Case Report

Viper Bite: An Unusual Cause of Hypopituitarism

Chaitanya G Yerawar*1, Prerana Deokar2, Sachin Sarode3, Rajneesh Sunnap3

Abstract: Hypopituitarism is an unusual complication of Russell’s viper bite. Here, we describe a case of hypopituitarism following Russell’s viper bite where the diagnosis was significantly delayed. A 42-year-old man was bitten and seriously envenomed by Russell’s viper in 2013. Although he recovered from acute effects, he continued to feel unwell. Hypopituitarism was diagnosed 6 years later along with empty sella on MRI Pituitary. He showed marked improvement after hormonal replacement. We attribute his hypopituitarism to Russell’s viper envenoming.

Introduction
Snake bites are very common in India especially in rural areas. Different species of snake bite are associated with different clinical features, although there may be considerable overlap in presentations. Viper bite can release procoagulant like molecules leading to acute hemorrhagic manifestations and rarely causes acute or chronic hypopituitarism. Here, we describe a case of hypopituitarism following Russell’s viper bite where the diagnosis was significantly delayed. This case report is relevant as it draws attention to rare causes of hypopituitarism like snake bite.

Case Report
A 42 year old male non-diabetic, non-hypertensive presented with complaints of erectile dysfunction, generalized weakness and lethargy since 6 years. On further enquiry, he gave history of reduced libido, decreased shaving frequency, loss of axillary and pubic hairs and loss of interest in daily activities. There was no history of polyuria, visual field defects, headache, head injury or radiotherapy. We excluded other possible causes of hypopituitarism. On revisiting the history, it came to light that he had snake bite on the right foot 6 years back followed by swelling of the right leg, facial puffiness, oliguria, hematuria and altered sensorium. Subsequently the patient had renal failure and required hemodialysis for the same. Since then the patient developed poor appetite, lethargy and generalized tiredness.

Examination revealed bilateral low testicular volume (8cc), sparse pubic (P2) and axillary hair. Hormonal characteristics of the patient are demonstrated in Table 1. Hormone profile was compatible with diagnosis of hypopituitarism. Renal and liver function tests were within normal limits.

Pituitary MRI Scan revealed an ‘Empty Sella’, demonstrating a normal-sized sella filled with cerebro spinal fluid (CSF) and an atrophic pituitary tissue (Fig 1). With background of past history of snake bite and empty sella on MRI, hypopituitarism secondary to viper-bite was considered and he was treated with hydrocortisone 10mg, levo-thyroxine 50μg/day and inj testosterone 150mg once every 3 weeks. Patient showed marked improvement within few days.

Discussion
Snake bites are very common in India especially in rural areas. The type of snake bitten determines the symptoms and signs of envenomation. Viper bite can release procoagulants and hemorrhagins leading to disseminated intravascular coagulation which may cause abnormal thrombosis and/or bleeding in diverse organs; when the pituitary is involved, it may result in acute or chronic hypopituitarism or even diabetes insipidus. Snake bite as a cause of hypopituitarism is often a missed clinical entity and high degree of clinical suspicion is required for diagnosing this condition. Hypopituitarism is found in about 10% of the patients with history of snake bite1. The anterior pituitary is involved more commonly compared to posterior pituitary2.

There is a wide range of lag period between the snake bite and the clinical diagnosis of hypopituitarism, it ranges from six months to 20 yrs4-5. Hence, a thorough history and its correlation with present symptoms is often crucial for diagnosis.

In a study done by Golay et al., patients who were found to have hypopituitarism had history of hypotension, coagulation abnormalities, severe clinical snake bite envenomation, severe AKI requiring HD during the episode of snakebite1. In another study by Tun-Pe et al. five (71%) out of seven patients with chronic hypopituitarism had oliguric renal failure after the bite6. However in a study conducted by Naik, et al, occurrence of hypopituitarism was not predicted by the presence of acute kidney injury, requirement of hemodialysis, coagulopathy, disseminated intravascular coagulation (DIC), snakebite severity score, and local cellulitis7.

Patients with acute hypopituitarism usually present with hyponatremia, hypoglycemia and hypotension. Steroid replacement in acute hypopituitarism is lifesaving. Those with chronic hypopituitarism often present with nonspecific symptoms like nausea, vomiting, lethargy and weight loss. Acute hypopituitarism, if unrecognized, is potentially fatal whereas chronic hypopituitarism can be debilitating. Physicians should therefore be aware of these complications of viper envenomation and diagnosis of hypopituitarism should be considered without delay so that replacement with hydrocortisone and thyroxine can be commenced immediately.
Conclusion
This case report is relevant as it draws attention to rare causes of hypopituitarism like snake bite. Early recognition of symptoms, hormonal evaluation to support the diagnosis and initiation of treatment is often lifesaving in acute hypopituitarism and dramatically improves the quality of life in chronic hypopituitarism. Clinicians treating snake bites need to be aware of this entity and these patients should be under long-term follow-up to document any pituitary insufficiency.

Fig 1: MRI Pituitary
(A) Sagittal section showing an empty sella with thin rim of pituitary tissue.
(B) Coronal section showing the pituitary sella filled with CSF

Table 1 Hormonal Characteristics of the Patient

<table>
<thead>
<tr>
<th>Hormone</th>
<th>Serum level</th>
<th>Normal range (Male)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSH (mIU/ml)</td>
<td>0.506</td>
<td>0.7 – 11.1</td>
</tr>
<tr>
<td>LH (mIU/ml)</td>
<td>0.22</td>
<td>0.8 – 7.6</td>
</tr>
<tr>
<td>Testosterone (ng/ml)</td>
<td>&lt; 0.2</td>
<td>2.86 – 15.11</td>
</tr>
<tr>
<td>Prolactin (ng/ml)</td>
<td>1.86</td>
<td>2.5 - 17</td>
</tr>
<tr>
<td>Cortisol (ug/dl)</td>
<td>2.08</td>
<td>5 - 25</td>
</tr>
<tr>
<td>ACTH (pg/ml)</td>
<td>4.3</td>
<td>Up to 46</td>
</tr>
<tr>
<td>IGF 1(ng/ml)</td>
<td>73</td>
<td>101 - 267</td>
</tr>
</tbody>
</table>

Contributors: CGY, PD and SS has conceptualized and designed the case report. CGY, SS and RS has contributed to acquisition and interpretation of data. CGY, PD, SS and RS drafted the article. CGY and SS finalized the article by revising and editing it critically.

Funding: The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing Interests: None declared.

Patient Consent: Patient Consent Obtained.

References