

1-1-2020

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Recommended Citation

Khan, Maaz and M, Dr. Bhanukumar (2020) "A CASE OF TETANUS WITH CLASSICAL PRESENTATIONS," *Digital Journal of Clinical Medicine*: Vol. 2: Iss. 2, Article 8.

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A CASE OF TETANUS WITH CLASSICAL PRESENTATIONS

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Clinical features:

A 43 year old male arrived to the emergency medical department, with left lower limb spasm since 15 days, difficulty in opening the jaw since 7 days and back stiffness since 3 days.

Patient was apparently normal 15 days back, when he suffered a thorn prick on the right foot, following which he experienced minor episodes of involuntary muscle spasm in the left lower limb, which aggravated on the day on presentation, when he was unable to fold his left lower limb.

Gives history of painful contractions of the jaw for 7 days, with difficulty in opening the jaw on the day of presentation.

He experienced diffuse stiffness in the back since 3 days, which has been progressing in nature.

No history of fever, seizures, or headaches.

No past history of weakness of limbs.

No other significant history.

No history of previous surgeries.

Examination:

GENERAL PHYSICAL EXAMINATION:

A middle aged male patient is cooperative, moderately built and moderately nourished, appears well oriented to time, place and person.

VITALS:

BP: 140/80mm of Hg

PR: 90beats/min

RR: 16 breaths/min

SpO₂: 97% at room air.

No pallor, icterus, cyanosis, clubbing, oedema or generalized lymphadenopathy.

RS- B/L Normal vesicular breath sounds

PER ABDOMEN-soft, non-tender.

CVS: S1, S2 heard. No murmurs.

CNS: Conscious, oriented. Increased tone in the left hamstrings and left quadriceps muscles.



Investigations:

BLOOD INVESTIGATIONS:

Hb:14.2gms/dl

TOTAL WBC: 10210 cells/cu. mm

DLC:

N:82.2%, L:13.4%,

E:0.4%, M:3.8%, B:0.2%

RBC:4.39 million/ml

Pcv/Hct: 40.2%

MCV:91.7fl

MCH:32.4pg

MCHC:35.4 gm/dl

RDW-CV:12.1%

PLATELET :6.98lakh/ml

CK-NAC: 1817 U/L

Diagnosis:

Tetanus

Treatment:

- Debridement and antiseptic cleaning of injury site
- INJ. Tetanus Anti toxin 1000 IU i.m. Stat
- INJ. Diazepam 10 mg i.m. TID
- INJ. Metronidazole 500 mg I.V. every 6 hours
- INJ. Diclofenac 75 i.v. SOS
- INJ. Ceftriaxone 1gm i.v. BID
- INJ. MgSO₄ 2gm i.v. TID
- INJ. Rabeprazole 20mg i.v. OD
- The patient was placed in a dimly lit isolation room, where he was confined to the bed and nourishment was continued via DNS infusions.

Discussion:

Tetanus is characterized by acute manifestation of muscle spasms and autonomic system disturbance, which is mediated by a neurotoxin produced by the bacterium *Clostridium tetani*, which is an anaerobic, gram positive spore forming rod, whose spores can survive readily in a vast spectrum of environments, and is preventable by vaccination. (1)

Although tetanus is more prevalent in developing countries, cases are still reported throughout the world. (2)

Only the bacteria that produce the 'Tetanospasmin' neurotoxin can cause tetanus. The toxin is released by the circulating bacterium, and this toxin then internalized into the surrounding motor neurons. The toxin then follows a retrograde pathway through the motor nerves up to the motor neuron body, located in the ventral horn of the spine.

The neurotoxin then travels across synapse to enter the pre-synaptic inhibitory neuron terminals. Here the toxin cleaves the Vesicular associated Membrane Protein 2 (VAMP2) "Synaptobrevin", thus preventing neurotransmitter release, and effectively blocking inhibitory discharge at the synapse. Clinical manifestations of tetanus occur only after the toxin has reached the presynaptic inhibitory nerves and very little can be done at that point to control the disease progression.(3)

The behaviour of generalized tetanus involves initial muscle aches and stiffness that progresses to spasm and painful contractures. The first group of muscles to be affected are those of the face and jaw, followed by the upper limbs and then progressing towards the lower muscle groups.

Classical presentation is with trismus (Lockjaw), muscle aches and spasms, backaches and difficulty swallowing. If the laryngeal muscle group is involved, it may lead to airway obstruction and hence lead to poor prognosis.

Diagnosis of Tetanus is based on clinical findings after which the treatment should not be delayed, while laboratory tests are conducted. A few cases that mimic generalized tetanus, include Strychnine poisoning, and dystonic reactions to antidopaminergic drugs. These are differentiated by the fact that tetanus has continuous abdominal muscle rigidity, where as the other two conditions have episodic abdominal rigidity.

Treatment primarily involves administration of Human Antitoxin, to deactivate the circulating toxin, while antibiotics like metronidazole and penicillin act by purging the bacterium from the body.

Benzodiazepines like diazepam can also be provided to prevent spasms, and magnesium sulphate is used as a muscle relaxant.(4)

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