

## CASE VIDEO

# Negative myoclonus as a manifestation of cefepime neurotoxicity

Daichi Umemoto<sup>1</sup>  | Hirokazu Kuroda<sup>2</sup>  | Hiroaki Nishioka<sup>1,2</sup> 

<sup>1</sup>Department of General Internal Medicine, Kobe City Medical Center General Hospital, Kobe, Hyogo, Japan

<sup>2</sup>Department of Infectious Diseases, Kobe City Medical Center General Hospital, Kobe, Hyogo, Japan

**Correspondence**

Hirokazu Kuroda, Department of Infectious Diseases, Kobe City Medical Center General Hospital, 2-1-1 Minatojima-mimamimachi, Chuo-ku, Kobe, Hyogo, 650-0047, Japan.  
Email: [hrkz1985@gmail.com](mailto:hrkz1985@gmail.com)

**Key Clinical Message**

Negative myoclonus may present in the early stages of cefepime neurotoxicity. Cefepime neurotoxicity typically presents as reduced consciousness, myoclonus, and seizures; however, negative myoclonus is uncommon. This video shows an older woman with cefepime neurotoxicity that presented as a negative myoclonus of the upper limbs.

**KEYWORDS**

asterixis, cefepime, negative myoclonus, neurotoxicity

## 1 | CASE VIDEOS

An 82-year-old woman with vertebral osteomyelitis caused by *Klebsiella aerogenes* was restless after 14 days of treatment with cefepime (2g every 12h). She had no history of liver disease or neuromuscular disorder. Physical examination revealed a negative myoclonus of the upper limbs (Video S1). No hyperammonemia, azotemia, hypoglycemia, hypercapnia, abnormal liver function tests, or electrolyte abnormalities were observed. Cefepime was discontinued and levofloxacin was initiated, resulting in the resolution of symptoms within 2 days (Video S2), suggesting cefepime neurotoxicity. Cefepime neurotoxicity typically presents as reduced consciousness, myoclonus, and seizures.<sup>1,2</sup> Negative myoclonus is a rare presentation of cefepime neurotoxicity; however, this case demonstrates that it can manifest during the early stages of cefepime neurotoxicity.

**AUTHOR CONTRIBUTIONS**

**Daichi Umemoto:** Writing – original draft; writing – review and editing. **Hirokazu Kuroda:** Supervision; validation; writing – original draft; writing – review and editing.

**Hiroaki Nishioka:** Supervision; validation; writing – review and editing.

**FUNDING INFORMATION**

This study did not receive any specific grants from funding agencies in the public, commercial, or not-for-profit sectors.

**CONFLICT OF INTEREST STATEMENT**

None.

**DATA AVAILABILITY STATEMENT**

Data sharing is not applicable to this article, as no datasets were generated or analyzed in the current study.

**ETHICS STATEMENT**

Our institutional review board did not require further approval for this report.

**CONSENT**

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2023 The Authors. *Clinical Case Reports* published by John Wiley & Sons Ltd.

## ORCID

Daichi Umemoto  <https://orcid.org/0009-0003-7864-8616>

Hirokazu Kuroda  <https://orcid.org/0000-0001-6242-3832>

Hiroaki Nishioka  <https://orcid.org/0000-0001-7619-0646>

## REFERENCES

1. Boschung-Pasquier L, Atkinson A, Kastner LK, et al. Cefepime neurotoxicity: thresholds and risk factors. A retrospective cohort study. *Clin Microbiol Infect*. 2020;26(3):333-339. doi:[10.1016/j.cmi.2019.06.028](https://doi.org/10.1016/j.cmi.2019.06.028)
2. Payne LE, Gagnon DJ, Riker RR, et al. Cefepime-induced neurotoxicity: a systematic review. *Crit Care*. 2017;21(1):276. doi:[10.1186/s13054-017-1856-1](https://doi.org/10.1186/s13054-017-1856-1)

## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**How to cite this article:** Umemoto D, Kuroda H, Nishioka H. Negative myoclonus as a manifestation of cefepime neurotoxicity. *Clin Case Rep*. 2024;12:e8380. doi:[10.1002/ccr3.8380](https://doi.org/10.1002/ccr3.8380)