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 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

<table>
<thead>
<tr>
<th>Patient</th>
<th>Normal values</th>
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<tbody>
<tr>
<td>AFP</td>
<td>4157 ng/ml</td>
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<tr>
<td>B HCG</td>
<td>36.24 mIU/ml</td>
</tr>
<tr>
<td>TSH</td>
<td>0.199 mIU/L</td>
</tr>
<tr>
<td>FT4</td>
<td>10.523 pmol/L</td>
</tr>
<tr>
<td>FT3</td>
<td>3.202 pmol/L</td>
</tr>
<tr>
<td>Cortisol (basal)</td>
<td>16.5 nmol/L</td>
</tr>
<tr>
<td>Cortisol (ACTH stimulated)</td>
<td>287.921 nmol/L</td>
</tr>
<tr>
<td>LH</td>
<td>0.14 mIU/ml</td>
</tr>
<tr>
<td>FSH</td>
<td>2.1 mIU/ml</td>
</tr>
<tr>
<td>Testosterone</td>
<td>0.35 nmol/L</td>
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</tbody>
</table>

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

DIAGNOSIS

- Nongerminomatous germ cell tumor of the pineal gland (based on the tumor location and increased level of tumor markers AFβ & 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.