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# Tetanus following ocular wooden foreign body in incompletely vaccinated patient: a case report

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## ABSTRACT

Tetanus is now encountered rarely in clinical practice. There were no reported cases of tetanus due to ocular injuries in Sri Lanka. We report of a case of tetanus following an ocular injury which can be at least partly attributed to the disruption of immunization programmes due to political unrest. A 13 year–old Sri Lankan Tamil schoolgirl who had a splinter prick injury to left orbit was treated for intraorbital abscess and orbital cellulites. She developed clinical tetanus while on intravenous antibiotics. Following intensive care and ventilatory support she achieved an uncomplicated recovery. Ocular injury is a rare cause of tetanus worldwide. Adequate debridement of orbital soft tissue injuries can be difficult and demanding. Even in countries with high immunization coverage, tetanus can still occur due to lapses in immunization with conflict and war.

## 1. Introduction

Tetanus is defined by the acute onset of hypertonia or by painful muscular contractions (usually of the muscles of the jaw and neck) and generalized muscle spasms without other apparent medical cause<sup>[1]</sup>.

It is a form of spastic paralysis mediated by the neurotoxin “tetanospasmin” released by the *Clostridium tetani* bacteria germinating in relatively anaerobic wounds or ulcers, especially after contamination with soil.

Tetanus caused by ocular injuries are rare and there are only few reported cases in medical literature<sup>[2,3]</sup>. Orbital injuries with wooden foreign bodies are highly infectious although they are uncommon<sup>[4]</sup>. Treatment of tetanus involves thorough debridement of affected wounds, symptomatic and supportive measures to relieve spasms

and intravenous antibiotics<sup>[1]</sup>. Surgical exploration may appear less appealing in orbital trauma as the risk of injury to its vital contents but all suspicious injuries need imaging followed by surgical intervention<sup>[5]</sup>. Because of effective vaccination programs, tetanus is rare in developed countries although it is reported in fully immunized subjects<sup>[1,6]</sup>.

## 2. Case report

A 13 year–old Sri Lankan Tamil girl from Batticaloa, Sri Lanka was admitted to the local hospital with a splinter prick injury to her left eye. While playing in the backyard she fell on a stump of a fallen tree and she had minor bleeding from the left eye. She was rushed to the local hospital where cleaning and dressing were done and she was kept for observation. Two days later she developed pain on eye movements and a fever. She was started on intravenous co amoxiclav and was transferred to the Eye Hospital, Colombo. A contrast enhanced CT scan of the

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orbit was performed showing an abscess in relation to medial rectus. She underwent incision and drainage of intraorbital abscess five days after the injury. Intravenous co amoxiclav was continued. On seventh day after injury she again had high fever spikes and pain on movement of the neck. She was then transferred to the National Hospital of Sri Lanka for further management. On admission, the patient was ill looking and febrile. She was irritable and had multiple extensive extensor spasms when she attempted to answer questions. She also developed opisthotonus during examination. Based on her extensor spasms and increased muscle tone a provisional diagnosis of tetanus was made. History revealed that although she had received age appropriate immunization up to 5 years of age, she had not received adult tetanus toxoid due at school entry and at 10 years of age. The reason for the disruption was unavailability of the toxoid with local health authorities as stocks were utilized by the LTTE (a terrorist organization fighting a separatist war against the government of Sri Lanka at the time) to treat their battlefield casualties.

She was given intramuscular tetanus specific immunoglobulin 4000 IU according to her body weight and was nursed in a quiet cubicle with minimal lighting and movement until an intensive care bed was available. She was given intravenous diazepam 2.5 mg to relieve the spasms. Intravenous benzyl penicillin and intravenous metronidazole were commenced according to body weight. While at the intensive care unit she was started on intravenous magnesium sulphate and intravenous midazolam infusions to control the spasms. Despite these measures she developed tetanic spasms of her respiratory muscles including muscles of the upper airway necessitating paralysis and endotracheal intubations.

Later she underwent elective tracheostomy as she needed prolonged ventilation. After 14 days of ventilation she was extubated. She had an uneventful recovery and she was discharged home after arranging follow up for orbital wound at the local hospital and after starting tetanus toxoid.

### 3. Discussion

Orbital injuries caused by penetrating trauma can give rise to disastrous consequences. Physicians treating such patients should have a low threshold for orbital imaging studies whenever such injuries are suspected. Aggressive antibiotic therapy alone would not substitute for adequate surgical drainage of intraorbital abscesses.

Tetanus is rare in Sri Lanka especially among children and young adults as tetanus toxoid is included in expanded programme of immunization. Coverage in most provinces exceeds 97%<sup>[7]</sup>. But in the north and east provinces EPI programme had been disrupted despite best efforts by

the preventive health care staff. Compared to other EPI vaccines tetanus immunization has been affected more because terrorist outfits wanted vaccine stocks to cater for their needs<sup>[8]</sup>. This case illustrates that well established and functioning preventive health care programmes can fail in the presence of war and civil unrest if all involved parties do not act responsibly.

There are existing international agreements to protect the health and other basic rights of civilians during armed conflict. Terrorist and separatist organizations who are not signatories to these treaties may not adhere to such guidelines.

Written informed consent was obtained from the patient and her mother who was the legal guardian for publication of this case report.

### Conflict of interest statement

We declare that we have no conflict of interest.

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