature, which is considered a rare cause of infections in humans. We describe a case of *Serratia fonticola* urinary tract infection in an elderly patient.

Keywords: *Serratia Fonticola*; Human Pathogen; Antimicrobial Resistance Genes

Abbreviation: EUCAST: European Committee on Antimicrobial Susceptibility Testing.

Introduction

The species *Serratia fonticola* was first described in 1979 by Gavini et al. [1] as a new member of the Enterobacteriaceae family, isolated from water and soil [1]. Very few cases of *Serratia fonticola* infection in humans have been reported, including a case of emphysematous pyelonephritis [2], endocarditis [3], skin infection in diabetic foot [4], biliary tract infection [5], infection complicating parotid malignant tumors [6], and cerebellar abscess [7], urinary tract infections [8,9], knee septic arthritis [10], blood stream infections [9,11] and even an infection following a bear bite [12]. We present a case of Serratia fonticola urinary tract infection in an elderly patient.

Case Presentation

A 90-year-old female patient was admitted to our hospital due to electrolyte imbalance and diarrhea. The patient had a history of diabetes mellitus, dyslipidemia, ischemic heart disease and atrial fibrillation, for which she was receiving medication and she was admitted to the Internal Medicine Clinic for further investigation. On admission the patient had: temperature 37.2°C, blood pressure 101/55mmHg, HR 88/min, SO2: 94%, respiratory auscultation: bilateral ronchi, abdominal examination: abdomen soft to touch with no masses, swelling, pain and rigidity, bowel sounds: present. The patient was admitted to the Internal Medicine Clinic for further investigation.

The initial laboratory results were as below:

a. CBC: WBC 7960/μL, (Neutrophils 68.3%, Lymphocytes 18.7%), Hemoglobin 10.5gr/dL, Hematocrit 31.9%,

b. Clinical Chemistry: Glucose: 164mg/dL, Urea: 39mg/dL, Creatinine 1.52mg/dL, K 3.0mmol/L, Na 129 mmol/L,CRP 0.17mg/dL, hs-cTnT 8.49 ng/L, 2) Urinalysis: WBC >200hpf, RBC: 15-20 hpf, abundant microorganisms.

c. Urine culture: >105cfu/mL of a Gram (-) rod. The identification and susceptibility testing were performed with the Microscan Autoscan System (Siemens).

The microorganism was identified as *Serratia fonticola* (Microscan ID: 99.99%) and was resistant ampicillin, ampicillin/sulbactam, cefepime, cefoxitine, ertapenem, levofloxacine and piperacillin and susceptible to piperacillin/tazobactam, amikacin, gentamicin, tobramycin, imipenem, meropenem, nitrofurantoin, fosfomycin and cotrimoxazole, according to the EUCAST criteria. The patient was prescribed fosfomycin and was discharged with instructions for follow up.

Discussion

Serratia fonticola is a Gram negative, motile, peritrichous bacterium which was primarily isolated in aquatic environments, soil and sewage, but it is also reported to be found in several plants, birds, mammals and reptiles [2]. Aljorayid et al. [9] assume that *Serratia fonticola* may be, albeit sporadically, a member of the gastrointestinal microbiota as a result of consuming contaminated vegetables, causing, given the opportunity, infections [9].

Although *Serratia fonticola* infections have not been described as particularly challenging as far as antimicrobial resistance goes, this microorganism has been found to harbour resistance genes, such as a chromosome-encoded AmpC β-lactamase SFDC-1 [13], the vanW gene, responsible for resistance to vancomycin, on a transposon of the environmental strain *S. fonticola* DSM4576, a class A β-lactamase gene blaCTX-M and an inducible FONA-type extended-spectrum β-lactamase gene [9], which has the theoretical, yet undeniable, potential to transmit to other microorganisms. This potential risk renders *Serratia fonticola* additionally interesting in relation to infectious diseases and antimicrobial resistance surveillance.

Conclusion

The fact that an increasing number of *Serratia fonticola* infections are reported should raise our attention not only to the role of this microorganism as a human pathogen, but also to its potential in the spread of antimicrobial resistance genes.

Acknowledgement

None.

Conflict of Interest

None.

References

1. Gavini F, Ferragut C, Izard D, Trinel PA, Leclerc H, et al. (1979) *Serratia fonticola*, a new species from water. Int J Syst Evol Microbiol 29: 92-101.
2. Villasuso Alcocer V, Flores Tapia JP, Perez Garfias F, Rochel Perez A, Mendez Dominguez N (2022) *Serratia fonticola* and its role as a single pathogen causing emphysematous pyelonephritis in a non-diabetic patient: A case report. World J Clin Cases 10(29): 10600-10605.
3. Espinoza V, Valdez M, Burcovschii S, Fong I, Petersen G, et al. (2021) The First Case Report of Endocarditis Caused by *Serratia fonticola*. J Investig Med High Impact Case Rep 9: 23247096211044915.
4. Demetriou M, Papanas N, Panagopoulos P, Panopoulou M, Maltezos E (2017) Atypical Microbial Isolates from Infected Diabetic Foot Ulcers: A Case Series from Greece. Rev Diabet Stud 14(2-3): 258-259.
5. Hai PD, Hoa LTV, Tot NH, Phuong LL, Quang VV, et al. (2020) First report of biliary tract infection caused by multidrug-resistant *Serratia fonticola*. New microbes and new infections 36: 100692.
6. Wen SL, Chen J, Tan HL, Zhong WS, Bao RH, et al. (2020) [A case of parotid malignant tumors complicated with *Serratia fonticola* infection]. Zhonghua Er Bi Yan Hou Tou Jing Wai Ke Za Zhi 55(3): 270-272.
7. Mahajan RK, Bhatia D, Yavad R, Kumar P (2019) *Serratia fonticola* causing cerebellar abscess: a case report. International journal of scientific research 8(3): 13-14.
8. Katib AA, Shaikhomar O, Dajam M, Alqurashi L (2020) *Serratia Fonticola* microbe presented as a community-acquired urinary tract infection (UTI): a case report. jidhealth 3(3): 226-227.
9. Aljorayid A, Viau R, Castellino L, Jump RL (2016) *Serratia fonticola*, pathogen or bystander? A case series and review of the literature. ID Cases 5: 6-8.
10. Gorret J, Chevalier J, Gaschet A, Fraisse B, Violas P, et al. (2009) Childhood delayed septic arthritis of the knee caused by *Serratia fonticola*. Knee 16(6): 512-514.
11. Raphael E, Riley LW (2017) Infections Caused by Antimicrobial Drug-Resistant Saprophytic Gram-Negative Bacteria in the Environment. Front Med (Lausanne) 4: 183.
12. Kunimoto D, Rennie R, Citron DM, Goldstein EJ (2004) Bacteriology of a bear bite wound to a human: case report. J Clin Microbiol 42(7): 3374-3376.
13. Dong X, Zhang P, Zhou K, Liang J, Li Q, et al. (2021) Characterization and identification of SFDC-1, a novel AmpC-type β-lactamase in *Serratia fonticola*. Environ Microbiol 23(12): 7512-7522.