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Research Article

A Case of Diarrhea Associated with Kluyvera Ascorbata Infection

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Abstract

Kluyvera ascorbata is a bacillus that very rarely causes infections in humans. It can be found as a benign saprophyte of the human respiratory, urinary or gastrointestinal tract. However, a small number of cases of Kluyvera infection, some of them fatal, have been described. Only seven cases of diarrhea caused by Kluyvera sp. have been reported in the literature, to our knowledge. Here, we report the case of an 81-year-old male patient admitted to our hospital for diarrhea, with Kluyvera ascorbata isolated from the stool culture.

Keywords: Kluyvera ascorbata; Infection; Diarrhea

Introduction

Kluyvera ascorbata is a bacillus that belongs to the family Enterobacteriaceae, first described in 1936 [1]. The genus Kluyvera consists of four species, of which Kluyvera ascorbata is the one that is identified in most infections in humans [2]. It is usually a saprophyte of the respiratory, the digestive and the urinary tract in humans. It can be found in the soil, the water, hospital sinks and animals. It can infect both immunocompetent and immunocompromised patients, infants and adults alike. The source of isolation can vary, it has been isolated in urine, blood, sputum, peritoneal fluid, stool, abscess, and the gall bladder. Resistance is usually encountered to ampicillin and cephalosporins of first and second generation. Treatment usually includes third generation cephalosporins, aminoglycosides or fluoroquinolones.

Case Report

In our hospital was admitted a patient, male, 81 years old, due to persistent diarrhea with onset four days prior to admission. From his medical history was reported hypertension, diabetes mellitus, hypothyroidism and pericarditis where pericardial fluid was evacuated by small-extent thoracotomy, two months ago. In the ER the patient was hemodynamically stable, alert, tetracinetic, non-febrile, with arterial pressure 106/70 mmHg, pulse 77 bpm, oxygen saturation 97% on ambient air. The blood count was unremarkable except for monocytosis: white blood cells 7,82 K/uL (NR 4-11), nucleophiles 61,7% (NR 35-72), lymphocytes 11,9% (NR 20-45), monocytes 17,9% (NR 3-11) and in absolute numbers, monocytes 1,4 K/uL (NR 0,2-1). Anemia was also noted with Hematocrit 27% (NR 40-54), hemoglobin 9, 1 g/dl (NR 13, 5-17, 5). He was still suffering from diarrhea. A stool specimen was sent for cultivation. The culture was positive for Kluyvera ascorbata. No parasites were detected. The patient was treated, based on the results of the antibiogram, successfully with intravenous ceftriaxone, 2 gm once daily for seven days. During his hospitalization he tested positive for Covid-19, and was further treated with intravenous remdesivir, 200 mg for the first day, and 100 mg once daily for two more days. He was discharged in good condition.

Discussion

Kluyvera ascorbata is rarely identified as a pathogen. A search in PubMed for the period 1971-2019 revealed 40 patients infected by Kluyvera ascorbata. These included 21 adults and 19 children [3]. From the 21 adults, 13 were immunocompromised, 4 were immunocompetent, and there was no information for the other 4. From the 19 children (1 day old up to 18 years old) 10 had congenital or other chronic health problems, 5 had a clear medical history, and no health history information was available for the other 4. Other investigators report 22 infections by Kluyvera species for the period 1980-2000. There is no preferred antimicrobial regiment for the treatment of infections caused by Kluyvera ascorbata. Resistance is reported to ampicillin, first and second generation cephalosporins and ticarcillin, but there is susceptibility to ampicillin/sulbactam and amoxicillin/clavulanic acid. It is known that Kluyvera species are a source of β-lactamases [4]. A case of KPC-producing Kluyvera ascorbata has been reported [5].There is susceptibility to third generation cephalosporins, cefepime, piperacillin/tazobactam, ciprofloxacin, amikacin and carbapenem. In our case the antibiogram showed resistance to ampicillin, as expected. We treated the patient successfully with the administration of ceftriaxone, for which 90% susceptibility is reported [6]. In the literature only two investigators have reported Kluyvera species infection as a cause of diarrhea. They listed a total of six cases, five adults four of whom were immunocompromised, and one infant without any other health problems. For the five adults the Kluyvera species responsible is not specified [7]. The infant was infected by Kluyvera ascorbata [8]. All patients recovered without any antimicrobial treatment. Therefore, as far as we know, our case is one of seven cases of diarrhea attributed to infection by Kluyvera species, and only the second case of diarrhea definitely attributed to Kluyvera ascorbata.

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Conclusion

We have presented the case of an 81-year-old male patient with diarrhea with a positive stool culture for Kluyvera ascorbata, who was successfully treated with ceftriaxone. Kluyvera ascorbata is a very rare pathogen, but the clinical doctor should be alert in case of infection by this pathogen, which can be potentially life-threatening.

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