Asploro Journal of Biomedical and Clinical Case Reports
(ISSN: 2582-0370)
Case Report
DOI: https://doi.org/10.36502/2022/ASJBCCR.6261

Tetanus Presented as Acute Abdomen

Satori Iwamoto[1*], Harrison Chu[1]
[1]*California Northstate University College of Medicine & University, Berkeley, California, United States*

Corresponding Author: **Satori Iwamoto**
Address: 7865 Rodriguez Cir, Sacramento, California 95829, United States; Email: zmansatori@gmail.com
Received date: 31 January 2022; **Accepted date**: 24 February 2022; **Published date**: 02 March 2022

Citation: Iwamoto S, Chu H. Tetanus Presented as Acute Abdomen. Asp Biomed Clin Case Rep. 2022 Mar 02;5(1):42-45.

Abstract

Tetanus is commonly seen in the emergency department with a puncture wound. This is an unusual presentation of tetanus without an open wound.

A 59 year old male with a past history of hypertension, hepatitis C, prior injection drug use, and homeless presented to the emergency department with altered mental status and hyperthermia with fever of 105 F on a hot July afternoon.

Patient was found in his car sleeping. Initially, the patient declined medical care, but was later found unresponsive with a methadone bottle next to him. Given Narcan on field with improvement of mental status.

Patient developed acute ridged abdominal pain. A CT scan raised concern for acute abdomen, with portal venous gas, and intestinal pneumatosis. Surgery consulted and was concerned for ischemic colon with perforation. Vancomycin, ceftriaxone and metronidazole were given.

Emergency exploratory laparotomy was performed with a small serosal injury on colon repaired with suture. Blood culture came back positive for Clostridium tetani and Mobiluncus curtisii. Infectious disease consulted. Felt tetanus cannot be ruled out. Patient was given tetanus immune globulin (TIG), metronidazole and later tetanus vaccine.

Patient has fully recovered, tolerates oral diets, and has been discharged to a nursing facility without any neurological deficit.

Tetanus is a neurological disorder caused by the tetanus toxins produced by clostridium tetani, which is a gram positive obligate anaerobes commonly found in soil. It is relevant to note that this bacterium can also be found inside the gut of animals and humans. The disease is well characterized by ancient Greeks, and common symptoms include trismus ("lockjaw"), opisthotonos, and a board-like rigid abdomen. Incubation is usually 7-21 days and this disease is usually prevented by vaccination.

This case is unusual because there is no open wound and PE is limited due to patient's overdose on opiates (methadone). Possible cause for this particular case may be that since there was no open wound, the blood could have been seeded by the perforated bowel because they may also be found in the gut. The patient was given metronidazole as part of Tx for acute abdomen, which happens to also be a treatment for tetanus. Diseases can be presented atypically. This case illustrates the importance of differential diagnosis when considering treatments in any pathology.

Keywords

Clostridium Tetani, Tetanus, Hypertension, Acute Abdomen, Case Report

Case Report

Introduction

Tetanus is a nervous system disorder caused by Clostridium Tetani, a gram positive, spore-forming, motile, anaerobic bacillus, and causes muscle spasm through its exotoxins. Trismus, or "lockjaw" is an cardinal feature of tetanus and is an intense, painful, uncontrolled muscle spasm in the masseter muscles that disables one's ability to open his or her mouth. This disorder can present in one of four clinical patterns, which are generalized, local, cephalic and neonatal. It is commonly seen in patients who lack a history of receiving a full series of tetanus toxoid immunization and even though it is rarely seen in resource rich countries, the disease remains a threat, especially in resource limited countries. Because the spores of C. tetani are ubiquitous in the environment, prophylaxis with immunization and proper treatment of wounds and trauma are important in prevention.

Epidemiologically in the US, almost everyone is vaccinated at childhood. The disease is considered rare with only 264 reported cases in the US from 2009 to 2017 (according to CDC) [1]. The case-fatality rate was 7.2 percent overall and over age 55 years of age [1]. Patients who acquired tetanus in the United States recollected acute injury, such as a puncture wound, prior to their symptoms [1].

Pathogenesis: Tetanus happens when C. tetani spores gain entry into human tissue, commonly through puncture wounds. The spore is an obligate anaerobe and is normally present in the gut of mammals and in soil. After entry into the host, the spores transform into rod-shaped bacteria and produce metalloprotease tetanus toxin, which travels into the central nervous system. The toxin inhibits the release of inhibitory neurotransmitters (GABA and glycine) via its cleaving action on membrane proteins involved in neuroexocytosis. This results in loss of inhibition, otherwise known as disinhibition, of autonomic neurons and causes increased muscle tone and painful spasm. Lack of neural control of these neurotransmitters produces a hyper sympathetic state that presents as sweating, tachycardia and hypertension. Tetanus in patients without an identifiable cause is also present in up to a quarter of patients with classic signs and symptoms of tetanus. It is presumably minor unnoticed skin injuries that are responsible for most of these cases.

Case Description

A 59 year old male with a past history of hypertension, hepatitis C, prior injection drug use, and homeless presented to the emergency department with altered mental status and hyperthermia with fever of 105 F on a hot July afternoon. Patient was found by the paramedic to be sleeping in his car at 4:30 PM. Initially, the patient declined medical care, but was later found unresponsive with a methadone bottle next to him. Given Narcan on the field with some improvement of mental status. He was noted to be hyperthermic to 105.4. Given cold IV fluid and ice packs. Labs notable for hypernatremia 159, acute kidney injury (creat 2.6 from 0.8 about a year ago), lactic acid of 13, CT head negative for acute pathology. Chest x ray is clear. Urine tox screen positive for methadone only. Negative acetaminophen, salicylate, and alcohol. Complete blood count (CBC) shows WBC 9.1, Hgb 14.9, and Platelet 199. ALT, AST, total bilirubin is within normal limits. COVID PCR test negative. No open wounds.

Patient was still delirious in the emergency room. However, he was moving all 4 extremities with no focal weakness. Patient developed acute ridged abdominal pain while in the Emergency Department. A CT scan raised concern for acute abdomen, with portal venous gas, and intestinal pneumatosis. Surgery consulted and was concerned for ischemic colon

Fig-1

with perforation. Vancomycin, ceftriaxone and

metronidazole were given. Patient made NPO (nothing by mouth) and was sent to the operating room (**Fig-1**).

Emergency exploratory laparotomy was performed with a small serosal injury on colon repaired with suture. Post op course was uneventful. Patient's mental status recovered. Alert oriented, with no focal neurological findings. Preliminary blood culture grew gram negative rods. Patient was on Metronidazole,

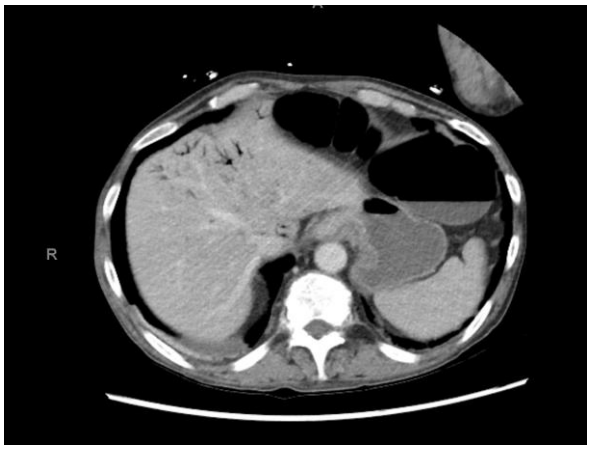

Fig-2

Fig-3

Levofloxacin initially. Then changed to Zosyn, and vanco after positive blood culture reported. Subsequently blood culture was finalized for Clostridium tetani and Mobiluncus curtisii. Infectious disease was consulted and felt tetanus cannot be ruled out. Patient was given tetanus immune globulin (TIG), metronidazole and later tetanus vaccine. Total of 10 days of IV antibiotics were given. During this time, the patient was given total parenteral nutrition to allow his bowl to recover. Patient discharged on hospital Day 17 to skilled nursing facility on regular diet (**Fig-2** and **Fig-3**).

Discussion

The significance of this case is how unusual this case for tetanus was presented. It is unusual because there is no open wound and the physical exam is limited due to the patient's overdose on opiates (methadone). Because there was no open wound, one possible cause for this particular case may be that the blood could have been seeded by the perforated bowel because they may also be found in the gut. However there are no reported cases of patients catching tetanus from their own gut. The patient was given metronidazole as part of treatment for acute abdomen, which coincidentally happens to also be a treatment for tetanus.

Bottom line is that diseases can be presented atypically, and mask key symptoms or cardinal features, such as lockjaw or painful muscle spasms, depending on the patient's physical condition and mental status. This case illustrates the importance of differential diagnosis when considering treatments in any pathology.

Conflict of Interest

The authors have read and approved the final version of the manuscript. The authors have no conflicts of interest to declare.

References

[1] Amy Blain A, Tiwari TSP. Manual for the Surveillance of Vaccine-Preventable Diseases - Chapter 16: Tetanus. United States: Centers for Disease Control and Prevention; 2020 Feb 06 [cited on 2020 Feb 24]. Available from: https://www.cdc.gov/vaccines/pubs/surv-manual/chpt16-tetanus.html

[2] Thwaites L. Tetanus. United States: Uptodate; 2021 Nov 18. Available from: https://www.uptodate.com/contents/tetanus

[3] Osmosis. Clostridium tetani (tetanus) - causes, symptoms, diagnosis, treatment, pathology. YouTube [cited 2021 Sept 15. Available from:

https://www.youtube.com/watch?v=HKskJ4JMg40
[4] GTAC. Clostridium tetani and Tetanus (captioned). YouTube [cited 2021 Sept 15]. Available from: https://www.youtube.com/watch?v=iNKBbr8t_Ic