PIGEONS AS POSSIBLE TETANUS CARRIERS

BY

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The following case seems to be of more than ordinary interest. The great bulk of work done on tetanus in recent years deals with serum treatment to the exclusion of aetiology, although a number of cases of "idiopathic tetanus" have been published. These have been cases in which the site of entry of the infection has not been found (dental, etc.), but I have failed to discover any record in which pigeons have been concerned in its transmission.

Case History

A baby girl aged 18 months was admitted to the Infectious Diseases Hospital on June 11, 1937, as a case of meningitis. She had been perfectly well until the day previous, when the parents noticed that she had difficulty with her food, which was attributed to her "being feverish."

On admission she was quite conscious, and had a temperature of 102.6°, a pulse rate of 164, and a respiration rate of 30. The neck was a little stiff, but Kernig's sign was absent. The upper and lower extremities were slightly spastic in extension with carpo-pedal spasm, and the plantar responses were extensor in type. There was ptosis of the left eye and well-marked trismus, the teeth being tightly clenched in tonic spasm. Pronounced scabetic lesions were present on wrists, feet and ankles, and waist-line. A diagnosis of tetanus was made, and 20,000 units of antitetanus serum were given intramuscularly and a further 20,000 units intrathecally. The cerebrospinal fluid was quite clear and under no pressure, 10 c.cm. being withdrawn. The following morning 15 c.cm. of fluid were withdrawn and 20,000 units of antitetanus serum given intrathecally and 20,000 units intramuscularly. She had had one short "fit" during the night. The temperature rose to 103.4°, and six short spasms lasting three to four minutes each occurred in the course of the morning. During this period she was given sips of glucose water from a spoon. Death ensued in the early afternoon, twenty hours after admission.

Results of Investigation

The cerebrospinal fluid was reported as being sterile and quite normal chemically. Apart from some congestion of brain and kidneys no abnormality was found on post-mortem examination, and the only skin damage was the sores and scratches as the result of scabies. These were so numerous that it was impossible to localize the site of entry of the tetanus infection.

Investigation of the possible source of infection revealed the following facts. Scabies had occurred in all the members of the family, but had affected the baby last. The father of the child is a pigeon-fancier with about forty racing pigeons, which are housed in a large loft in his garden. He is scrupulously careful regarding the cleanliness of the loft, and uses the pigeon droppings as manure for the garden. No other kind of manure (horse, etc.) has been used for years. The child was in the habit of playing in the garden, and had been crawling about on the grass below the pigeon loft.

Specimens of soil from the ground below the loft were examined, and tetanus bacilli recovered from two out of four samples. Specimens from each of the two main sections of the loft were taken, and tetanus bacilli were obtained from one of the samples of droppings. These samples were taken on June 14—that is, two days after the death of the child. By segregating the pigeons in the positive section of the loft, first into two groups of fourteen birds and twelve birds, it was found that, in the twelve-bird group, one bird alone was passing tetanus bacilli. This positive specimen

was obtained on June 28—that is, sixteen days after the child's death. This pigeon was isolated until a specimen of droppings examined three weeks later (July 17) failed to yield tetanus bacilli.

Comments

After searching the medical literature I have been unable to find a similar case recorded in which pigeons could be associated in the aetiology of tetanus. Veterinary authorities state that "the fowl is very resistant" (Gaiger and Davies, 1932). Wooldridge (1934) says that tetanus bacilli can be recovered from the alimentary tract of horses, cattle, sheep, goats, pigs, and dogs, and that these animals can develop clinical tetanus. I have, however, failed to find a reference in which tetanus bacilli have been recovered from the alimentary tract of the pigeon. The resistance of birds to tetanus is often quoted by bacteriologists as an example of natural species immunity. Quoting Abel, Zinsser (1922) states that "birds, while immune against the ordinary dangers of tetanus bacilli, may be killed by experimental inoculations with very large doses of tetanus toxin."

The findings of this particular case would indicate that pigeons can be "carriers" of tetanus, and seem to be of interest from both the medical and veterinary points of view.

Summary

A fatal case of tetanus in a young child of 18 months is reported. The incubation period was very short (twenty-four hours at the most), and death ensued in about forty-four hours from the onset of the illness.

The typical clinical signs were exhibited, and large doses of antitetanus serum intramuscularly and intrathecally were given at the earliest opportunity.

The subsequent investigation seems to implicate a pigeon (or pigeons) as a "carrier" of tetanus.

No animals were available for inoculation tests with the tetanus bacilli obtained on culture from the pigeon's droppings, but the evidence otherwise would suggest the following chain of events:

1. The pigeon became infected with tetanus bacilli, probably by pecking horse manure, and became a "carrier," passing the bacilli or spores in its droppings, although showing no sign of illness itself.
2. The droppings infected the ground below the pigeon loft.
3. The child playing on the ground below the loft became infected through the skin, which was broken and scratched, due to active scabies.
4. The child developed clinical tetanus and died after a very brief illness.

I should like to acknowledge my indebtedness to Dr. J. A. D. Radcliffe, who did all the bacteriological work in connexion with this investigation.

REFERENCES

- Gaiger, S. H., and Davies, G. O. (1932). *Veterinary Pathology and Bacteriology*, p. 228, London.
Wooldridge, G. H. (1934). *Encyclopaedia of Veterinary Medicine, Surgery and Obstetrics*, 1, 68, London.
Zinsser, Hans (1922). *Textbook of Bacteriology*, fifth edition, p. 240, New York.

In the forty-eighth annual report of the county medical officer for the West Riding of Yorkshire it is announced that arrangements are being made for the estimation of the alcohol content of the blood to be carried out in the county laboratories when necessary. Recent legislation in Germany has made submission to this test compulsory in all cases of alleged drunkenness while in charge of a motor car.