

Case Report

A Case of Severe *Aeromonas* Bacteremia with Necrotizing Fasciitis of Lower Limb and Fournier's Gangrene in a Post-Allogenic Unrelated Hematopoietic Stem Cell Transplant Recipient

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Abstract



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Keywords

- ▶ *Aeromonas sobria*
- ▶ Fournier's gangrene
- ▶ hematopoietic transplant infection
- ▶ HSCT
- ▶ necrotizing fasciitis

Background *Aeromonas* is a water-dwelling Gram-negative bacillus primarily associated with gastrointestinal tract diseases. *Aeromonas sobria* causing gastroenteritis has been reported in India. In immunocompromised host, *Aeromonas sobria* can also present with severe necrotizing skin and soft tissue infection with a high mortality rate. We report a case of *Aeromonas sobria* sepsis with skin and soft tissue infection in the background of immunosuppression.

Case Presentation Fifty-year-old male who underwent an unrelated donor peripheral stem cell transplant for relapsed pre-B acute lymphoblastic leukemia in complete clinical remission on graft versus host disease prophylaxis, post-white blood cell engraftment presented with acute onset lethargy, lower limb pain without fever, or any skin changes initially. He rapidly worsened clinically over few days and developed sepsis, multiorgan dysfunction with the appearance of erythema and blister over the lower limb, and Fournier's gangrene of scrotum. He was found to have *Aeromonas sobria* bacteremia with isolated resistance to carbapenems while sensitive to all other classes of antibiotics. Despite appropriate antibiotic therapy and supportive measures, he succumbed to death for this invasive bacterial disease.

Conclusion *Aeromonas* should be considered a cause of sepsis in immunosuppressed hosts, especially those with hematological malignancy presenting with necrotizing skin and soft tissue infection. Considering the virulence of this pathogen, despite the very susceptible antibiogram, such patients must be managed aggressively. Early recognition of the disease with a combination of medical and surgical management might help to improve the outcome.

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Introduction

Bacteremic infections in the post-hematopoietic stem cell transplantation setting are predominantly due to Gram-negative organisms in the Indian context.¹ *Aeromonas* bacteremia in patients with malignancy is associated with a higher mortality rate than bacteremia caused by other organisms.² *Aeromonas sobria* has been reported to cause fulminant necrotizing fasciitis in patients with neutropenia² in only a few pieces of literature. Here, we report a rare case of fulminant *A. sobria* bacteremia with necrotizing fasciitis and Fournier's gangrene.

Case

Fifty-year-old normotensive euglycemic male, case of relapsed pre-B cell acute lymphoblastic leukemia in complete clinical remission, who had undergone unrelated peripheral stem cell transplant 9/10 matched and discharged post-white blood cell (WBC) engraftment a month ago with graft versus host disease prophylaxis with mycophenolate mofetil and dexamethasone, presented to us on day +37 with lethargy and bilateral lower limb pain of 3 days duration, without any fever. He had decreased appetite and decreased urine output. On admission, his hemodynamics were stable and the blood workup revealed neutrophilic leukocytosis (WBC 21,000/mm³), thrombocytopenia (15,000/mm³), deranged kidney function test (urea 118 mg/dL, creatinine 2.1 mg/dL), and mild hyponatremia (Na 129 mmol/L). He had progressive thrombocytopenia and worsening of kidney function with anuria requiring hemodialysis. Aerobic and anaerobic sets of blood cultures were sent and started on empiric antibiotics with cefoperazone and sulbactam. His thrombocytopenia worsened to 7,000/mm³ without any bleeding episodes and required platelet transfusion. On day 5 of the admission, he had altered sensorium, atrial fibrillation with cardiac arrest, for which he was intubated, revived, and required triple inotropic support. The anti-infective regimen was escalated to meropenem, polymyxin B, teicoplanin, and anidulafungin, pending the culture report. His blood culture flagged Gram-negative bacilli in the aerobic bottle. There was an appearance of blisters over both the lower limbs and swelling and redness of the right lower

limb that was more in the thigh region, scrotal swelling with erythema, and breach in the skin. The Gram-negative bacteria grown in the blood was identified as *A. sobria* sensitive to cephalosporins, including ceftazidime, cefepime, piperacillin-tazobactam, and cotrimoxazole, quinolone, aminoglycoside but resistant to imipenem and meropenem. Because of the refractory sepsis, antibiotics were escalated to ceftazidime-avibactam, ciprofloxacin as a dual coverage against the *Aeromonas*. Clindamycin was added to cover anaerobes and potential Gram-positive organisms. The patient had a rapid downhill course with multiorgan dysfunction. Unfortunately, surgical intervention could not be performed, due to the hemodynamic instability. He succumbed to *Aeromonas* sepsis. As per literature, sepsis occurs due to a serine proteinase secreted by *A. sobria*.² Similar to the isolate in our case isolated carbapenem resistance has been reported.³

Conclusion

Aeromonas spp. should be considered as a causative agent of necrotizing fasciitis and Fournier's gangrene in hematological malignancy patients on immunosuppressants and examination of lower limbs and genitalia is critical to clinch early diagnosis and carry out prompt intervention as necessary as it carries a high mortality rate. Isolated carbapenem resistance should be looked for. Further studies are needed to look for the role of other supportive therapies to mitigate the probable toxin-mediated virulence of *A. sobria*.

Conflict of Interest

None declared.

References

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