Tetanus after Application of Traditional Topical on Severe Burn

Irié bi GS*, Asse V2, Kadiane NJ3, Pete Y1, Koffi N2, Benie AC2, Kouadio S1, Nda-koffi C1, Ogondon B1, Kouame KE1, Brouh Y1

1Anesthesia-resuscitation Service, University Hospital Centre of Bouake, Ivory Coast
2Department of Pediatrics, University Hospital Center of Bouake, Ivory Coast
3Department of Infectious Diseases, University Hospital Center of Bouake, Ivory Coast

*Corresponding author: Irié Bi Gohi Serge, Head of Clinics, Anesthesia-resuscitation Service, University Hospital Centre of Bouake, Bouake, Ivory Coast, Po-Box 1174, Tel: 0022507673862, E-mail: iriebi_gohiserge@yahoo.fr

Introduciton

Tetanus is an acute, non-immunizing poisoning caused by a telluric bacillus, Clstridium tetani. It is a public health problem in many developing countries despite the existence of a global immunization program [1]. The infection occurs when Clstridium tetani spores in the soil of the world and in the digestive tract of animals enter the body through open wounds, skin perforations or surgery. The occurrence of tetanus after contamination of burn injuries by Clstridium tetani spores has rarely been reported in the literature [2-4]. We report a case of generalized tetanus in a 2-year-old child after application of traditional topicals to severe burn injuries.

Observation

A child girl of 2-years-old, was admitted for a refusal to feed, a stiff neck with a trismus. The story reported the occurrence of a thermal burn four days before the onset of symptoms and which would have been treated by applying poultice made from dried cassava leaves. Tetanus vaccine coverage was not up to date incomplete. The child received doses of 6 weeks, 10 weeks, 14 weeks and not the first vaccination reminder of 16 months of life. The diagnosis of tetanus was immediately made. Anti-tetanus serotherapy combined with antibiotic therapy, benzodiazepine treatment and local care were also provided. The outcome was unfavorable with the death of the child in 24 hours.

Discussion

This case of tetanus is very unusual. The presence of tetanus spores can be explained by the contamination of certain components of the topical applied burn injuries, especially cassava leaves when dried on soil.

Conclusion

A severe burn is a way of tetanus inoculation after application of a herbal topical that has remained on soiled soil.

Keywords

Tetanus, Severe burn, Traditional topical
er limbs, the perineum, and the trunk. The occurrence of muscular paroxysms during the examination made it possible to evoke the diagnosis of generalized tetanus. The hemogram showed leukocytosis at 11,000/mm³ with 84% neutrophils, platelet at 196,000/mm³, and hemoglobin at 11 g/dL. The thick drop was negative, the blood ionogram was normal and the cerebrospinal fluid was normal. The treatment involved the administration of serotherapy in order to neutralize the circulating toxin with anti-tetanus serum of equine origin 750 IU and 25 mg of hydrocortisone hemisuccinate intrathecally. A parenteral antibiotic therapy with amoxicillin-clavulanic acid (266 mg/8 h) was instigated. The patient was also given 10 mg diazepam diluted in 48 mL of isotonic saline administered three times a day to the electric syringe, in combination with 500 ml per day of 10% glucose serum enriched with electrolytes. Local care consisted of cleansing the burn injuries and dressing them with Chlorhexidine soaked compresses. The outcome was unfavorable with her death 24 hours after admission.

Discussion
This observation reports a case of tetanus occurring after a traditional topical application of a mixture of water and powdered dried manioc leaves on burn injuries. Tetanus is caused by a telluric bacterium and its occurrence requires the presence of tetanus spore at an entrance port with anaerobic conditions. Any break-in of the tegument with sufficient anaerobic conditions constitutes a gateway to *Clostridium tetani* spores conveyed by dust, earth, contaminated objects or instruments [5]. *Clostridium tetani* [5] is characterized by deep, narrow wounds with weak opening to the outside or chronic wounds (varicose ulcers, burns, scratching lesions). Often they are small wounds such as a rose bug, splinters or an animal bite [2]. In developing countries, umbilical cord, gynecological pathways (childbirth, abortion), drug injections, surgical or spontaneous wounds and circumcision are another frequent cause of tetanus [6]. Tetanus may occur following burns [2-4]. In our observation tetanus was secondary to the application of poultice on burn injuries. The risk of tetanus increases strongly after a burn and the burnt area is an easy entry point for tetanus in the days following the burn. The presence of tetanus spore at the level of the burn injuries of our patient can be explained by the contamination of the cassava leaves during their drying on the ground. These cassava leaves during their drying are in contact with soil contaminated by spores which can survive for many years and withstand most disinfectants [7]. The overlap of burn injuries with the traditional topical of this dried cassava leaves allowed infection with *Clostridium tetani* into the organism and favored the anaerobiosis conditions conducive to the growth of the germ and the release of the toxin responsible for the occurrence of tetanus. Inoculation through skin lesions is frequent but the occurrence of tetanus after administration of poultices on burn injuries is rarely described. It is the precision by the interrogation of the notion of application of traditional topical on the lesions of burns which made it possible to make the link with the symptomatology. This observation also raises the problem of the policy of vaccine recalls in Côte d’Ivoire. The national immunization program provides free vaccine coverage for children aged 0 to 11 months and women aged 15 to 49 years for tetanus. Beyond 11 months, the financial burdens associated with the vaccines return to the parents limiting the access of the recalls of the vaccines to certain children. Also, immunological immaturity of the child limits the persistence of antibodies acquired by primary vaccination in childhood [8]. As a result, immunity to tetanus declines with time in the vaccinated

![Figure 1: 2-year-old child with burn injuries with muscle paroxysms under examination.](image-url)
child, so that between 10 and 16 years, about one in five cases no longer have protective antibodies [9]. For this reason, vaccine recalls are recommended in order to establish lasting protection against tetanus. WHO recommends 3 doses of tetanus toxoid by 12 months of age with a 4th in childhood and fifth in adolescence [10].

Conclusion

This observation shows that tetanus after application of a poultice on burn injuries is a reality in a tropical environment. It stresses the need to raise awareness of the risks associated with certain traditional practices and reiterates the importance of respecting the tetanus vaccine regimen.

Conflicts of Interest

The authors state that they have no conflict of interest.

References