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

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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[1]. It is a form of spastic paralysis mediated by the neurotoxin “tetanospsasmin” 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[2,3]. Orbital injuries with wooden foreign bodies are highly infectious although they are uncommon[4]. Treatment of tetanus involves thorough debridement of affected wounds, symptomatic and supportive measures to relieve spasms and intravenous antibiotics[1]. 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[5]. Because of effective vaccination programs, tetanus is rare in developed countries although it is reported in fully immunized subjects[1,6].

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 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
The muscle tone was used as a provisional diagnosis of tetanus. 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 
enumination. 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 to 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 
tubulations.

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%[7]. 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[8]. 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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