

# Pembrolizumab-induced Encephalitis in a Chronic Alcoholic with Metastatic Renal Cell Carcinoma

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## Introduction

- Immune checkpoint inhibitors (ICIs) such as pembrolizumab and nivolumab increasingly be used for many solid organ malignancies
- Mechanism of action is immune-activating, thus ICIs can trigger various immune-mediated toxicities
- Associated with various adverse events, including pneumonitis, colitis, nephritis and encephalitis
- Encephalitis is a rare complication seen with ICIs

## Case Description

- 55 yo male alcoholic with metastatic renal cell carcinoma with no evidence of residual disease, on treatment with pembrolizumab
- s/p fall with unknown loss of consciousness and trauma to the head
- Developed acute encephalopathy in setting of sepsis, multiorgan failure and aspiration pneumonia
- Believed to be in acute alcohol withdrawal with delirium tremens
- Required intubation 2/2 to respiratory distress
- Ddx: Toxic metabolic encephalopathy due to chronic alcohol use vs paraneoplastic encephalopathy vs pembrolizumab related encephalitis
- Lumbar puncture - increased total protein and elevated lymphocytes
- CSF Paraneoplastic panel negative

## Investigative Studies

**CSF Cell Count**

Order: 231738206 - Part of Pa

Status: Final result  
Visible to patient: No (not released)  
Next appt: 11/19/2020 at 10:30 AM in Radiology (Depa Radiology)

	Ref Range & Units	7mo ago
Color, CSF	Colorless	Colorless
Appearance, CSF	Clear	Clear
WBC, CSF	0 - 5 cmm	22 $\uparrow$
RBC, CSF	0 - 10 cmm	0
Tube Number CSF		3

Fig 1 – LP results

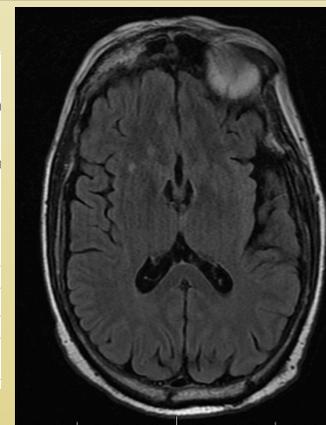


Fig 2 – Pt's T2 FLAIR MRI brain w/ no increased signal

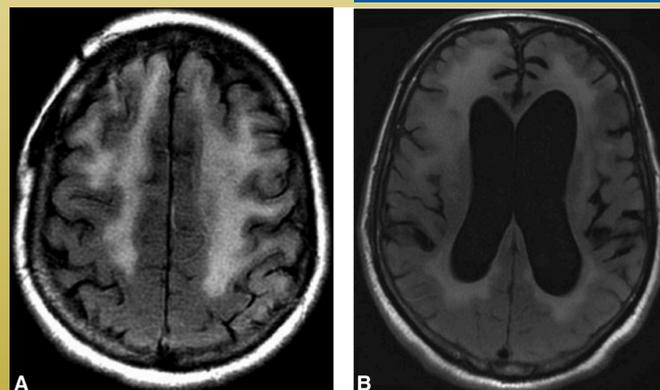


Fig 3 – sample Axial T2 FLAIR images - levels of the centrum semiovale (A) and lateral ventricles (B) seen in pt with encephalitis/inflammation 2/2 ICI use

## Case Description

- Cerebrospinal cytology was positive for atypical cells; no clear evidence of metastatic disease
- Imaging with MRI and CT of the brain were nondiagnostic
- Negative imaging & presence of inflammatory markers, encephalitis was attributed to pembrolizumab – promptly discontinued
- Treated with 5 days of IVIG & steroids, with slow return to baseline mental status
- Discharged to inpatient rehabilitation, continued on a steroid taper

## Discussion

- Adverse effects associated with ICIs has increased
- Encephalitis is a rare but possibly fatal complication of these medications
- It is necessary to include ICI-induced toxicity in the differential for a patient with a history of malignancy currently or previously treated with ICI
- Important to think of medication induced encephalitis in pts who present with altered mental status and markers of encephalitis
- Prompt recognition, diagnosis and treatment is of utmost importance to avoid long-term consequences

## References

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