



Listeria endophthalmitis in a patient receiving immunomodulatory therapy

Chuen-Yen Lau, Seble G Kassaye

A 68-year-old man with metastatic melanoma was admitted to our hospital with listeria endophthalmitis in April, 2018. The patient had started 21-day cycles of nivolumab (1 mg/kg) and ipilimumab (3 mg/kg) in January, 2017. In April, 2017, because of concerns that adrenal insufficiency and hypothyroidism were off target immune effects, ipilimumab treatment was stopped and nivolumab treatment was increased to 3 mg/kg until December, 2017, when the patient developed diarrhoea. He subsequently received infliximab (single dose 5 mg/kg) and intravenous methylprednisolone 100 mg twice a day for 3 days, followed by an oral taper over 3 weeks for autoimmune colitis. Nivolumab treatment was stopped. Contemporaneous with completing steroid treatment, the patient had worsening vision, pain, and redness of his left eye. The patient was prescribed topical triamcinolone for panuveitis in February, 2018. He subsequently received intravitreal triamcinolone 4 mg. However, his symptoms worsened and he underwent vitrectomy and intravitreal vancomycin 1 mg and ceftazidime 2.25 mg were administered. Vitreal cultures grew *Listeria monocytogenes*. Cultures sampled from the triamcinolone bottle were negative.

Examination revealed chemosis and hypopyon of the left eye (figure). The patient's extraocular movements were intact, but he was unable to detect movement or shadows. He received intravenous ampicillin 2 g every 4 h for 6 weeks, with gentamicin 1.7 mg/kg every 8 h for the initial 10 days. Antibiotic courses were completed as prescribed, but the patient's vision did not improve.

The source of listeria was probably gastrointestinal, and subsequent treatment for autoimmune gastroenteritis probably facilitated seeding of the eye. Use of topical and intravitreal steroids for presumed autoimmune panuveitis possibly then accelerated progression of the infection.

Listeria endophthalmitis is uncommon. Most cases are endogenous and immunosuppression is a risk factor. Nivolumab and ipilimumab are antibody-based immune checkpoint inhibitors, which act on PDL-1 and CTLA-4, respectively. Side-effects of these drugs include immune dysregulation and inflammation, typically managed with

immunosuppressive drugs. Although infection with less common pathogens and atypical sites of infection can occur with these medications, infliximab, which targets TNF- α , has previously been linked with listeria infections and carries a black box warning. Immune-mediated uveitis is usually bilateral, consistent with systemic drug effects. This patient's unilateral presentation supported evaluation for possible infectious causes and the culture we obtained was crucial for making the correct diagnosis.

Contributors

Both authors contributed equally. C-YL was the infectious disease fellow and SGK was the attending physician for the case. Both C-YL and SGK wrote up the case, reviewed relevant literature, and selected the image.

Declaration of interests

We declare no competing interests.

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Infectious Disease Fellowship Program and Collaborative Clinical Research Branch, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Rockville, MD, USA (C-Y Lau MD); and Division of Infectious Diseases, Department of Medicine, Georgetown University, Washington DC, USA (S G Kassaye MD)

Correspondence to: Dr Chuen-Yen Lau, Infectious Disease Fellowship Program and Collaborative Clinical Research Branch, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Rockville, MD 20850, USA lauc@mail.nih.gov



Figure: Chemosis and hypopyon of the left eye