Pineal Gland Tumor and Panhypopituitarism in an Adult Male

Queenie G. Ngalob, MD, **Gabriel V. Jasul, MD**
Section of Endocrinology, Diabetes and Metabolism
Department of Medicine
University of the Philippines – Philippine General Hospital

SYNOPSIS

- Pineal gland tumors are rare and usually come to medical attention due to mass effect.
- However, endocrine manifestations are prominent and can precede neurologic symptoms.
- Addressing endocrine failure is important in its management.

CLINICAL PRESENTATION

HISTORY

- 30 year-old Filipino male
- Six month history of generalized weakness, anorexia, weight loss and headache
  - symptoms of hypogonadism even earlier – decrease in facial and axillary hair, loss of libido and morning erections
- One month history of parietooccipital headache
- Few days onset of double of vision, vomiting and disorientation prompted admission.
- During the course of work-up, he developed polyuria and increased thirst.
- He later on developed paraplegia 6 months from his initial consult.

PHYSICAL EXAMINATION

- Initial admission
  - drowsy and incoherent
  - Limited vertical eye movements, visual field cuts
  - lack of male pattern hair and small testicular size
- Subsequent consult
  - Normal sensorium
  - Full range of extraocular muscle movements
  - complete paralysis and loss of sensation in both lower extremities
- Fluid balance monitoring
  - urine output 6.5- 11 liters per day
  - Total fluid intake 4-5 liters daily

LABORATORY WORK-UP

	Patient	Normal values
AFP	4157 ng/ml	< 8.6
B HCG	36.24 mIU/ml	<1
TSH	0.199 mIU/L	0.27-3.75
FT4	10.523 pmol/L	8.8 – 33
FT3	3.202 pmol/L	4.2-12
Cortisol (basal)	16.5 nmol/L	171-536
Cortisol (ACTH stimulated)	287.921 nmol/L	>550
LH	0.14 mIU/ml	1.9-9.4
FSH	2.1 mIU/ml	1-10.5
Testosterone	0.35 nmol/L	9-38
Water Deprivation Test		
Baseline urine Osmolarity	51 mosm/kg	
After 5 hours of water deprivation	53 mosm/kg	
After 5 units of Vasopressin SC	120 mosm/kg	

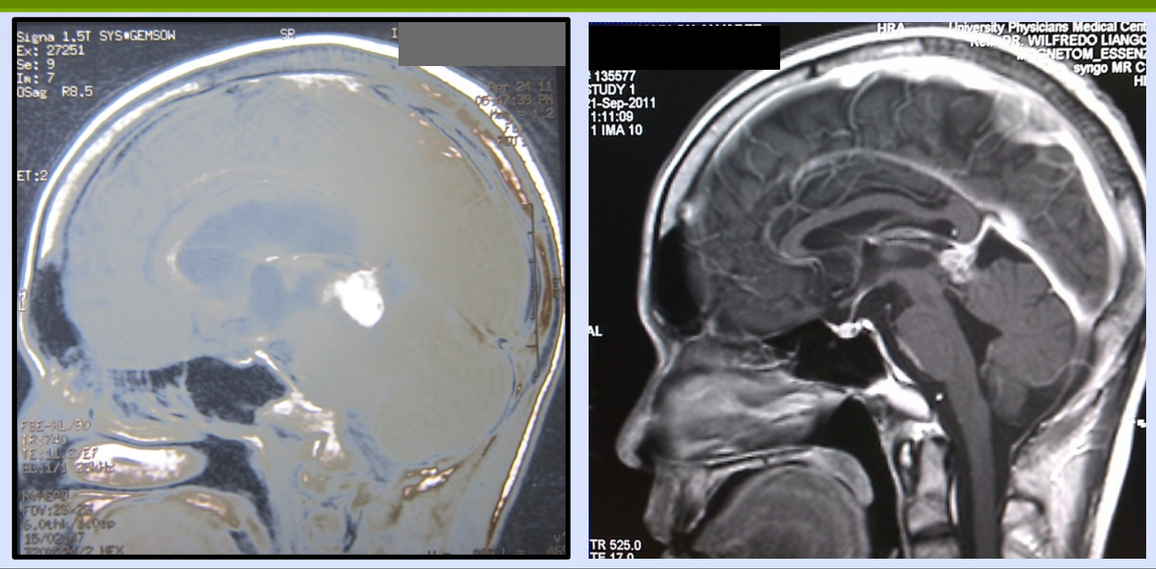
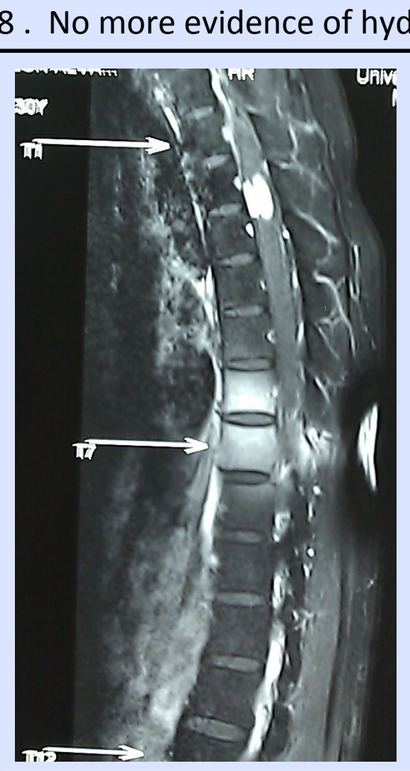
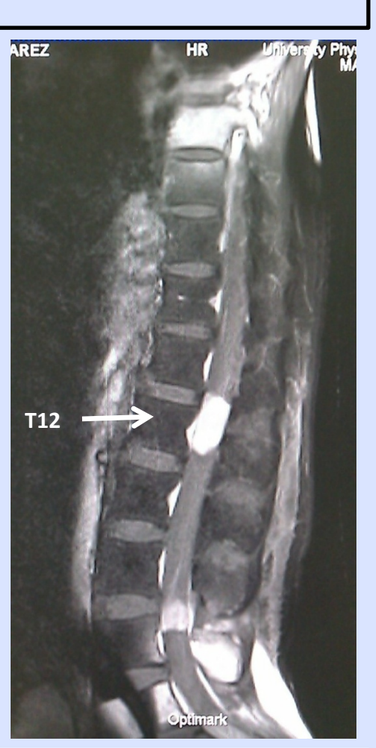


Figure A (left). Initial cranial MRI showed an enhancing lesion in the pineal region (2.6 x 2.5 x 2.5 cm) with obstructive hydrocephalus. The pituitary region is unremarkable. Figure B (right). MRI taken 5 months later after cranial radiotherapy showed decrease in size of the irregularly enhancing pineal tumor, now 1.7 x 2.7 x 1.8 . No more evidence of hydrocephalus seen.





MRI of the spine.
Figure C (left) . Enhancing lesions in level of T2T3
Figure D (right) Similar lesions at T11T12 and L2L3.

DIAGNOSIS

- Nongerminomatous germ cell tumor of the pineal gland (based on the tumor location and increased level of tumor markers AFB & β HCG)
- Panhypopituitarism (anterior and posterior)
- Hydrocephalus from obstruction in the level of the third ventricle

TREATMENT

Ventriculoperitoneal shunt
Hormone replacement : Prednisone, levothyroxine & desmopressin
Cranial and spinal irradiation
Chemotherapy - cisplatin, bleomycin and etoposide

OUTCOME

Sensorium normalized after VPS insertion
Persistent panhypopituitarism
More than 50% regression of the tumor size and resolution of eye movement limitation after cranial irradiation
Spinal irradiation yielded sensory but not motor recovery.
Pancytopenia, febrile neutropenia and salt-losing nephropathy few days after the first chemotherapy

CONCLUSION

The clinical triad of diabetes insipidus, anterior pituitary failure and visual disturbances suggest tumor in the pineal region. These lesions may present with pituitary dysfunction even in the absence of pituitary involvement on imaging.

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