

Case Report

A RARE CASE OF BI-FACIAL PARALYSIS CAUSED BY BEE STINGS

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Abstract

Bee stings are a common occurrence in clinical practice in India, that can lead to a wide range of complications, varying from mild allergic reactions to severe life-threatening conditions which include anaphylaxis, cardiogenic shock, respiratory arrest, acute renal failure, vasospasm-related tissue damage, acute pulmonary edema all of which can be extremely dangerous and also can lead to death. In addition to these systemic complications, bee stings have also been associated with neurological issues. Some of these neurological manifestations include acute cerebral infarction, acute demyelinating polyneuropathy, encephalitis, transverse myelitis and optic neuritis. Here we are reporting a rare case of a 62-year-old woman who developed bilateral facial nerve palsy following bee sting. This unusual case emphasizes the importance of being vigilant in assessing and managing bee sting as they can lead to a diverse array of complications.

INTRODUCTION

Bee stings are a common occurrence in clinical practice in India and the complications that follow can be categorized into two main types: early and late reactions.^[1] Early reactions can range from simple allergic responses to severe anaphylactic shock, which is a life-threatening condition. Late reactions, on the other hand can occur with a delay of up to 10 days after the bee sting and the specific manifestations can vary depending on the affected body system.

The clinical outcome and the severity of these reactions can differ based on the levels of immunoglobulin E (IgE) in the individual's system. Some reactions are dependent on IgE, while others are independent of it.^[2] IgE-related mediators like histamine, proteases and thromboxanes play a significant role in IgE-dependent reactions. In terms of treatment, healthcare professionals often utilize antihistamines, steroids, adrenaline and venom immunotherapy to manage these bee sting complications effectively.

CASE PRESENTATION

A 62-year-old woman who is known case of meningioma, presented to the emergency department of JSS hospital with complaints of bilateral periorbital swelling, facial puffiness and difficulty in breathing following multiple bee stings while

working in the farm. Patient had no history of recent infections, vaccinations or trauma. Her vital signs on admission were pulse rate of 80 beats per minute, blood pressure measuring 120/70 mmHg and a respiratory rate of 24 breaths per minute with SPO₂ - 92% at room air. Patient was shifted to the intensive care unit in view of desaturation and started on oxygen support with 2-3 litres/min and given injection hydrocortisone as well as injection pheniramine. There was no evidence of laryngeal edema on direct laryngoscopy. On Day 3 patient symptomatically improved and their attenders noticed deviation of angle of mouth more towards left side. On cranial nerve (facial nerve) examination there was loss of wrinkling of forehead bilaterally, bell's phenomenon present in both the eyes and deviation of angle of mouth was noted more towards left side with no other signs of limb weakness, numbness, slurring of speech, difficulty in swallowing, headache, double vision. The rest of the clinical examination, including cardiovascular, respiratory, abdomen and musculoskeletal systems were unremarkable.

Investigative tests including complete blood count, ESR, CRP, HbA1c, fasting blood sugar, serum creatinine, serum electrolytes, LFT and serum calcium levels were within normal limits. ECG showed normal sinus rhythm. MRI brain showed left cerebellopontine angle meningioma. Nerve conduction study showed motor axonopathy in bilateral orbicularis oculi, orbicularis oris and nasalis

muscles of bilateral facial nerves. Intravenous hydrocortisone was tapered and started on oral steroids. Physiotherapy was initiated and eye protective measures were provided to prevent exposure keratitis.

The patient showed gradual improvement and was discharged with tapering dose of oral steroids on the seventh day of admission with plans for outpatient follow-up. This case highlights the complex interplay of medical conditions and bee sting-related complications with the importance of a thorough diagnostic and treatment approach.



Figure 1: angle of deviation of mouth more towards left side and loss of wrinkling of forehead on both sides



Figure 2: Bell's phenomenon (present in both the eyes)

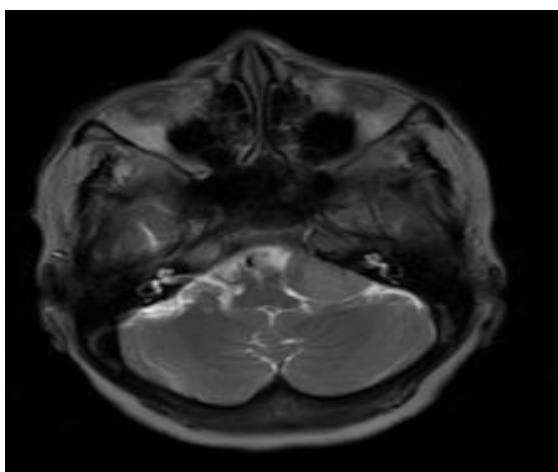


Figure 3: MRI T2 weighted image showing left CP angle Meningioma

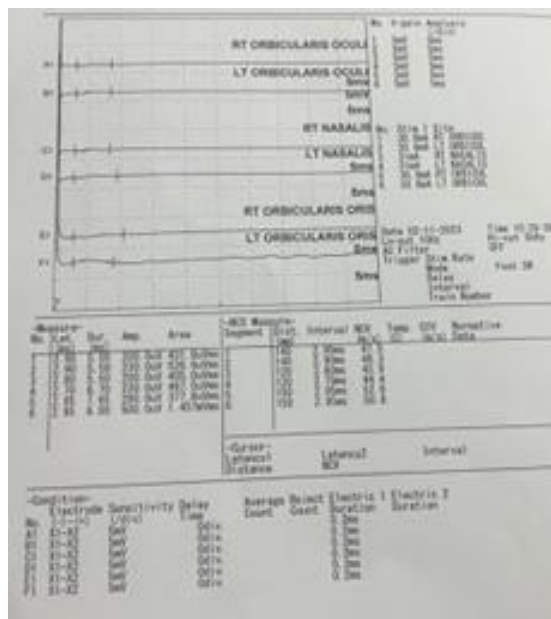


Figure 4: Nerve Conduction Study of Orbicularis oculi, Orbicularis oris and Nasalis muscles of Bilateral Facial Nerve

DISCUSSION

Bee venom is a complex mixture of chemicals that can have various effects on different body tissues. There have been numerous reported cases of deaths following one or more bee stings, underscoring the potentially lethal consequences of envenomation. The allergic reactions resulting from bee stings involve several key elements: pollen adhering to the bee, sensitization to allergens present in the bee and the chemicals within the venom. These factors collectively determine the severity of clinical effects in a patient who has been stung by a bee.

Bee venom contains allergic proteins including phospholipases, which can activate mast cells and induce an IgE-mediated immune response. The vasoactive, inflammatory and thrombogenic effects of bee venom are attributed to various components such as histamine and other mediators like apamin, melittin, mast cell degranulating peptide, hyaluronidase, acid phosphatase, norepinephrine and dopamine.^[3]

Acute reactions to bee sting typically manifest within minutes to hours in the majority of envenomation cases. However, a small percentage of individuals may experience delayed reactions that occur days to weeks after the bee sting.^[1] The spectrum of acute complications can range from simple allergic reactions to life-threatening anaphylactic shock. Uncommon and delayed reactions include conditions like serum sickness, renal involvement, neurological symptoms, hepatic dysfunction and delayed hypersensitivity phenomena, all of which have been reported in the medical literature.^[4]

Furthermore, some case reports have documented neurological manifestations following bee sting such as peripheral neuritis, cerebral infarction, Guillain-

Barre syndrome, ocular myasthenia gravis, optic neuropathy and encephalopathy. While these symptoms are rare, they do occur emphasizing the diverse effects of bee venom.^[5]

Isolated facial nerve paralysis following bee sting has been reported previously in Turkey and Srilanka.^[6,7]

To the best of our knowledge, this is the first case report of such an occurrence in India. In this case, bi-facial paralysis developed approximately 48 hours after a bee sting. The most likely mechanisms behind this condition could be the combination of local toxic effects of the venom and hypersensitivity reactions leading to underlying inflammatory neuritis.^[8]

The recommended treatment for facial paralysis caused by bee sting, typically involves the use of steroids. Additionally antihistamines are administered to reduce IgE-mediated histamine production.

CONCLUSION

Neurological symptoms are exceedingly rare in the context of bee sting. Among the unusual neurological presentations, peripheral facial nerve palsy stands out as a seldom-seen complication following bee sting. Healthcare providers should be aware of such

uncommon neurological complications and should be recognised early as appropriate treatment are crucial in these rare cases.

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