

## Redness and periocular pain in a patient with metastatic renal cell carcinoma

### Case

A 33-year-old male, on treatment for metastatic renal cell carcinoma, presented with redness, heaviness and dull pain in his right eye over the past 10 days. He had undergone a left nephrectomy and received multiple cycles of cisplatin-based chemotherapy one year ago for clear-cell type renal cell carcinoma. He was currently in remission and was being maintained on fortnightly intravenous nivolumab injections since the past 6 months. Best-corrected visual acuity was 20/50 and 20/20 in the right and left eye respectively and the right eye had a relative afferent pupillary defect and defective color vision (on Ishihara chart). Anterior segment evaluation of the right eye showed conjunctival congestion while the fundus revealed an elevated optic disc with blurred margins. Extraocular movements and intraocular pressures were within normal limits. Left eye examination was unremarkable. Magnetic resonance imaging of the orbit showed hyperintensity and increased thickness of the preseptal orbital tissue [Fig. 1, red arrow] and thickening of the optic nerve (blue arrow) in the right eye.

### What would you do next?

- A) Treat with topical antibiotics and lubricants
- B) Request a Positron Emission Tomography (PET) scan
- C) Restart chemotherapy
- D) Start oral and topical corticosteroids

### Findings

Our patient had anterior orbital inflammation in the right eye, which may be seen in patients receiving immune checkpoint inhibitors (ICI). Treatment with systemic steroids and consultation with an oncologist to discontinue nivolumab is recommended (choice D). Orbital metastasis was ruled out based on normal neurological examination and brain magnetic resonance imaging (MRI). He was started on oral and topical prednisolone along with discontinuation of nivolumab. At one month follow-up, the patient was asymptomatic with a visual acuity of 20/20, with resolution of conjunctival congestion, normalization of pupillary reactions and MRI of the orbit showing resolution of preseptal and optic nerve thickening [Fig. 2].

### Diagnosis

Nivolumab induced preseptal cellulitis and optic neuritis.

### Correct Answer

D, Start oral and topical steroids.

### Discussion

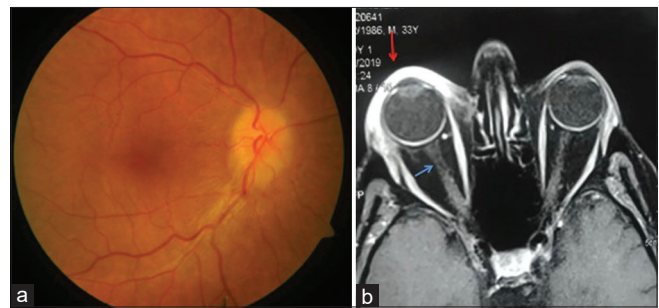
Immune checkpoint inhibitors (ICI) are anticancer monoclonal antibodies against cytotoxic T-lymphocyte antigen-4 (CTLA-4), programmed death protein 1 (PD-1) or programmed death ligand-1 (PD-L1) receptors.<sup>[1]</sup> Immune-related ocular side effects are seen in 1% of patients, more commonly with CTLA-4 inhibitors as they cause generalized immune activation.<sup>[2,3]</sup> Nivolumab is a humanized anti-PD-1 antibody that is approved for metastatic renal cell carcinoma.<sup>[1,2]</sup> Inflammatory orbitopathy has been reported secondary to ipilimumab (anti-CTLA-4) in four patients and all of them were managed successfully by discontinuing it.<sup>[4]</sup> It is important to distinguish these from paraneoplastic syndromes and orbital metastasis by performing appropriate radiological imaging.<sup>[2,3]</sup>

### Declaration of patient consent

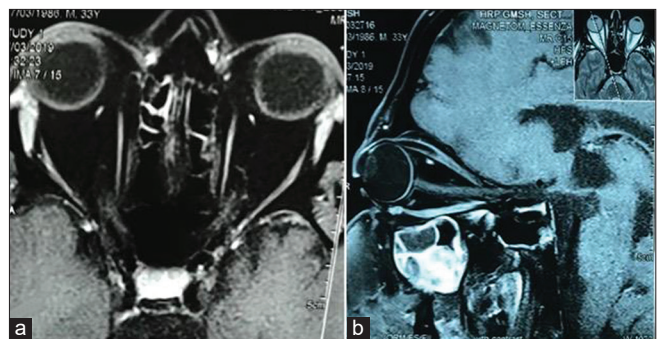
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.



**Figure 1:** (a) Shows hyperemic optic disc edema in the right eye at presentation, (b) shows Axial T1 weighted MRI scan of the orbit showing hyperintensity and thickening of preseptal orbital tissue (red arrow) of the right eye with an irregularly thickened optic nerve (blue arrow) at presentation



**Figure 2:** (a) axial T1 Weighted MRI scan and (b) sagittal T1 Weighted MRI scan at 1 month follow-up showing resolution of preseptal and optic nerve thickening.

### Conflicts of interest

There are no conflicts of interest.

### References

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