

## Case Report: Accidental Tetanus

Fabricio Costa Ferreira<sup>1</sup>,  
Franciele de Angelis Silva<sup>1</sup>,  
Mariela Rodrigues Fernandes  
Campos<sup>2</sup> and  
Mauro Eduardo Jurno<sup>3</sup>

### Abstract

**Context:** Tetanus is a serious disease prevented by immunization, which also occur in Brazil and provides severe health complications that can lead to death. Despite the reduction in the number of cases in the country, tetanus is still frequent and deserves attention from public health agencies. The aim of the study was to describe a case of tetanus occurred in the city of Barbacena - Minas Gerais.

**Case Report:** It is a study of a patient with tetanus, where after completion of early diagnosis and effective, it was referred to the intensive care unit with adequate response to prescribed medications and subsequently receiving a medical discharge. Despite the severity, the patient after rehabilitation returned to his previous home environment without motor sequel. The patient was followed at the hospital outpatient clinic, and maintained his daily living skills without limitations.

**Conclusion:** Studies shows that this serious public health problem is important to encourage prevention through vaccination and therefore reduce public spending on admissions also avoiding health complications often fatal.

**Keywords:** Tetanus; Vaccination; Prevention and control; Toxicity; Drug effects

**Received:** October 20, 2016; **Accepted:** November 28, 2016; **Published:** December 01, 2016

### Introduction

Tetanus is a serious, rare and of poor prognosis public health problem, which can be prevented through immunization. It can be classified as accidental or of neonatal origin, having this later condition the worst prognostic, and high associated mortality [1]. The accidental tetanus still remains a common disease in developing countries. Its lethality ranges in different studies, depending on age, clinical severity of the disease, type of the injury gateway, period of incubation and progression, presence of respiratory, hemodynamic, renal and infectious complications. It is caused by a bacillus called *Clostridium tetani*, which produces exotoxins called tetanospasmin and tetanolysin, capable of reaching the central nervous system after entering the bloodstream. The exotoxins inhibit the release of a neurotransmitter through the pre-synaptic membrane over several weeks, and this way, involves the central motor control, the autonomic function and neuromuscular junction. During paralysis induction through gamma-aminobutyric acid (GABA) and glycinergic cells inhibition, the motor system responds to the afferent stimulus of intense and simultaneous contraction and is sustained by the agonist and antagonist muscles (tetanus spasm). With the disease progress, autonomic dysfunction and respiratory

failure can occur. According to the Ministry of Health, 149 deaths caused by tetanus were recorded in 2013 in Brazil [2-4]. In order to this bacillus enter the body, it is necessary a gateway, whether a mild or serious injury. *Clostridium tetani* is present and free in the environment, with dust, sand manure, rusted objects, and non-sterilized surgery instruments, among others [5]. Its diagnosis is mainly clinical, featured by hypertonicity, hyperreflexia and spontaneous muscle spasms or triggered by light stimuli, noises, manipulation or invasive procedures. Even after the discovery of a vaccine against tetanus, its incidence still remains high all over the world [4,5]. with the lack of information available in the national and international literature, and the clinical significance of this clinical entity, we realized the need to report this clinical case and conduct a literature review to discuss the matter. Prevention programs must focus on providing comprehensive and sanitary services that include education and information on

- 1 Residents of the Hospital Regional de Barbacena, Internal Medicine, FHEMIG Network, Brazil
- 2 Preceptor of the Internal Medicine Program of the Hospital Regional de Barbacena, FHEMIG Network, Brazil
- 3 Coordinator of the Neurology Program of the Hospital Regional de Barbacena, FHEMIG Network, Brazil

**Corresponding author:**  
Mauro Eduardo Jurno

✉ jurno@uol.com.br

Coordinator of the Neurology Program of the Hospital Regional de Barbacena, FHEMIG Network, Brazil.

Tel: 5532999831266

**Citation:** Ferreira FC, Silva FA, Campos MRF, et al. Case Report: Accidental Tetanus. J Infec Dis Treat. 2016, 2:2.

health issues, undertaking broad and permanent information campaigns on immunization directed to all age groups [6]. The purpose of the study was to present a serious tetanus case report associated with septic shock, in a male patient admitted to the intensive care unit (ICU) of the Hospital Regional de Barbacena Jose Americo, belonging to Fundacao Hospitalar do Estado de Minas Gerais (FHEMIG) network (Table 1).

## Case Report

A 48-year-old male patient, without previous comorbidities, with an unknown family history, was admitted to the emergency room of the Hospital five days after having a piercing-cutting injury in the right foot by a grinding wheel. The patient reported back pain, joint stiffness, muscle contractures and photophobia. He evolved in seizures and cardiac arrest, was resuscitated and given sedatives and anticonvulsants. Head computed tomography (CT) scan and lumbar puncture were performed, with unchanged results. The patient was transferred to the ICU and laboratory tests were conducted, which showed significant leukocytosis with deviation, high total creatine kinase (CK) and change in renal function. After a new approach with the patient's family, it was found that he had not been vaccinated against tetanus in the last 10 years, suggesting the diagnosis of tetanus. Anti-tetanus serum was administered one hour before right foot wound debridement, with antimicrobial medication (Vancomycin, Polymyxin B) for the injury and aspiration pneumonia, hemodialysis for a rhabdomyolysis condition and early tracheostomy. The patient remained sedated and medicated with analgesics, being used fentanyl, midazolam, diazepam, magnesium sulfate and pancuronium. As the patient remained with fasciculations and opisthotonus, the team of neurology guided the use of phenobarbital at 400 mg/day. The condition evolution was satisfactory and the patient was subsequently discharged from the ICU.

**Table 1** Literature search in medical databases for case reports on infection Tetanus. The literature search was conducted on 10 October 2015.

Database	Search strategies	Papers found	Related papers
Medline	Vaccine and BCG, tetanus and prevention and "case report"	2	4
Lilacs	Assessing and vaccine, tetanus and "case report"	4	10
Cochrane	Toxicity and tetanus and "case"	2	6

## Discussion

Comparing the data in this report in relation to the type of wound that initiated the injury and its topography, we have found an association of the data with the information from other Brazilian studies, referring also to the socio-economic characteristics and occupational activities of the patients involved [7,8]. The exotoxins released act on the central nervous system, causing important neurological disorders, which requires a quick medical action and admission of patients to the intensive care treatment, with direct impact on morbidity and mortality. The approach of a qualified multidisciplinary team and continuous monitoring are necessary, because of the risk of poor prognosis and complications [4-8]. Tetanus remains a serious hazard to people with insufficient or no immunization. We become aware that passive immunization with human tetanus immunoglobulin (IGATH) or equine immunoglobulin (anti-tetanus serum, ATS) should be performed as early as possible, and as soon as the clinical diagnosis is done, in order to neutralize the circulating toxin [4,6,8]. Antimicrobial medication against *Clostridium tetani* becomes critical, with the purpose of eradicating the focus of the infection inoculation and propagation. The maintenance of a quiet environment with no light stimuli ensures the reduction of spasms and muscle contractions that worsen the course of the disease [9]. Because of the high mortality and morbidity of the disease, social mobilization of health professionals is essential. It is crucial that immune-prophylaxis strategies are outlined for tetanus. The appropriate choice of medication to manage the case in an intensive care unit provides significant results in the long-term course, reduces iatrogenic complications and those caused by the evolution of the condition [8-10].

## Conclusion

Tetanus, regardless of being a preventable disease by immunization, still remains in our country, presenting high mortality rates. The study warns on a public health problem underdiagnosed and underreported in Brazil, culminating in serious complications for the patient, which is often fatal. Appropriate and early treatment in an intensive care unit is essential. We have noted the importance of care and prophylaxis to injuries that may eventually serve as a gateway for tetanus and the need for a disclosure on anti-tetanus vaccination approach.

## References

- 1 Brauner JS, Vieira SR, Bleck TP (2002) Changes in severe accidental tetanus mortality in the ICU during two decades in Brazil. *Intensive Care Med* 28: 930-935.
- 2 Bleck TP, Brauner JS (2004) Tetanus. In: Scheld WM, Witley RJ, Marra CM (eds.). *Infections of the central nervous system*. 3rd edn. lippincott Williams and Wilkins, New York, USA, pp: 625-648.
- 3 Martin C, Su H, Bustamante-Durán D, Velásquez-Pagoaga L (2003) Tétanos en la Unidad de Cuidados Intensivos. *Revista de neurología* 36: 327-330.
- 4 Salles Brauner JLDS, Valiatti JCV, Machado FR (2011) Diretrizes para o manejo do tetano acidental em pacientes adultos. *Rev Bras Ter Intensiva* 23: 394-409.
- 5 Pagliuca LMF, Feitoza AR, Feijao AR (2001) Tetano na população geriátrica: problemática da saúde coletiva?. *Revista Latino-Americana de Enfermagem* 9: 69-75.
- 6 Oliveira JVR, de Melo CM, Lima SO (2009) Tétano acidental: possibilidades e situação atual da fisioterapia no Estado de Sergipe–Brasil. *Revista da Faculdade de Ciências Médicas de Sorocaba* 11: 18-23.
- 7 Miranda-Filho DB, Ximenes RA, Bernardino SN, Escario AG (2000) Identification of risk factors for death from tetanus in Pernambuco, Brazil: a case-control study. *Revista do Instituto de Medicina Tropical de São Paulo* 42: 333-339.
- 8 Gomes AP, Freitas BACD, Rodrigues DC, Silveira GLD, Tavares W, et al. (2010) Infecção por *Clostridium tetani* no recém-nascido: revisão sobre o tétano neonatorum. *Revista Brasileira de Terapia Intensiva* 23: 484-491.
- 9 Baldessar MZ, Bolan RS, Vargas FR, Moretti G, Bettiol J (2006) O trismo como primeira manifestação do tétano. *Arq Catarin Med* 35: 92-94.
- 10 Lima VM, Garcia MT, Resende MR, Nouer SA, Campos EO, et al. (1998) Tétano acidental: análise do perfil clínico e epidemiológico de casos internados em hospital universitário. *Revista de saúde pública* 32: 166-171.