



A Case of Transverse Myelitis Following Tetanus Toxoid

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Abstract

There are very few reports on the occurrence of transverse myelitis following tetanus toxoid injection. In our hospital, we had a 35-year-old white female who developed transverse myelitis approximately 10 days after tetanus toxoid vaccination. No other factors associated with Transverse myelitis were identified.

Keywords - Transverse myelitis; Tetanus Toxoid

Introduction

Transverse myelitis has been reported following various viral infections and vaccinations. These have included Hepatitis B, Smallpox vaccine and Triple vaccines (diphtheria, polio and Tetanus).[10] There are very few reports of Transverse myelitis following Tetanus Toxoid injection. One case was reported in Lancet in 1992 [6] regarding the incidence of Transverse myelitis and Tetanus Toxoid booster.

Case presentation

A 35-year-old right-handed white female with past medical history of seizure disorder, received a Tetanus toxoid booster dose at work following a cut on her hand. Eleven days post-vaccination, she was assisting a resident and twisted her back. 20-30 minutes later, she developed a funny sensation and mild pain between her shoulders. Next day she developed back pain and numbness in the right lower extremity. Three days later, she developed onset of inability to void. She was then admitted in a local hospital and diagnosed with Cervical Transverse Myelitis. She received Steroid therapy there. Despite Steroid, she progressed to paraplegia and total loss of sensation up to the T-3 dermatomal level from below. When her condition did not improve, she was then transferred to Our Hospital for further evaluation.

General Physical: unremarkable

Neurological examination

Motor Strength: 0/5 in both lower Extremities:
Tone: Flaccid. 4=5 in RUE and 1-2/5 in LUE

DTR: 0/4 throughout, plantar: no response.

Sensory: No sensation from T-2-3 levels distally. Decreased sensation in RUE proximally up to mid-forearm.

LAB: CSF finding: RBC-1, WBC-6; Total protein: 143, Glucose: 77, IgG index 0.62, myelin basic protein: -20, Oligoclonal bands: 0, Lyme titer (negative); Serology for RPR, HIV and EBV were negative. ANA, ESR Anti-cardiolipin antibody, RF were within Normal limits. Tetanus specific antibody was (IgG) 2.9 (ref: <0.1).

MRI of C-spine: Increased signal intensity at C3-4 and C5-6.

Fig: 1 and 2 T1 weighted MRI of Cervical spine showing contrast and post contrast Cervical Cord MS plaques at the level of C3-4 and C5-6.

MRI of Cervical spine showing Transverse Section of the Cord at that level.

MRI of brain was Normal. EEG and VEP were normal.



Fig: 1



Fig: 2



Fig: 3



Fig: 4

Hospital course

Initially she improved with high dose steroid, but condition deteriorated on oral tapering dose of steroid. She lost mobility in the right hand and developed severe pain in the left hand. She developed Horner's syndrome in the left eye. She was immediately switched to IV Decadron. Over next couple of days, her condition improved. Dysesthesia of her hands improved with Tegretol and Elavil. She was transferred to Skilled Rehab Center.

Discussion

Previous reports of Neurologic complications following Tetanus Toxoid have been reported in Lancet. [6] There is a report of Relapsing Neuropathy

following Tetanus Toxoid.[5] There is a report of The Brown-Sequard Syndrome following Diphtheria and Tetanus vaccine.[2] Tezzon F and al. reported a case of acute Radiculomyelitis after Anti tetanus vaccine.[9] Neurological picture in our patients supports the diagnosis of Transverse Myelitis. A causal link between Transverse myelitis and Tetanus toxoid has been suggested by (a) Temporal association between these events (b) the previous reports of Transverse myelitis from Tetanus toxoid. (c) No clinical evidence of underlying illness. (d) High titer of Tetanus Specific antibody. It is difficult, if not impossible, to discount the temporal relationship between the vaccination and the onset of Transverse myelitis.

Pathogenesis

It is difficult to say the pathogenesis of Transverse myelitis but postulated that direct invasion of the Nervous system followed by Antigen-antibody reaction may be responsible.[4] Pollard and Selby in their article pointed out that Tetanus toxoid caused acute idiopathic Polyneuropathy with the features of Onion bulbs and macrophage mediated demyelination. Studies of blastogenesis and macrophage migration inhibition, showed T lymphocyte responsiveness to both peripheral nerves and Tetanus toxoid.

There is a study report of Brachial Plexus neuropathy by Beghi E at el. [8] following tetanus toxoid immunization. The occurrence of antecedent events and the features of the disease are supportive of the concept of immune mediated process.

Our patient was normal 10/12 days before Tetanus Toxoid. She gave no history of recent viral infection. She suddenly developed Transverse myelitis with high tetanus specific antibody titer. With no underlying illness our assumption is that Tetanus Toxoid caused the disease.

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