LETTER TO EDITOR PEER REVIEWED | OPEN ACCESS

A case of bacterial infection due to red blood cell unit

Elsa Soares, Patricia Valério, Catarina Abrantes, Ana Farinha, Ana Natário

To the Editors,

Yersinia entercolitica is a gram-negative bacillus of the *Enterobacteriacea* family. Spread of infection from source to humans may occur via contaminated water or food or directly from a blood transfusion. Resulting infection can range from gastroenteritis to septicemia, including metastatic infection [1].

An 85-year-old man with history of end-stage renal disease (with a tuneled catheter as vascular access), prostate cancer, and diabetes mellitus, was referred to the emergency department (ED) after a hemodialysis session due to hemoglobin (Hb) value 6.7 g/dL. He did a unit of red blood concentration (RBC) and was discharged. A few hours later he was malaise and febrile, but went to the ED only five days later. At admission, he was febrile (39.6°C) and hypotensive (94–47 mmHg). Laboratory results identified Hb 7.6 g/dL; leukocytes 13,200/ul, neutrophils 86.6%, C-reactive protein (CRP) 28 mg/dL, normal urinary sediment, and no alteration on chest X-ray. As the patient did not have any apparent source of infection, it was assumed a catheter-related infection. It was removed and initiated vancomycin and gentamicin.

On the fifth day of antibiotic, *Y. enterocolitica* was identified at the catheter and on peripheral blood cultures. We interrupted vancomycin and started ciprofloxacin according to the antibiotic sensitivity test.

The case was reported to the blood service, this is performed whenever there is a suspected complication. The RBC donor was called and the study showed the presence of high titters (200) of anti-*Yersinia* antibodies from the same isolate strain measured by indirect immunofluorescence. The patient completed 21 days of antibiotic therapy with good clinical evolution. It is a case of post-transfusional bacterial sepsis that had a favorable outcome, unlike most cases described in the literature. Due to its psychotropic action, *Y. enterocolitica* is not inhibited by the storage temperatures off blood (2–6°C) [2]. Bacterial multiplication is supported both for glucose and adenine of the anticoagulant preparative and additive solution and by the hemoglobin and iron resulting from cell lysis over the shelf life [3].

Systematic screening of blood donations for the presence of blood-borne viruses has resulted in an important decrease of viral infections [4], and bacterial sepsis has become the most frequent infectious complication of transfusion in developed countries [5].

Yersinia enterocolitica is associated with ~46% of documented cases of clinical sepsis from a contaminated RBC; nevertheless, this is an infrequent event. The screening of *Yersinia* infection in red blood cell units is the only way to avoid the blood donor transmission. Unfortunately it is too expensive, thus not cost effective, so it is up to the clinician to avoid transfusions and decrease the risk.

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REFERENCES

1. Bottone EJ. Yersinia enterocolitica: The charisma continues. Clin Microbiol Rev 1997;10(2):257–76.

2. Guinet F, Carniel E, Leclercq A. Transfusion-transmitted Yersinia enterocolitica sepsis. Clin Infect Dis 2011;53(6):583–91.
3. Cover TL, Aber RC. Yersinia enterocolitica. N Engl J Med 1989;321(1):16–24.
4. Klein HG. How safe is blood, really? Biologicals 2010;38(1):100–4.
5. Stainsby D, Jones H, Asher D, et al. Serious hazards of transfusion: A decade of hemovigilance in the UK. Transfus Med Rev 2006;20(4):273–82.

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Author Contributions

Elsa Soares – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Patricia Valério – Conception of the work, Interpretation of data, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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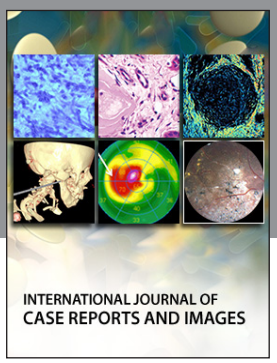
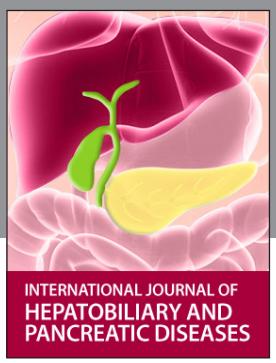
Conflict of Interest

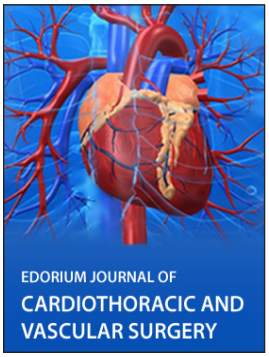
Authors declare no conflict of interest.

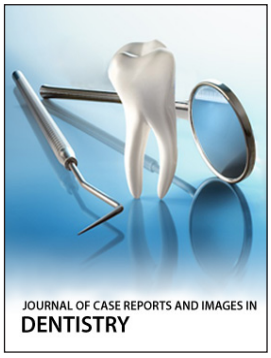
Data Availability

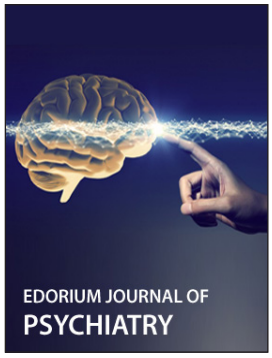
All relevant data are within the paper and its Supporting Information files.

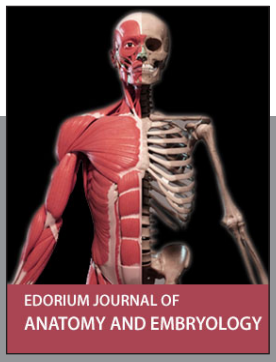


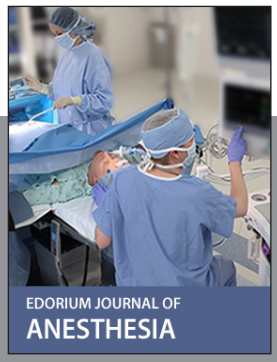












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