

LOCAL INFECTION WITH PASTEURELLA SEPTICA FOLLOWING A DOG-BITE

BY

D. F. V. BRUNSDON, M.B., B.S.

Registrar, Department of Clinical Pathology, Guy's Hospital

AND

B. L. MALLET, M.B., B.S.

Out-Patient Officer, Guy's Hospital

Pasteurellosis is commonly seen in animals and birds but rarely diagnosed in man. Cats and rabbits seem to have been responsible for most human cases (Schipper, 1947), and, despite the frequent occurrence of pasteurellae in the saliva of healthy dogs, only three cases of human infection following a dog-bite have been reported (Allott *et al.*, 1944). A further case is now recorded.

Clinical History

A boy aged 9 was bitten by a dog on September 10, 1952. Three inches above the right medial malleolus there was a clean gaping laceration of the skin and subcutaneous tissues, 1½ in. (3.8 cm.) long. Routine wound toilet was carried out, the wound sutured, and A.T.S., 750 units, given intramuscularly.

On September 16 infection was present with oedema and discoloration of the wound edges. An intramuscular injection of 300,000 units of procaine penicillin was given daily for three days, and the sutures were removed. The wound failed to heal, and a swab taken on September 17 yielded a pure growth of *Pasteurella septica*.

Sulphadimidine by mouth (1.5 g. at once and 1 g. six-hourly) was begun on September 23 and continued for five days. The boy's temperature rose on two occasions to 99.2° F. (37.3° C.), but he remained well. X-ray films of the right tibia showed no bony change in the region of the bite. The wound, following the course of sulphadimidine, became dry and granular but showed little tendency to re-epithelize, so that split-skin grafting was undertaken on October 15. Oral sulphadimidine was given for five days. Healing was complete 68 days after the bite was sustained.

Bacteriology

Wound swabs taken from the patient on September 17 and 23 grew a pure culture of a non-motile Gram-negative coccobacillus identified as *P. septica*. This organism showed bipolar staining with methylene blue, and capsules were present in preparations made from the peritoneal exudate of injected mice. The organisms grew best under aerobic conditions, and on blood agar produced low convex colonies 1.5 mm. in diameter with an entire edge. The colonies were clear peripherally with a greyish-white centre and a smooth shiny surface. They were butyrous in consistency and were readily emulsified. On MacConkey medium there was no visible growth after seven days' incubation at 37° C.

Biochemical Reactions.—The following carbohydrates were fermented without gas production: glucose, maltose, saccharose, raffinose, galactose, and trehalose. L.M., no change; indole, +; M.R., -; V.P., -; H₂S produced in small quantities; catalase, +; methylene blue reduction, +; NH₃ production, +; nitrate reduction, +. With the disk technique (Thompson, 1950) the organism was sensitive to penicillin, streptomycin, aureomycin, and chloramphenicol. It was also sensitive to sulphadimidine, 10 mg. per 100 ml.

Serology.—No antibodies could be demonstrated in serum obtained from the patient on October 1 and 8. Serological study of the organism was kindly undertaken by Mr. J. E. Smith, of the Department of Pathology, the Royal Veterinary College, London, who found that sera prepared against *P. septica* types most commonly found in healthy dogs

agglutinated the isolated strain, while sera prepared against other *P. septica* types failed to do so. Six sera from healthy dogs agglutinated the isolated strain to the titre expected from previous work on agglutinin levels in healthy dogs against dog strains.

Discussion

This is one of 90 cases of dog-bite (in 10,179 accident cases) seen at Guy's Hospital casualty department during the period January 1 to November 15, 1952. Fourteen of these dog-bites showed evidence of infection, and in four healing was delayed beyond a fortnight, the longest to 40 days.

The wound in the present case appeared clean, with non-bevelled edges, and was treated by primary suture without excision—an omission not justified by subsequent events.

In view of the reports of underlying bony disease associated with wound infection with *P. septica* (Allott *et al.*, 1944; Cooper and Moore, 1945) x-ray films were taken of the right tibia. These showed no evidence of osteitis.

According to J. E. Smith (personal communication) the isolated strain is similar in its sugar-fermentation reactions and, antigenically, to strains commonly found in the saliva of healthy dogs, and it is surprising that human infection following dog-bite is rarely reported. Information has been obtained from the director of the Public Health Laboratory Service that, in the laboratories of his service, during the past two years *P. septica* has been isolated from dog-bite wounds on a number of occasions. This suggests that the condition might be discovered more often by routine swabbing of all dog-bites.

Summary

A case of local infection with *P. septica* following a dog-bite is reported.

The infecting strain proved to be of a type commonly found in the saliva of healthy dogs.

It is suggested that routine swabbing of dog-bites might show that infection with *P. septica* occurs more commonly than is generally realized.

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REFERENCES

- Allott, E. N., Cruickshank, R., Cyrias-Williams, R., Glass, V., Meyer, I. H., Straker, E. A., and Tee, G. (1944). *J. Path. Bact.*, **56**, 411.
Cooper, T. V., and Moore, B. (1945). *Lancet*, **1**, 753.
Schipper, G. J. (1947). *Bull. Johns Hopk. Hosp.*, **81**, 333.
Thompson, B. A. (1950). *J. clin. Path.*, **3**, 118.

Medical Memorandum

The Age of the Menarche in the Tropics

When Ellis (1950) summarized recent studies on the age of onset of menstruation in various climates he mentioned the difficulties inherent in obtaining accurate data in tropical countries. His own reliable observations in the hot moist climate of Lagos City, Southern Nigeria, did not confirm the widely held belief that children in the Tropics mature early.

We have been able to augment our earlier studies of the age of the menarche in English children (Wilson and Sutherland, 1950b) with data carefully collected in schools in Northern Nigeria, Central India (C. Thomson, 1952, personal communication), and Ceylon (Wilson and Sutherland, 1950a). These areas all lie between latitudes 5 and 20 degrees N., and the observations relate with one exception to homogeneous racial groups. As in England, each girl was asked simply for her present age and whether or not her periods had started. From the replies the average age of