TETANUS IN A GREY SQUIRREL

Author: WOBESER, G.

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Clostridium tetani is widely distributed in the soil and tetanus, following wound contamination, is well recognized as a disease of man and domestic animals. Although there is no reason to believe that wild species are less susceptible to tetanus, no reference to the disease in wild animals has been found.

Case Report

In July, 1968, an adult male black phase Eastern Grey Squirrel *(Sciurius carolinensis)* was submitted to the Zoonoses and Wildlife Disease Section, Ontario Veterinary College, University of Guelph. The animal had been found in a paralyzed state by a home owner, who had called the local Humane Society officer.

On examination, the animal's limbs were found to be fixed in rigid extension and the tail was held stiff and immobile. The neck was extended and the animal appeared to be unable to open its jaws. A small amount of vegetation was held in the mouth. The respiration was slow and irregular. A tentative diagnosis of tetanus was made and the animal was euthanized.

At necropsy the animal was found to be in good condition. Three digits of the left hind foot were severely lacerated and the proximal phalanx of one digit was exposed. The wound was of the type caused by steel leg hold traps. The stomach contained normal ingesta. All other organs appeared normal.

Typical sporulating *Cl. tetani* were not observed in Gram stained smears made from the foot lesions. Tissue from the traumatized area of the foot was collected aseptically and ground with sterile saline in a glass tissue grinder. The tissue suspension was heated to 80°C and maintained at this temperature for 10 minutes, cooled, and 0.2 ml was inoculated into a vial containing 10 ml of cooked meat medium[1]. The culture was incubated at 37°C for 72 hours. Gram stained smears of the culture revealed a mixed bacterial flora which included numerous Gram variable long, thin bacilli with large terminal spores. Broth from the culture was sterilized by filtration through a .45μ, type HA, Millipore filter, and the filtrate was used to test for toxicity in mice.

The method of mouse inoculation used was that proposed by Cruikshank (1965, Medical Microbiology, 330-331). A 0.2 ml portion of the test material was injected into the tissue to the right of the tail base in each of four mice. Two of the mice were given 500 units of Tetanus antitoxin[2] by subcutaneous injection one hour prior to the injection of the test material.

Twenty hours post-inoculation, the mice which had not received antitoxin showed rigid extension of the right hind limb. There was marked scoliosis with lateral deviation to the left and the tail was curled tightly

[1] Oxoid Ltd., London, England

[2] Connaught Medical Research Laboratories, Toronto, Ontario, Canada

forward along the right side of the body. Subsequently these animals developed a more generalized involvement and both died approximately 30 hours post injection. The mice which had received antitoxin remained normal.

Discussion

The observation of typical tetanic spasms is generally regarded as diagnostic for tetanus. The presence of a wound with a considerable amount of devitalized tissue and with every opportunity for soil contamination, together with demonstration of toxin production by bacteria isolated from the wound, substantiate the diagnosis in this case. Compression wounds with marked tissue necrosis caused by leg hold traps would appear to fill all requirements for the germination and growth of *Cl. tetani,* but the occurrence of tetanus in animals escaping from such traps has not been documented previously.

This case demonstrates that tetanus, which occurs relatively commonly in man and domestic animals, must be considered as a disease entity in wild species.

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G. WOBESER

Section of Zoonoses and Wildlife Diseases
Ontario Veterinary College
University of Guelph
Guelph, Ontario

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REVIEW

TAYLOR, R. M. (Comp.). *Catalogue of the Arthropod-borne Viruses of the World.* PHS Publication No. 1760. LC Catalogue No. 67-60097. First ed., 1967. U.S. Government Printing Office, Washington, D.C., 908 pages. Available from the Superintendent of Documents, $5.25.

The *Catalogue of the Arthropod-borne Viruses of the World* is a published version of the famous *Arthropod-borne Virus Catalogue,* originally assembled by interested arbovirologists as a working catalogue for restricted distribution only. Rapid advances in arbovirological knowledge in recent years have been reflected by phenomenal growth of the working catalogue, from a mere 43 entries in 1960 to nearly five times that number in 1967, the cutoff date of the present published volume. The published volume includes, in brief form, details of original isolation, physical and chemical properties, antigenic characteristics, natural and experimental host range, pathogenesis, symptomatology, arthropod vector data and geographic distribution on 204 viruses provisionally classed as arboviruses. Thirty-six tables are also presented which summarize and analyze this large amount of accumulated data.

Roy W. Chamberlain.