Acta vet. scand. 1982, *23*, 619—621.

Brief Communication

HAEMOPHILUS- AND PASTEURELLA-LIKE ORGANISMS FROM THE CANINE VAGINA

Ten oestrous bitches with a history of recurrent reproductive problems, were presented for clinical examination. Utilizing a plastic speculum, swab specimens were taken from the anterior part of the vagina. Inoculation onto blood agar plates was performed within ½ h. The plates were streak-inoculated with Staphylococcus aureus and read after 24 and 48 h incubation aerobically in a 5 % CO_2 atmosphere, and anaerobically at 37°C.

Haemophilus-like organisms

In 2 cases small satellite colonies appeared around the staphylococci after 24 h. In these cases small amounts of streptococci and staphylococci were also found.

After 48 h incubation pin-point colonies were seen on inoculated plates without nursing staphylococcal colonies. No growth was observed after 48 h on Mac Conkey, MRS, bromthymolblue-lactose agar or nutrient agar without blood or serum. Abundant growth was seen around wells on nutrient agar containing hemolyzed blood, dissolved hemin or hemoglobin. No growth was observed, however, around wells supplied with bovine or equine serum. The organisms, which were Gram-negative, small rods appearing singly, in pairs or in chains, grew equally well aerobically (5 % CO_2) and anaerobically on bovine blood agar. The organisms were catalase and oxidase negative. Antibiotic sensitivity pattern (Sensitab®) showed both isolates to be sensitive to penicillin, chloramphenicol, tetracycline and streptomycin and resistant to sulfonamide and sulfa-trimethoprim compounds. The organisms died out rapidly when kept on blood agar at room temperature (48 h).

Based on cultural characteristics, nutritional requirements and microscopic appearance, the organisms were supposed to belong to the genus Haemophilus. Whether the 2 strains were identical to or similar to the organisms named Haemophilus haemoglobinophilus (Hemophilus canis) (*Osbaldiston* 1971, *Zin-*

neman & Biberstein 1974) or Haemophilus-like organisms (*Osbaldiston et al.* 1972) is not known. The 2 strains were, however, different from Gardnerella vaginalis (*Piot et al.* 1980).

Pasteurella-like organisms

In 8 specimens transparent or semitransparent domeshaped colonies, 1—1.5 mm in diameter, appeared. These bacteria were in all cases found in abundant amounts, either apparently in pure culture or together with streptococci and staphylococci.

These organisms were all facultatively anaerobic, Gram-negative, small coccoid rods. Five of the 8 strains were catalase positive, 3 oxidase positive, 4 indole positive and 1 was urease positive. All strains fermented glucose and lactose, but fermentation of sorbitol, mannitol and trehalose varied. Six of the strains were penicillin sensitive. They were not lethal to mice by intraperitoneal injection, but the colonies had an odour similar to that of Pasteurella multocida (*Smith* 1974).

The organisms isolated in these cases seem to be similar to those isolated from bitches with vaginal disorders (*Osbaldiston* 1978). *Osbaldiston* concluded that such Pasteurella organisms were of etiological importance to the disease conditions mentioned, because he did not isolate these bacteria from normal vaginas. However, similar organisms have also been isolated from clinically normal vaginas (*Olson & Mather* 1978). Consequently, the pathogenicity of these organisms is not established.

Further information is necessary to assert the role of both the haemophilus- and pasteurella-like organisms described here. Also further studies are required to perform an accurate classification of the organisms.

W. Farstad
The Department of Reproductive Physiology and Pathology, Norwegian College of Veterinary Medicine, Oslo, and

K. Fossum
The Department of Microbiology and Immunology, Norwegian College of Veterinary Medicine, Oslo.

REFERENCES

Olson, P. N. S. & E. C. Mather: Canine vaginal and uterine bacterial flora. J. Amer. vet. med. Ass. 1978, *172*, 708—711.

Osbaldiston, G. W.: Vaginitis in a bitch associated with Haemophilus sp. Amer. J. vet. Res. 1971, *32*, 2066—2070.

Osbaldiston, G. W.: Bacteriological studies of reproductive disorders of bitches. J. Amer. anim. Hosp. Ass. 1978, *14*, 363—367.

Osbaldiston, G. W., S. Nuru & J. E. Mosier: Vaginal cytology and microflora of infertile bitches. J. Amer. anim. Hosp. Ass. 1972, *8*, 93—101.

Piot, P., E. Van Dyck, M. Goodfellow & S. Falkow: A taxonomic study of Gardnerella vaginalis, (Haemophilus vaginalis), Gardner and Dukes 1955. J. gen. Microbiol. 1980, *119*, 373—396.

Smith, J. E.: Genus Pasteurella. *In* Bergey's Manual of Determinative Bacteriology. Eds.: R. E. Buchanan and N. E. Gibbons. 8 ed. Williams and Wilkins Company, Baltimore 1974, p. 370—373.

Zinneman, K. & E. L. Biberstein: Genus Haemophilus. Ibid., p. 363—370.

(Received June 28, 1982).

Reprints may be requested from: W. Farstad, The Department of Reproductive Physiology and Pathology, Norwegian College of Veterinary Medicine, P.O. Box 8146, Dep., Oslo 1, Norway.