CASE STUDY

92. From Thirst to Hormonal Collapse: A Case of Pituitary Stalk Enlargement Presenting with Central Diabetes Insipidus and Panhypopituitarism

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Background: Pathologies involving the pituitary stalk (PS) are typically identified by the presence of central diabetes insipidus. The prevalence of central diabetes insipidus (CDI) is less than 1 per 25,000 population. Up to 25% of individuals affected by CDI have cranial neoplasms or have undergone post-pituitary surgery, highlighting its association with these conditions. However, CDI rarely manifests because of pituitary stalk enlargement. We share the case of a 51-year-old female patient with pituitary stalk enlargement presenting as CDI with panhypopituitarism.

The Case: A 51-year-old female with a history of cervical cancer with lung metastasis, chronic myeloid leukemia (CML) and type 2 diabetes mellitus presented with septic shock from *Clostridium difficle* colitis. During hospitalization, she developed symptoms of polyuria, polydipsia. On examination her urine appeared clear in color and her output was 4.2 l/day. Laboratory tests showed elevated serum osmolality (325 mosm/kg) and low urine osmolality (82 mosm/kg), with high serum sodium (156 mEq/L) and urine specific gravity at 1.003.MRI findings

revealed pituitary stalk enlargement (5 mm) with diffuse enhancement of the pituitary gland and lack of T1 hyperintensity in the posterior pituitary, suggesting a pituitary pathology. Hypernatremia was managed with intravenous Dextrose 5% in water fluid. Treatment with subcutaneous desmopressin (2 mcg), resulted in significant improvement in urine output (1.2 l/day) serum osmolality (287 mosm/kg) , urine osmolality (420 mosm/kg) and urine osmolality (1.013). This confirmed the diagnosis of Secondary CDI. Concomitantly, the finding of panhypopituitarism was made, necessitating hormone replacement therapy to address deficiencies in TSH, LH, FSH, and ACTH. However, the decision to transfer the patient to hospice care was made considering her overall prognosis and quality of life given her advanced malignancies and poor hospital course.

Conclusion: In this case, clinical, hormonal, and radiologic features of pituitary stalk enlargement presenting as CDI with panhypopituitarism are reported. It is a rare condition with vast possible underlying pathologies. However, diagnosing the cause of an enlarged pituitary stalk can be challenging, particularly given the difficulty, risk, and limited utility associated with obtaining a stalk biopsy. stalk. In this patient, the history of multiple malignancies raises the possibility of metastatic involvement of the pituitary. With the existing lack of literature and evidence-based guidelines on both the management and follow-up of this uncommon condition, both repeated imaging and hormonal evaluation are often necessary. In many cases, the underlying pathology will remain unknown.

Table 1. Pre and Post Treatment Values.

Laboratory Value	Pre-Treatment	Post-Treatment	Reference Values
Serum Osmolality	325 mosm/kg	287 mosm/kg	286-309 mosm/kg
Urine Osmolality	82 mosm/kg	420 mosm/kg	300-1000 mosm/kg
Urine Specific Gravity	1.003	1.014	1.003-1.035
Urine Output	4.2 L/day	1.8 L/day	800 ml- 2 L/day

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