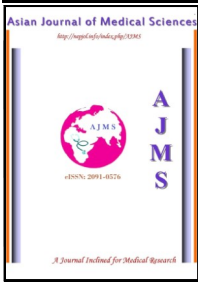


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A Rare Case of Cephalic Tetanus with Infranuclear Facial Palsy Following Foot Injury

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Abstract

We present here a rare case of cephalic tetanus with infranuclear facial nerve palsy following injury to the left foot with progression to generalized form, recovered completely in 6 weeks. There were few reports that cranial nerve palsies may occur in tetanus when the site of injury is other than in the head and neck, and indeed when there is no apparent site of entry of infection. In cephalic tetanus the prognosis is generally worse but here patient recovered completely without any residual paresis

Key Words: *Cephalic tetanus; Facial palsy; Foot injury*

1. Introduction

Tetanus is a rare disease in the recent times. Incidence is less in developed countries but remains endemic in the developing countries with high case mortality. Tetanus is a neurologic disorder caused by tetanospasmin, a powerful protein toxin produced by *Clostridium tetani*.¹ Tetanus is clinically characterized by triad of rigidity, muscle spasm and if severe, autonomic dysfunction. There are four clinical forms of this disease. They are generalized, cephalic, localized and neonatal tetanus. Cephalic tetanus, subtype of tetanus is a rare disease where one or more cranial nerves especially seventh and nerves supplying extraocular muscles may involve. The infranuclear type of seventh cranial nerve palsy may precede trismus and may be misdiagnosed as Bell's palsy.²

We present here a rare case of cephalic tetanus with infranuclear facial nerve palsy following injury to the left foot with progression to generalized form, recovered completely in 6 weeks.

2. Case History

A 14 year old girl, agricultural labourer by occupation came to the General Medicine department of Mamata Medical College with complaints of progressive difficulty

in opening mouth, stiffness of the limbs and severe painful spasms of the body, including spasms of the respiratory muscles over the past two days. She had deviation of the angle of the mouth towards the right and unable to close her left eye (Fig-1).



Fig-1: Patient on the day of admission showing infranuclear facial nerve palsy, trismus and inability to close the eye

She had a nail prick injury over her left foot eight days before the onset of these symptoms. Physical examination revealed a prick injury about 1 cm deep with surrounding erythema, on the ball of the great toe on the left foot was seen. She hadn't received tetanus toxoid after injury and her immunization status was unknown. She had severe trismus with complete left sided infranuclear facial nerve palsy as determined by deviation of angle of mouth towards right, obliteration of the nasolabial fold on the left with inability to close her left eye and loss of wrinkling on the left side. No

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signs of autonomic dysfunction were evident. There was no history of fever or seizures or impairment of consciousness. There was evident hypertonia of the limbs with mild abdominal rigidity. She frequently had severe painful spasms involving muscles of the back, the limbs and the respiratory and laryngeal muscles. An emergency tracheostomy had to be performed. Following investigation were done - complete blood picture, Urine routine, culture sensitivity, Creatine phosphokinase, serum antitetanus immunoglobulin, CSF examination and MRI of brain.

Creatine phosphokinase was mildly elevated, serum antitetanus immunoglobulin was <0.01 IU/ml, suggesting lack of immunity against tetanus, all other tests were normal.



Fig-2: patient on 5th week showing complete recovery from infranuclear facial palsy and spasms

Patient was put on ventilator support. Her spasms were controlled with diazepam. Antitetanus globulin 5000 IU was intramuscularly given. A course of penicillin and metronidazole was given. The patient was nursed in a dark room with a water bed. The patient was gradually weaned from mechanical ventilation and was put on T-piece ventilation through the tracheostomy tube on third day. Patient did not develop any further symptoms. Her spasms subsided by day five, trismus began to improve and she was able to take diet orally. Tracheostomy was closed on 20th day. By six weeks patient was discharged with normal jaw opening with total recovery from facial nerve palsy (Fig-2). Adsorbed tetanus toxoid was given at the time of admission, upon discharge i.e. in 6th week and on follow up six weeks after discharge i.e. 12th week.

3. Discussion

Tetanus is caused by a Gram-positive bacillus *Clostridium tetani*, a motile, spore forming obligate

anaerobe, natural habitat soil but also found on skin, clothing and 10 - 15% of human GI tracts. Clinical tetanus comprises of four symptomatic types - generalized, local, cephalic and neonatal tetanus.³ Bagratuni defined cephalic tetanus as a form of the disease occurring after injury to the head or neck and associated with cranial nerve palsy.⁴ The incidence of cephalic tetanus ranges from 0.9% to 3.0%.⁵ Patients often have a history of trauma^{5,6} or injury in head region⁷, tooth extraction⁸, or chronic tympanitis. The infranuclear type of seventh cranial nerve palsy may precede trismus and may be misdiagnosed as Bell's palsy.

In our present case the site of injury was distant, on the foot and yet the patient developed cephalic tetanus with infranuclear facial nerve palsy which is a rare occurrence. There were few reports that cranial nerve palsies may occur in tetanus when the site of injury is other than in the head and neck, and indeed when there is no apparent site of entry of infection.^{9,10} Bagratuni opined that the outlook in cephalic tetanus was worse than for that unassociated with cranial nerve palsies.⁴ However in this case, the patient recovered well despite the presence of facial nerve palsy in conformation with the reports of Patel et.al and Jaffari who inferred that mortality does not seem to be appreciably affected by the presence of cranial nerve palsy.^{9,10}

The severity of tetanus is usually inversely proportional to the duration of the incubation period, periods of seven days or less carrying a grave prognosis.⁵ But our patient developed severe form of Tetanus with a prolonged incubation period. In this case the patient recovered well with meticulous intensive care despite developing generalized Tetanus with facial nerve palsy, which proves that the level of intensive is an important factor in ultimate prognosis.

4. Conclusion

In conclusion, the diagnosis of cephalic tetanus should be considered in any patient with cranial nerve palsy even without injury to head and neck or even in absence of trauma. This case suggests that prognosis of cephalic tetanus with or without generalized tetanus need not necessarily be bad.

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