

Reminder of Persistent Public Health Concerns: A Suspected Case of Adult TetanusAnuradha K Shah¹, Gaurav R Naik², Vijaykumar Singh³¹Assistant Professor, ²Junior Resident, ³Professor and Head, Department of Community Medicine, Seth G S Medical College & KEM Hospital, Mumbai, India**Correspondence:** Dr. Gaurav Naik, E-mail:gauravnaik77@gmail.com**Abstract:**

Tetanus, once prevalent worldwide, has become rare in developed nations since the advent of active immunization.^[1] However, in India, where population density and healthcare challenges persist, the burden of adult tetanus remains largely unexplored. Here, authors present a suspected case of adult tetanus in an 18-year-old male from suburban Mumbai, highlighting the ongoing public health concern. The patient, a daily-wage worker, presented with chest pain, back spasms, and progressive muscle rigidity following trauma to his foot. Despite aggressive medical intervention, including immunoglobulin therapy and intensive care, the patient succumbed to cardiac arrest ten days post-admission. This case underscores the persistent threat of tetanus in India, even after the successful elimination of maternal and neonatal tetanus. Delayed diagnosis due to ambiguous symptoms and neglect of basic hygiene practices contribute to severe complications and mortality. Efforts to combat tetanus should focus on enhancing public awareness, promoting vaccination, and ensuring prompt wound care.

Keywords: Immunization, Public Health, Tetanus**Introduction:**


The word tetanus comes from the Greek word "tetanos," which is derived from "teinein," meaning "to stretch." Tetanus was well known to the ancient physicians of Egypt and Greece, but since the institution of active immunization in 1940, it has become a largely forgotten disease in developed countries.^[1] India has made significant progress, especially with the achievement of eliminating maternal and neonatal tetanus in 2015.^[2] However, the statistics are still unknown when it comes to adult tetanus, as no population-based burden estimates of adult tetanus are available in India.^[3]

CASE:

A case of tetanus in an 18-year-old male patient from a village in Uttar Pradesh, residing in suburban

Mumbai and working as a daily wage worker at a construction site. He studied up to the 9th standard. The patient was brought to the emergency department of a tertiary care centre attached to a medical college in Mumbai by one of his relative who stays with him. The history and other details were provided by the cousin, who is a reliable informant. Informed verbal consent was obtained from him for the furnished details and photographs.

The patient was apparently alright until he developed chest pain and back spasms one evening, after which he visited a nearby general practitioner and took medications for symptomatic relief and an injection for pain. There was no relief, and the symptoms progressed to more intense spasms in the

Quick Response Code	Access this article online	How to cite this article :
	Website : www.healthlinejournal.org	Shah A, Naik G, Singh V. Reminder of Persistent Public Health Concerns: A Suspected Case of Adult Tetanus. Healthline. 2024; 15 (2): 175-179
	DOI : 10.51957/Healthline_625_2024	

Received : 23-05-2024

Accepted : 29-06-2024

Published : 05-07-2024

Figure 1: Clinical picture of the patient with spastic posture with tracheostomy tube in situ.



back and neck, chest pain, breathlessness, and inability to open his mouth overnight. He was unable to get up and sit or stand from a lying-down position. The following day, the patient was taken to a municipal hospital where symptomatic treatment was given (details not available), and he was referred to a tertiary care medical college due to suspected tetanus. He presented to the emergency department late at night on the same day with complaints of chest pain, difficulty in breathing, inability to open his jaw, and spasms in his neck and back for the past three days. There were no aggravating or relieving factors. The patient had a history of trauma to the third toe of the right foot by a nail/piece of stone at his place of work about 48 hours before the first symptoms appeared. This was left unattended, and no treatment was taken for the same.

There was no history of any similar episodes in the past, seizure disorder, headache, vomiting, frothing from the mouth, up-rolling of eyeballs, or

tongue bite. There was no history of recent infections, fever, loss of consciousness, altered sensorium, or surgery. He also denied a history of injecting any drugs in the past. Despite best efforts, the immunization history could not be confirmed by asking the relatives.

On examination at arrival, the patient's general condition was poor. He was unconscious (eye-opening to deep pain only), his speech was incomprehensible, he had lockjaw and generalized rigidity with a tonic posture and arching of the back. The patient was afebrile, his pulse was 117 bpm, Blood pressure was 160/110 mmHg in the supine position, and Hemo Glucose Test (HGT) was 115 mg/dl. Pupils were reactive to light. The spatula test for tetanus was positive. There was increased tone in the bilateral upper and lower limbs with extensor plantar reflexes on the right side. An emergency tracheostomy was performed due to respiratory distress (Figure 1). Arterial blood gases (ABG) were suggestive of lactic acidosis. The patient's vitals were monitored regularly. The Glasgow Coma Scale (GCS) was E1VtM1.

Injection Human Tetanus Immunoglobulin 500 IU I.M. (TETGLOB) was given along with injection Tetanus toxoid 0.5 ml I.M., (No previous history of tetanus vaccination available) intravenous MgSo₄, and sedatives drip (Midazolam and Vecuronium). The patient was shifted to the Medical Intensive Care Unit with isolation to avoid sensory stimuli. The relatives were informed about the prognosis of the patient. The condition of the patient deteriorated as he developed autonomic dysfunction with his blood pressure raised to 190/110 mmHg and heart rate dropped to 50 bpm, following which intravenous Nicardia was administered. The intravenous MgSo₄, Vecuronium, and Midazolam, along with Metronidazole 400 mg every 8 hours, beta-blockers (intravenous Labetalol 30 mg/hour), and

intravenous antibiotics were continued to manage the episodes of autonomic dysfunction. The general consciousness of the patient remained poor, with a GCS of E1VtM1, mid-dilated pupils, and the presence of Doll's eye reflex. His condition did not improve even with continued treatment. Eventually, the patient succumbed to cardiac arrest and shock 10 days after admission.

Discussion:

Tetanus caused by *C. tetani* is still a public health problem in India. This case exemplifies the persistent challenge of adult tetanus in regions like India, where, despite significant public health strides such as the elimination of maternal and neonatal tetanus, adult cases continue to present.^[2] The tragic outcome of this case, involving an 18-year-old male from suburban Mumbai, highlights several critical aspects of disease management and public health policy that warrant further discussion. Firstly, the incidence of tetanus in adults remains a significant concern in India, reflective of broader issues in public health infrastructure, particularly in rural and suburban populations that may lack adequate access to healthcare services and education on disease prevention. Despite the availability of effective vaccines, the case fatality rates reported in the literature, ranging from 42.2% to 53.3%, underscore the severe impact of the disease when it does occur^[4]. This suggests that while vaccine coverage may be broad, there are gaps in either vaccine efficacy over time or in booster administration, which must be addressed.

Secondly, this case underscores the critical importance of timely diagnosis and management of tetanus, which is often complicated by its non-specific early symptoms such as spasms and pain, which can easily be mistaken for other ailments. The patients initial symptoms were managed with routine pain relief, which delayed appropriate tetanus-specific interventions and may have contributed to the worsening of his condition. Efforts

to combat tetanus should also focus on enhancing public awareness, promoting vaccination, and ensuring prompt and appropriate wound care. As demonstrated in this case, neglect of basic hygiene practices and wound care can lead to severe complications and mortality. Public health campaigns should be tailored to reach at-risk populations, particularly those in remote or underserved areas, and should emphasize the life-saving potential of vaccination and proper wound management.^[4,5]

Conclusion:

The efficacy of national immunization programs in developed countries is undeniable, having substantially mitigated the occurrence of tetanus cases. However, there are still a small number of cases that present with ambiguous or non-specific symptoms such as dysphagia, neck stiffness, and other oropharyngeal symptoms portraying a prodromal state of the illness, which could eventually lead to full-blown generalized tetanus. Once developed or allowed to progress, it ultimately leads to respiratory or autonomic dysfunction, necessitating long-term intensive care or even resulting in death in more severe cases. The negligence or absence of public health hygiene and wound care can lead to a serious disease that can at any time progress to fatality, as seen in this case. Therefore, as public health professionals, it is important to raise awareness regarding the spread of the disease, discuss risk elimination strategies, encourage vaccination and prompt treatment, and promote healthcare-seeking behaviour.

Acknowledgment:

Authors are grateful to Dr. Shubham Waghmare, Junior Resident and ICU doctors for following up this case.

Declaration:

Funding: Nil

Conflict of Interest: Nil

Declaration of patient consent:

The authors certify that they have obtained all appropriate patient consent. The patients relative has given his consent for his images and other clinical information to be reported in the journal. They understand that his name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

References:

1. Bennett JE, Dolin R, Blaser MJ. Mandell, Douglas, and Bennetts Principles and Practice of Infectious Diseases. Mand Douglas, Bennetts Princ Pract Infect Dis [Internet]. 2014 Aug 28 [cited 2023 Dec 1];12(5):13697. Available from: <http://www.thelancet.com/article/S147330991070089X/fulltext>
2. Cousins S. India is declared free of maternal and neonatal tetanus. *BMJ* [Internet]. 2015 [cited 2024 Feb 15];350:h2975. Available from: <https://pubmed.ncbi.nlm.nih.gov/26032894/>
3. Meena M, Yadav V, Yadav MM, Joshi R, Singh P, Panda R, et al. Adult tetanus is not gone yet, but could be ready to leave: A case-series from central India. *Germs* [Internet]. 2023 [cited 2024 Feb 15];13(1):86. Available from: </pmc/articles/PMC10659751/>
4. Kole A, Roy R, Kole D. Tetanus: still a public health problem in India - observations in an infectious diseases hospital in Kolkata. *WHO South-East Asia J public Heal* [Internet]. 2013 [cited 2024 Feb 15];2(3):184. Available from: <https://pubmed.ncbi.nlm.nih.gov/28615595/>
5. De Jong PR, De Heer-Groen T, Schröder CH, Jansen NJG. Generalized tetanus in a 4-year old boy presenting with dysphagia and trismus: A case report. *Cases J* [Internet]. 2009 Apr 29 [cited 2023 Dec 10];2(4):14. Available from: <https://casesjournal.biomedcentral.com/articles/10.1186/1757-1626-2-7003>