

Case Report

SNAKE-BITE INDUCED PANHYPOPITUITARISM – AN UNCOMMON SCENARIO

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ABSTRACT

Hypopituitarism is a rare consequence of snake bite. Isolated case reports from India and adjacent South-East Asian countries have documented this rare association. Viper snakebites are notorious for this complication. We present a case of hypopituitarism secondary to snake bite where the diagnosis was significantly delayed.

Keywords: Hypopituitarism, Snake Bite, Viper

INTRODUCTION

Viper bite can release procoagulant like molecules leading to a disseminated intravascular coagulation like state which may cause abnormal thrombosis and/or bleeding in diverse organs; this mechanism when acts in the pituitary may develop acute or chronic hypopituitarism or even diabetes insipidus.¹This characteristic and often fatal complication of viper bite should be borne in mind when a patient develops nonspecific symptoms like weakness, lethargy, depression, amenorrhoea (in case of females) following snakebite. Prompt recognition of the symptoms and institution of treatment is often lifesaving in acute hypopituitarism and improves the quality of life in chronic hypopituitarism.

CASES

A 35 year old non-diabetic, non-hypertensive male presented with history of generalized weakness, lethargy for 5 years duration. He also noticed coarsening of facial features, reduced libido, and loss of interest in daily activities for the same duration. However, he denied any history of depression or suicidal tendency. He was a non-alcoholic and non-smoker. The patient had history of snake bite 5 years back on the left foot followed by swelling of the left leg, facial puffiness, oliguria, hematuria and altered sensorium. He required haemodialysis thrice during that episode. According to the patient, it was since then he developed poor appetite, cold intolerance, excessive sleepiness and generalized tiredness. On examination, pallor was noted. No lymphadenopathy or organomegaly was present. Routine investigations revealed normocytic, normochromic anemia (Hb-9.2 g/dl). Renal and liver function tests were within normal limits. Serum electrolytes revealed hyponatremia (128 meq/l) with normal potassium (4.4 meq/l) and calcium (9.8 mg/dl). Hormonal profile was ordered and results were as follows : free T4- 6.6 pmol/l (9.0–20.0), Total T3 - 1.5 ng/ml (0.6–1.80), thyroid stimulating hormone (TSH) - 0.28 µIU/ml (0.35–5.5), 8am cortisol 1.3

µg/100mL (8-25), Adrenocorticotrophic Hormone (ACTH) 5.2 pg/ml (7.2–63.3), luteinizing hormone (LH)-0.09 mIU/ml (1.1–7.0), follicle-stimulating hormone (FSH)- 0.07 mIU/ml (1.7–12), estradiol 8.9 pg/mL (36-100); prolactin (PRL), 3.6 ng/mL (3.5-30) Growth Hormone (GH)- 0.04 ng/ml (0.1–4.00) ; Insulin-like growth Factor 1 (IGF1) -22.5 ng/ml (100.00–252.00), Insulin-like growth Factor Binding Protein-3 (IGFBP3) 1.6 µg/ml (3.30–6.60), and testosterone 0.5 ng/ml (3.0–10.0). Hormone assays were compatible with a status of primary pituitary insufficiency. But Serum Anti-Diuretic Hormone (ADH) was normal ruling out involvement of posterior pituitary. Thyroid hormone Releasing Hormone (TRH), Luteinizing Hormone Releasing Hormone (LHRH), Corticotrophin Releasing Hormone (CRH) were normal ruling out involvement of hypothalamus. DEXA scan revealed severe osteoporosis. Pituitary MRI Scan revealed an 'Empty Sella', demonstrating a normal-sized sella that was without any pituitary tissue inside. There was no abnormality in hypothalamic, supra sellar, or para-sellar regions. Panhypopituitarism secondary to viper-bite was diagnosed and he was immediately commenced

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on Hydrocortisone 10mg and levo-thyroxine 100 µg/day (dosages fixed according to body weight). He was also started on Testosterone replacements. His symptoms improved significantly over a few days. He was discharged in stable condition with advice to continue hormonal replacements lifelong. A follow-up after 8 weeks revealed near normalisation of his hormonal derangements.



Figure 1: Showing Empty sella on MRI T2 Imaging

DISCUSSION

The type of snake which has bitten determines the symptoms and signs of envenomation and the attendant complications. The index patient's symptoms were consistent with a viper bite as it can cause renal failure by acute tubular necrosis and also altered sensorium. It can also lead to coagulopathy, internal bleeding, shock, renal and respiratory failure (Tun-Pe, 1987). Russell's viper venom has several biologically active procoagulant enzymes and haemorrhagins that lead to rapid activation of factor V, X thus setting into motion the clotting cascade. This leads to formation of fibrin crosslinks, which are again, promptly lysed by the fibrinolytic system. This may lead to disseminated intravascular coagulation which may explain the coagulopathy which develops in viper bite (Antonypillai, 2011). Pathologically microthrombi and hemorrhages are seen in the pituitary gland. The anterior pituitary is affected more commonly than the posterior pituitary (Golay, 2014). Russell's viper envenomation can lead to acute or chronic hypopituitarism and diabetes insipidus. A thin rim of pituitary tissue is seen on imaging or even pituitary gland is not visualized (Murthy, 2002). Most of the patients have a history of suffering acute kidney injury immediately after the bite (Antonypillai, 2011). In a study done by Golay *et al.*, 9.37% of patients who had a history of viper bite were found to have evidence of hypopituitarism. Higher number of patients who were found to have developed hypopituitarism had history of hypotension, coagulation abnormalities, severe clinical snake bite envenomation, severe AKI requiring HD during the episode of snakebite. Development of CKD on follow up, may predict the development of hypopituitarism (Golay, 2014).

Patients with acute hypopituitarism may present with hypoglycaemia and hypotension during the acute phase of envenomation. Those with chronic hypopituitarism seem to have recovered from envenoming but present later with features of hypopituitarism. Steroid replacement in acute hypopituitarism is life saving. Almost all patients show marked improvement with hormone replacement. While unrecognized acute hypopituitarism is potentially fatal, chronic hypopituitarism can be debilitating (Prabhakar, 2013).

Conclusion

Physicians should be aware of this complication of severe envenomation by Russell's vipers, especially in countries like India, so that the diagnosis may be made without delay and replacement started with essential hormones such as hydrocortisone and thyroxine as delay in treatment may prove fatal.

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