



# A LINGERING ENDOCRINE COMPLICATION IN CHRONIC OPIATE USERS: INSIGHT INTO DIAGNOSIS OF LONG TERM OPIATE INDUCED ADRENAL INSUFFICIENCY



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## CONTACT INFORMATION

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### INTRODUCTION

- Opioid induced adrenal insufficiency has been reported in nearly 30% of chronic opioid users (1)
- Limited data suggests that cessation of opioids leads to reversal of adrenal insufficiency (1); however the time to recovery remains unknown
- We report a case of long term adrenal insufficiency (>2 years) following opioid use

### CASE PRESENTATION

- A 34-year-old man presented with low energy, low libido, and erectile dysfunction
- His medical history was significant for chronic low back pain, stemming from a workplace injury, with multiple lumbar spine surgeries for which he was prescribed oxycodone
- He received opioids at an average dose of 50 morphine milligram equivalent (MME) daily over a 32-month period and was taking as much as 90 MME daily for 10 months
- His last prescription opiate use confirmed through review of the state prescribing database was for a 30 day supply of oxycodone 5 mg daily 28 months ago
- More than a year after initial presentation, the patient continued to complain of excessive fatigue
- A cosyntropin stimulation test was performed, confirming the diagnosis of adrenal insufficiency
- In the absence of other identifiable causes, adrenal insufficiency was likely due to hypothalamic pituitary adrenal (HPA) axis suppression secondary to chronic opioid use

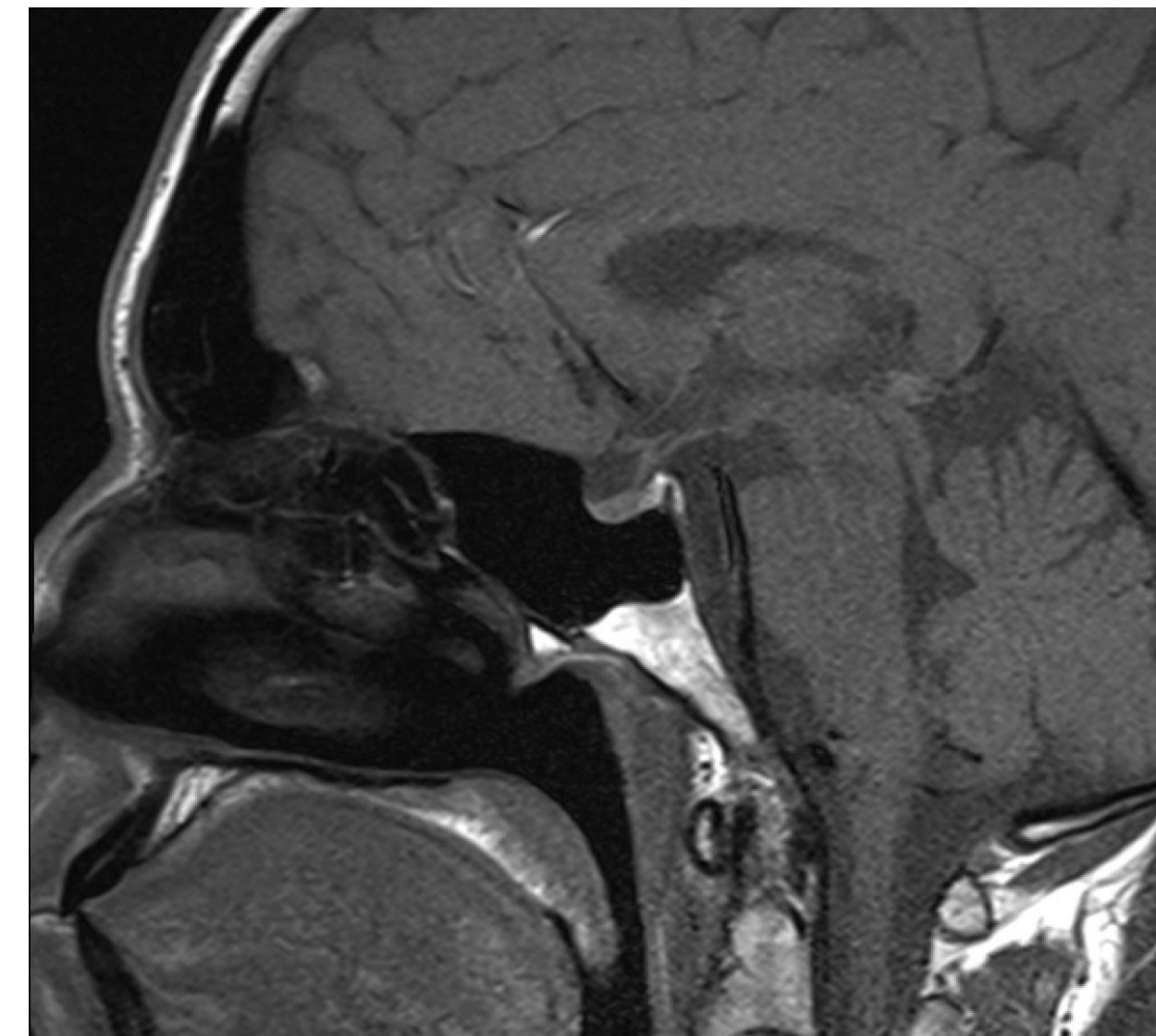
### RESULTS

	9/20/2018	10/29/2018	7/10/2019
Testosterone, Total (250-1,100 ng/dL)	221 (L)	450	366
Testosterone, free (46-224 pg/dL)		80.6	51.5
FSH Reflex (1.6-8 mIU/mL)	0.7 (L)	0.9 (L)	1.0 (L)
Luteinizing Hormone (1.5-9.3 mIU/mL)	1.6	2.8	2.9
Prolactin (2-18 ng/mL)	4		
ACTH (6-50 pg/mL)		29	
Cortisol (5-21 mcg/dL)		17.6	
Thyroxine, Free (0.8-1.8 ng/dL)		0.83	
TSH (0.4-4.5 mIU/L)		1.5	

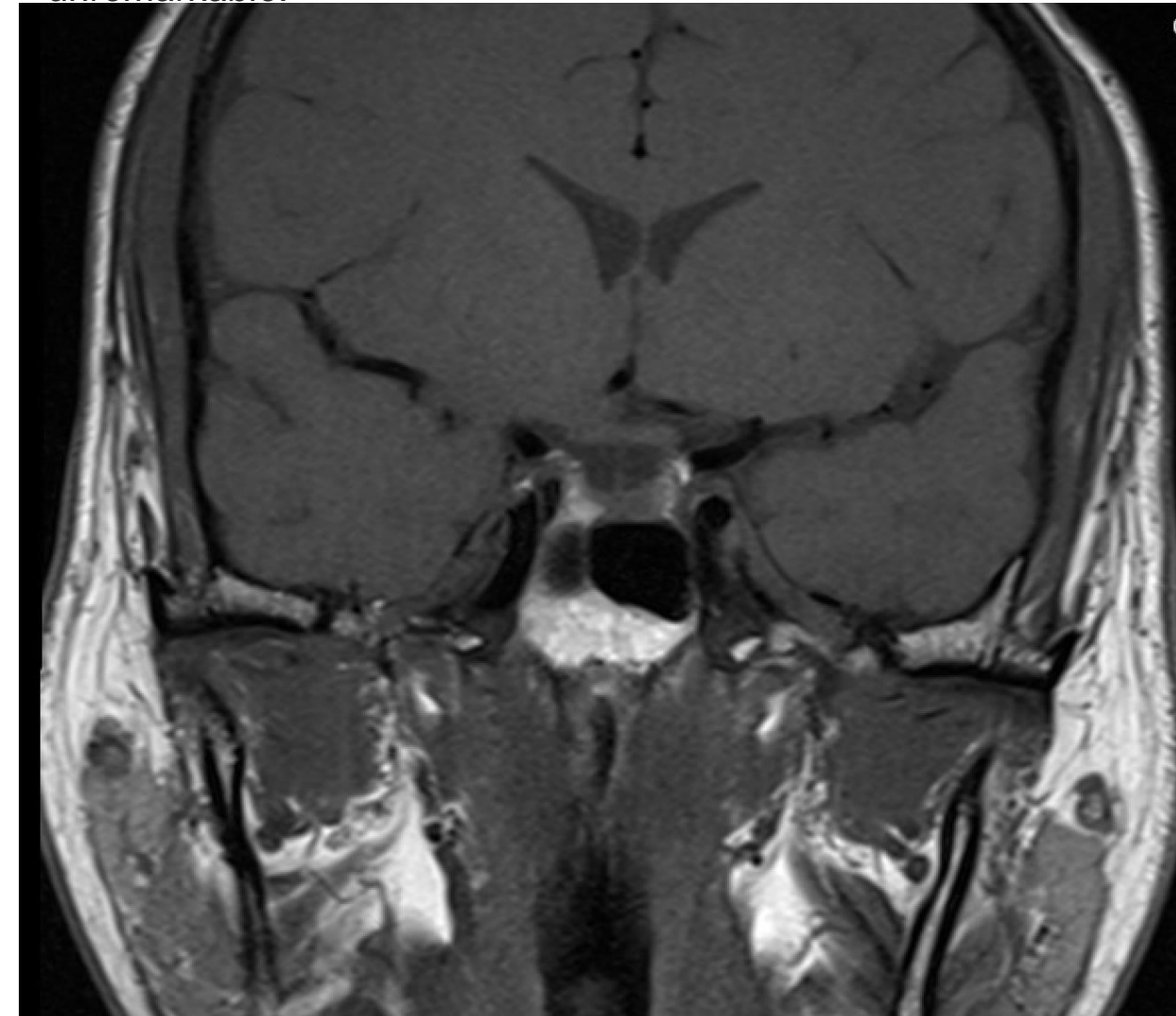
### Cosyntropin Stimulation Test

(250 µg cosyntropin injected over 2-minutes)

10/2/2019	0 minutes	30-minutes	60-minutes
Cortisol baseline (mcg/dL)	8	11	12
ACTH	14		



T1-weighted MRI in sagittal (above) and coronal (below) views: pituitary gland being normal in size, shape and appearance without apparent focal mass lesion, signal abnormality or abnormal enhancement. The pituitary stalk and optic chiasm are unremarkable.



### CONCLUSIONS

- Opiates inhibit CRH release, leading to reduced cortisol production (2)
- Small studies have shown a frequent occurrence of adrenal insufficiency in opiate dependent subjects with a high prevalence of abnormal ACTH stimulation tests (3), low cortisol concentrations accompanied by low ACTH levels and atypical circadian production of these hormones (4)
- Studies have reported that 5% of chronic opioid users are affected with adrenal insufficiency at a median MME of 110 daily; 37.5% patients had recovery of the adrenal axis after 14-months of opioid cessation (5)
- Reports have described recovery as late as 20 months following opioid cessation (6)
- Our case highlights the possibility of long term HPA suppression in spite of a relatively low MME more than 2 years after cessation of opiates
- With the ongoing opioid epidemic, endocrinologists need to be vigilant for chronic HPA axis suppression long after opiates have been discontinued
- Further studies are needed to determine the risk factors for opiate induced chronic HPA axis suppression and timeframe to recovery

### REFERENCES

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