

## Background

- Immunotherapy based regimens are now the standard treatment for many different types of cancers.
- Monoclonal antibodies against cytotoxic T lymphocytes antigen for(CTLA-4) and programmed cell death protein-1 (PD-1) and anti-PD-1 ligand molecules are the two major subgroups of immune checkpoint inhibitors.
- They function by reactivating the immune system against the tumor cells but can also trigger autoimmune side effects.

## Lab Results

- His hypophysitis was complicated by:
- Hypogonadism (LH -1 MIU/ml, Testosterone 19 ng/dl)  
 Hypothyroidism (TSH-0.18 uIU/ml, FT4 0.8 ng/dl )
- Adrenal insufficiency (ACTH<5 pg/ml,Cortisol 0.7 mcg/dl)

## Treatment

- The patient was started immediately on IV hydrocortisone and levothyroxine and was discharged on oral steroid taper.
- Weighing the risks versus benefits he was rechallenged with nivolumab monotherapy with close outpatient follow-ups. Currently, he remains asymptomatic, however, he continues to be on oral prednisone for low cortisol levels.

## Case Presentation

- A 64-year-old Caucasian man with colorectal cancer recurrence being treated with ipilimumab and nivolumab presented with the persistent central throbbing headache for 5 days.
- He had associated fatigue and nausea but denied any neurological symptoms and vision changes. His physical examination was unremarkable without any neurological deficits.
- On further investigations CT head was unremarkable, the MRI brain showed mild prominence of the pituitary gland measuring 11 mm in craniocaudal dimension(Figure 1)
- In the setting of treatment with immunotherapy and MRI findings, diagnosis of hypophysitis secondary to immunotherapy was formulated and further work-up was done.

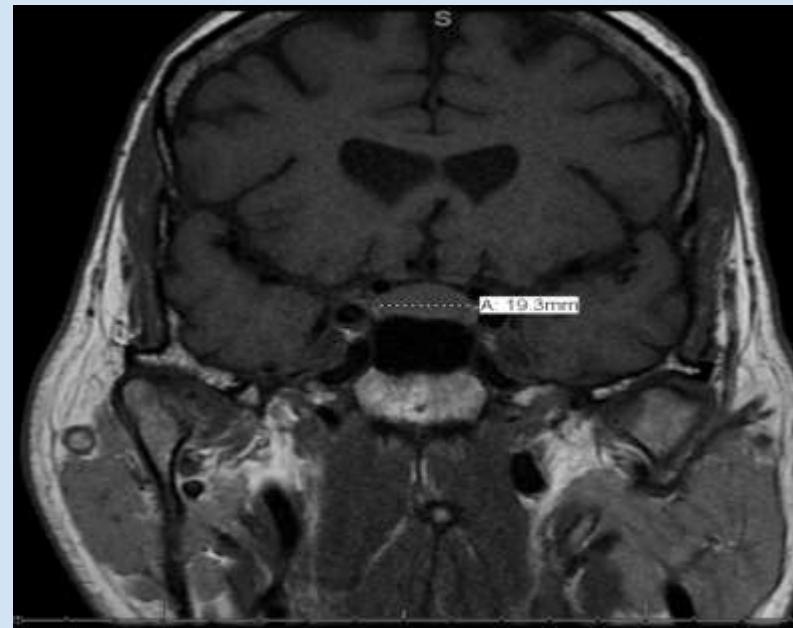


Figure 1-MRI Brain showing enhancement of pituitary gland in Coronal View

## Discussion

- Hypophysitis is one of the most notable side effects of CTLA-4 inhibitors. The incidence of hypophysitis in patients being treated with both CTLA-4 and PD-1 inhibitors is 8%. The pituitary expression of CTLA-4 in few individuals is likely the cause.
- Immunotherapy can cause irreversible hypopituitarism and can lead to an acute adrenal crisis which warrants timely diagnosis and treatment.
- Management includes discontinuation of the offending agent, initiation of corticosteroid therapy, and hormone replacement therapy.
- Given the advances in cancer treatment with immunotherapy and the fact that it now has become a mainstream therapy for many cancers, the physicians need to realize the most widely recognized side effects. Our case represents one such important immune-related adverse effect.