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Russell's viper envenomation endocrinopathies among Bangladeshi victims: Unlikely or under-recognized?

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The recent spread of Russell's viper (local name- Chandra bora, Guiaa pora) in more than 25 districts with at least 10 deaths has drawn attention in the news and media.[1] Since 2013, the frequent occurrence of bites and fatalities has led to the notice of its presence, particularly along the Padma river belts. Among two species, *Daboia russelii* is found in the Indian subcontinent, especially in India and Sri Lanka, and the other species *D. siamensis* in East Asia. It mainly migrates to our country from the neighboring country India by the river Padma. The number is growing rapidly as a result of increased yearly crop cultivation, improved food availability, and its quick rate of reproduction.[2]

One common consequence of Russell's viper bite is hypopituitarism. Up to 20% of snake bites may result in acute hypopituitarism, which can last a lifetime without causing any symptoms. Direct pituitary stimulation, capillary leakage, edema, hemorrhage, disseminated intravascular coagulation-associated ischaemic necrosis, and some compression due to elevated intracranial pressure are all brought on by the venom. Pituitary antigen leakage is assumed to be the source of autoimmune damage, which is linked to chronic insufficiency. There may be deficiencies in all anterior pituitary hormones, especially growth hormone and ACTH. Adrenocortical insufficiency plays a crucial role in acute situations and is characterized by refractory hypotension and hypoglycemia. Testing for cortisol deficit in acute conditions and all anterior pituitary hormones at 6 months may be prudent, then based on clinical indications, since hypopituitarism is prevalent and can stay asymptomatic for at least 6 months. Vasopressin deficit is very uncommon; it typically occurs with preservation of the posterior pituitary bright spot and may appear after cortisol replacement. Pituitary MRI findings include hemorrhage, normal, partial, or entire empty sella, and, very infrequently, the disappearance of the posterior pituitary bright spot.[3] Hypopituitarism is predicted by the development of chronic kidney disease after acute kidney injury (AKI), coagulation abnormalities, and greater dialysis requirements.[4] Transient adrenal hemorrhage on both sides may result in transient adrenal insufficiency.[3]

Russell's viper bite is mainly described in case reports from Bangladesh. In acute situations, the afflicted patients exhibited hypotension and AKI. Endocrine examination, however, was hardly ever documented. A case series from Rajshahi Medical College involving 171 acutely affected patients (2013–2022) likewise reported hypotension (30%), oliguria with AKI (67%), mortality (30%), and dialysis (30%) without providing an endocrine examination.[5] As far as is known, long-term survivor data are not reported. Despite the presence of pituitary failure indicators, an endocrine evaluation was either not performed or not disclosed. The deaths may be due to cortisol deficiency and the survivors may be the sufferer of chronic pituitary insufficiency.

Nonetheless, the uncommon occurrence of endocrinopathies may be influenced by the phylovenomics of distinct D. russelli subspecies. Only reports of endocrine symptoms have come from Sri Lanka and South India, where the pulchella subspecies is present. Compared to the nordicus subspecies found in Bangladesh, Pakistan, and North India, its venom has a different chemical makeup. Neurotoxicity, intravascular hemorrhage, and capillary leakage syndrome are unique for the pulchella subspecies that may be related to pituitary involvement.[6] This may be an explanation for the rare occurrence of endocrinopathies in Bangladeshi-affected persons. So, the viper envenomation endocrinopathies need to be explored both in the acute setting and after 6 months among survivors in a sufficient number of cases to find out the dispute-unrecognized vs. unlikely of the Russell's viper endocrinopathies in Bangladesh.

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