ABSTRACT

Background: C. ramosum is indigenous to the human intestinal tract. Systemic infections from C. ramosum are rare and pathogenic infections have mostly been described in young children and in immune-compromised hosts. Here we present clinical characteristics of five patients with C. ramosum bacteremia from one single tertiary care center. This is the largest series of its kind.

Methods: This is a single-center, retrospective chart review of all adult patients who developed C. ramosum bacteremia from January 2013 to April 2017. C. ramosum was identified based on the results of an automated biochemical test (RAPID ANA II System, Remel) and DNA sequencing of the 16S rDNA.

Results: During the study period, five patients were identified with C. ramosum bacteremia. All these patients were immunocompromised. Mean age of the study population was 77 years. 4/5 patients had hematological malignancies, were undergoing chemotherapy and were neutropenic. 4/5 patients initially presented with a febrile illness. While the source of bacteremia was not clear, 4/5 patients had associated gastrointestinal abnormalities. C. ramosum was also isolated from clinical, radiological and laboratory findings of these patients. 2/5 patients had concurrent bacteremia with various organisms. These patients were treated with cefepime (3/5), ceftriaxone (1/5) and cefepime plus metronidazole (1/5). 3/5 (60%) of the patients in our study died, from the progression of their underlying hematological malignancy.

Conclusion: Patients with C. ramosum bacteremia are older, immunocompromised, have concurrent other infections, have a likely gastro-intestinal source and have high mortality. C. ramosum bacteremia, especially in immunocompromised hosts, should be properly evaluated and treated.

INTRODUCTION

C. ramosum is indigenous to the human intestinal tract. Clostridium spp. bacteremia is often seen in older patients, is often poly-microbial and is associated with higher mortality. C. ramosum comprises 9% of Clostridium spp. bacteremias. Systemic infections from C. ramosum are rare and pathogenic infections have mostly been described in young children and in immune-compromised hosts. In this case series, we present clinical characteristics of five patients with C. ramosum bacteremia.

MATERIALS AND METHODS

This was a single-center, retrospective chart review of all adult patients at Westchester Medical Center (WMC) who developed C. ramosum bacteremia from January 2013 to April 2017. WMC is a tertiary care, academic teaching hospital located in suburban New York. The study period was 4 years. Five patients were identified with C. ramosum bacteremia.

C. ramosum was identified based on the results of conventional biochemical tests (RAPID ANA II System, Remel) and DNA sequencing of the 16S rDNA. Data was collected regarding clinical characteristics, antibiotic treatment, presence or absence of a possible source and outcome.

RESULTS

<table>
<thead>
<tr>
<th>Patient Characteristics</th>
<th>Possible Source</th>
<th>Gastrointestinal Source</th>
<th>Concurrent bacteremia</th>
<th>Treatment</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>81/F Refractory Acute Myeloid Leukemia</td>
<td>No Pneumonia</td>
<td>Aciinetobacter</td>
<td>Cefepime</td>
<td>Died</td>
<td></td>
</tr>
<tr>
<td>66/F Acute Lymphoid Leukemia</td>
<td>Yes Dilated Common Bile Duct</td>
<td>None</td>
<td>Cefepime</td>
<td>Improved</td>
<td></td>
</tr>
<tr>
<td>75/M Acute Lymphoblastic Leukemia</td>
<td>No None</td>
<td>None</td>
<td>Metronidazole</td>
<td>Died</td>
<td></td>
</tr>
<tr>
<td>45/M Cirrhosis</td>
<td>No C. difficile infection</td>
<td>Citrobacter</td>
<td>Cefepime</td>
<td>Died</td>
<td></td>
</tr>
<tr>
<td>82/F Refractory Acute Myeloid Leukemia</td>
<td>Yes C. difficile infection</td>
<td>None</td>
<td>Cefepime</td>
<td>Improved</td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSION

Patients with C. ramosum bacteremia are older, immunocompromised, can have concurrent other infections, have a likely gastro-intestinal source and have high mortality. C. ramosum bacteremia, especially in immunocompromised hosts, should be properly evaluated and treated and not be considered a contaminant.

REFERENCES


Corresponding Author: Abhay Dhanda, dhanda@wmchealth.org, 914 391 8189

Abhay Dhanda

Dhand1

914 391 8189

Divisions of Medicine1, Microbiology2 and Transplant Infectious Diseases3, Westchester Medical Center/New York Medical College Valhalla, NY

DISCUSSION

C. ramosum is known to be one of the most common commensal Clostridial species in humans. Clostridium spp. bacteremia is uncommon, constituting about 0.7-2.6% of all bacteremias. C. ramosum comprises around 9% of all Clostridium spp. bacteremias. Clinical significance of all C. ramosum bacteremias in not well known. C. ramosum is not known to have any virulence factors besides its extended IgA protease.

Patients with pathogenic infections are either very young with ear infections or immunocompromised adults with bacteremia. Resistance to antimicrobial agents is not well reported, therefore patients with neutropenic fevers may often be covered appropriately with empiric antibiotic therapy.

CONCLUSION

C. ramosum bacteremia, especially in immunocompromised hosts, should be properly evaluated and treated and not be considered a contaminant.