Case Report

Diagnosis and Management of Cryptogenic Occupational Tetanus: A Case Report from Rajasthan, India

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Abstract

The reported cases of non-neonatal tetanus have doubled from 2015 to 2017 in India, while neonatal tetanus has declined by half during this period. Most of these non-neonatal tetanus are acquired by occupational exposure especially in high risk populations such as agricultural workers, industrial workers and health care workers secondary to increased spore exposure or risk for minor injuries. We report a case of occupational tetanus in a steel worker and discuss the importance of recognising tetanus as an occupational hazard and address issues related to its early diagnosis and management. The report also highlights the need for policymakers and health practitioners in India to evolve a robust understanding of the needs and vulnerabilities of high risk occupational groups in order to apply specific and effective interventions to prevent occupational tetanus.

Keywords: Adult vaccination, India, occupational disease, steelworker, tetanus

INTRODUCTION

Addressing occupational tetanus has become important for countries like India with a successful decline in maternal and neonatal cases over the last decade. Around 4,900 cases of tetanus are reported annually in India of which 94% are nonneonatal tetanus.[1] The reported cases of nonneonatal tetanus have doubled from 2015 to 2017, while neonatal tetanus has declined by half.[1] Most of the nonneonatal tetanus are acquired by occupational exposure, especially in high-risk populations, such as agricultural industrial and health care workers, secondary to increased spore exposure and risk for minor injuries.[2,3] We report a case of tetanus in a steelworker and discuss the importance of recognizing tetanus as an occupational hazard.

CASE REPORT

A 20-year-old man, working at a steel factory in Mumbai, India developed generalized body ache and stiffness for 4 days prior to presentation. He belonged to Rajasthan and presented to the emergency room at AIIMS, Jodhpur, India.

The examination was unremarkable, except generalized rigidity and inability to open his mouth fully. As the clinical suspicion for tetanus was high, he was admitted. Over the next 2 days, he developed painful spasms, followed by difficulty in breathing and swallowing. External noise, light, and movement aggravated these episodes. The patient had no history of fever, altered sensorium, recent surgical procedures, ear discharge, or trauma. He had no known allergies and was not taking any medications. He had not received his primary tetanus series in childhood or any booster doses.

The patient was conscious and oriented with pulse rate 96/min, blood pressure (BP) 136/72 mmHg, temperature 98.6°F, and oxygen saturation of 100% on room air. Trismus, opisthotonus, and generalized muscle spasms were observed [Figure 1]. Findings from other systemic examination were unremarkable, except rough skin with excoriations over bilateral palms. All of his investigations,

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More than 75% of tetanus patients have an obvious identifiable cause, but a small percentage present with classical signs and symptoms of tetanus without any injury. Minor unnoticed skin injuries or abrasions are usually responsible for this “cryptogenic” tetanus. The differential diagnosis of early tetanus is wide, resulting in a clinical challenge when there is a lack of apparent injury. Therefore, a high index of suspicion is required in appropriate contexts, such as high-risk occupations.

Agricultural workers, steelworkers, construction workers and health care workers are considered high risk for occupational tetanus. The exact prevalence of occupational tetanus in each group remains unknown. A recent study from Nepal found that the most common occupational symptoms by informal waste workers were injuries, including glass cuts and metal injuries, while more than 50% of them were not immunized against tetanus further amplifying the risk. Though several studies have targeted the health care workers for interventions in occupational risk reduction with Tetanus immunization boosters, there are limited interventional studies in steel and agricultural workers. A study from Italy found that up to 20% construction workers did not have protective antitoxin levels suggesting that inadequate immunization lies at the heart of risk for occupational tetanus in this group. Even when knowledge of occupational tetanus risk and immunization was adequate, the rate of tetanus immunization was low in construction and agricultural workers owing to “forgotten boosters.”

These factors played an important role in our patient as he was neither immunized nor aware of occupational risks. Most countries now require reporting and mandatory booster immunization for high-risk occupations. These are the need of the hour in India with estimated 42 million industrial workers and 166 million agricultural workers.

In view of the large numbers at risk, we suggest that it may be efficient and cost-effective for tetanus toxoid (TT) booster dose to be given every 5 years in these high-risk occupations instead of the 10-year interval currently recommended in national immunization guidelines of India. It may also be prudent to screen potential high-risk workers with the question about past tetanus immunization as this has been found to correlate well with tetanus immunization status.

This case illustrates the importance of early clinical suspicion and prompt management of tetanus in high-risk occupational groups. It also highlights the need for policymakers and health practitioners in India to evolve a robust understanding of the needs and vulnerabilities of high-risk occupational groups to apply specific and effective interventions to prevent occupational tetanus.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.
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Conflicts of interest
There are no conflicts of interest.

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