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Case Report

LOCALIZED TETANUS IN A PARTIALLY IMMUNIZED CHILD: RARE PRESENTATION

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Abstract :

Tetanus is a vaccine-preventable disease but continues to be endemic in many developing countries due to lack of adequate immunization coverage. It is an acute, spastic paralytic illness caused by the neurotoxin produced by *Ciotridium tetani. Ci. Tetani* is a ubiquitous organism found in soil and occasionally as part of normal gastrointestinal tract. We report a rare case of localized tetanus in a partially immunized child following trauma to right second toe. Tetanus can occur in all age groups and even in fully immunized hosts. The diagnosis should be considered in all patients with unexplained acute onset of painful continuous muscle contractions.

Key words: Localised tetanus, immunization, partial immunization.

CASE REPORT:

A 4- yrs old, male child, presented with history of tightness and pain in right lower limb and not passed stool since 8 days.

No history of fall, trauma to back or backache, unconsciousness and convulsion.

He was apparently alright 8 days back to start with he started having tightness in right lower limb. The limb was stiff with extension at hip and knee and plantar flexion at ankle. The limb could be moved only as a single rigid extremity with extension at all joints. There was intense pain and he was unable to sit and stand. Even slightest movement of the limb in attempt to sit or stand used to make the limb stiff. So he was confined to bed. He was reluctant to pass stool as he was unable to sit and stand.

He was shown to a pediatrician twice. But there was no improvement on the contrary the tightness and the frequency of the tightness (spasm) was increased.

The tightness was starting with any type of stimuli like touch, pain, attempt to move limb, etc.On admission he was fully conscious but very anxious as he was fear of touching the limb while examination. There was lightening fast reflex spasm to a slightest touch while examination. Any attempt to examine the limb exaggerated the spasm. Other limbs were normal. There was no trismus or any symptoms related to the head and neck. He was afebrile.

On detailed examination there was a wound over left second toe. On questioning -mother told that there was a trauma while playing 18 days back.

Considering the possibility of localized tetanus, immunization history was evaluated. He received only one dose of DPT and OPV in early infantile period and subsequent pulse polio doses. Rest of the immunization doses was not taken due to unawareness about

immunization. Possibility of localized tetanus was kept. Patient was kept in a quiet, dark isolated Room. Wound care was given. Parents advised not to touch the limb or restrain the limb during episode of spasm. Patient started with Crystalline Penicillin, Amikacin, Metronidazole, Human Tetanus Immunoglobin, Diazepam and Phenobarbitone. Inj. Tetanus Toxoid was given at the time of discharge.

Antitetanus antibodies could not be measured as the facilities were not available.

The severity of the spasm was decreased after treatment. Visible muscle spasms resolved 5 days after admission. He was able to walk on his toes after 2 weeks. He was spasm free after 20 days of treatment. Thereafter the doses of Diazepam and Phenobarbitone gradually decreased to stop. Patient was discharged after 30 days with advice to follow up for immunization of tetanus series.

DISCUSSION:

The vast majority of physicians in practice today in developed countries have never seen a case of tetanus. [1] Localized tetanus is postulated to occur on the basis of presynaptic neuromuscular block affecting small group of muscles at the site of inoculation. Localized tetanus accounted for 13% of cases in one series but has not been well characterized in the literature. Spontaneous remission can occur with localized tetanus, and mortality rate is only 1% versus 25% in generalized tetanus. [2]

Clinical features

Incubation period varies from 1 to 60 days but usually less than 2 weeks. Prognosis is generally worse with a shorter Incubation period – presumably because a greater quantity of toxin is present. However, in partially immunized hosts, tetanus can be a less severe disease despite a short incubation period. [3] This may explain why our patient had only localized disease.

Tetanus occurs in four clinical forms: Generalized, localized, cephalic and neonatal. Generalized tetanus accounts for >80% of cases. Localized tetanus is a rare form of disease consisting of muscle spasms in a confined area close to the site of injury. Cephalic tetanus a form associated with lesions of the head or face and Neonatal tetanus which occurs because of umbilical stump infections in neonates born to unvaccinated mothers. All forms of tetanus can progress to generalized tetanus. [4]

Cephalic tetanus is a rare form of localized tetanus. Localized tetanus involving other group of muscles is even rarer, with only occasional case reports in the literature. [5]

Localized tetanus involving limbs is relatively uncommon. The clinical picture is typical and once seen it is difficult to confuse it with any other disorder. Twitching of muscles adjacent to the wound is usually the first manifestation. [6]

The affected limb exhibits marked rigidity which may vary from one examination to another, and often persists in sleep. [7]

Attempted voluntary movements induce involuntary spasms. The limb becomes extended at the hip and knee and plantar flexed at ankle. This is so called “extensor sign” is also evident while eliciting the plantar response. Deep tendon reflexes may be brisk or normal. No upper motor or sensory signs are evident. [8]

Spasms gradually decrease with time and eventually recovery is complete. Rarely the disease may become generalized, usually with a fatal outcome. [6]

Investigations

Investigations are not very helpful in making a diagnosis. Routine laboratory studies including cerebrospinal fluid examination are normal. No characteristic pattern is seen on electroencephalogram or electromyogram. Diagnosis is mainly clinical which may not be very difficult in generalized tetanus. But localized tetanus presents diagnostic dilemma and may be confused with joint disease, dystonia or even hysteria. [7]

The diagnosis of tetanus is based entirely on clinical findings. Cl.tetani can be isolated from wounds of patients without tetanus and frequently cannot be recovered from wounds of those with tetanus. [9]

Treatment

Treatment of tetanus consists of wound debridement and antibiotics to decrease bacterial load, antitoxin and supportive care. Efficacy of TIG has never been studied, but it is believed to decrease mortality from generalized tetanus. Currently American Academy of Pediatrics suggests giving 3000 to 6000 units intramuscularly with some of this amount being administered around the wound. [10]

Treatment is directed towards eradication of the organism by giving intravenous penicillin G, neutralization of tetanus toxin by administration of tetanus-immune globulin and control of spasms by diazepam infusion. [11]

An episode of tetanus does not result in the production of toxin neutralizing antibodies; therefore, active immunization with tetanus toxoid is mandatory before discharge. Prognosis is favorable in those with long incubation period, absence of fever and localized disease. In the present case, the child had a favorable outcome as he had a localized disease without fever. [12]

SUMMARY

This case highlights the importance of maintaining a high index of suspicion for tetanus when evaluating a patient who presents with a potentially contaminated wound. The physician who saw this child did not consider the diagnosis despite the child was not fully immunized. Tetanus immunization status should be routinely assessed in all patients with wounds, regardless of age.

History of trauma and detailed examination of the wound by the physician might have led to early diagnosis of localized tetanus and treated appropriately at early stage. Probably because of partial immunization this child might not progressed to generalized tetanus. Hence it is important to emphasize on complete immunization of children by general practitioners and pediatricians. This case highlights the importance of detailed history and examination in the diagnosis.

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