Trauma-Induced Pituitary Macroadenoma Presenting as Hypothyroidism and Adrenal Insufficiency Post-MVA: A Case Report

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Introduction: Pituitary adenomas constitute 10-15% of all intracranial neoplasms, often presenting with mass-effect symptoms and anterior hypopituitarism (1,2,3). While genetic syndromes are recognized risk factors, other potential risk factors are less understood3. Post-traumatic hypopituitarism (PTHP), with an incidence of 15-68% in traumatic brain injury (TBI) patients, is a notable condition4. This case explores a pituitary macroadenoma presenting as hypothyroidism and sudden syncope due to central adrenal insufficiency following a motor vehicle accident (MVA).

Case Presentation: A 56-year-old South Asian male with type II diabetes mellitus, hypertension, and depression (managed with paroxetine, duloxetine, and clonazepam) presented to the emergency department (ED) after a syncopal episode with loss of consciousness. Initial examination revealed facial laceration, periorbital edema, and absence of visual field defects. The patient reported fatigue, headaches, cold intolerance, dizziness, and severe constipation over recent months. A head CT scan revealed a soft mass in the sella turcica extending into the suprasellar cistern. An MRI confirmed a 1.5 cm enhancing lesion with a mass effect on the optic chiasm. Neurosurgical consultation is advised against surgery. Laboratory tests indicated severe hypothyroidism (Free T4 <0.5 mcg/dL) and central adrenal insufficiency (8 AM cortisol <2 mcg/dL) despite normal ACTH levels, leading to treatment with levothyroxine and hydrocortisone. Iron deficiency anemia was also identified and managed with intravenous Venofer. The patient's depressive symptoms were likely exacerbated by hypothyroidism secondary to the macroadenoma.

Conclusion: This case illustrates an atypical presentation of a pituitary macroadenoma, manifesting as secondary hypothyroidism and syncope linked to central adrenal insufficiency. The patient's prior unremarkable head CT following an MVA and the subsequent development of a macroadenoma suggest a possible association between TBI and pituitary neoplasms. Further investigation into TBI as a risk factor for pituitary adenomas is warranted.

Keywords: Pituitary macroadenoma, Central adrenal insufficiency, Secondary hypothyroidism, Syncope, Post-traumatic hypopituitarism (PTHP)

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