RESEARCH COMMUNICATION

MYCOPLASMA MYCOIDES RECOVERED FROM THE FRONTAL SINUS OF AN OX

C. J. V. TRICHARD and ELSIE P. JACOBSZ, Veterinary Research Institute, Onderstepoort 0110

ABSTRACT

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The isolation of *M. mycoides* from the frontal sinus of an ox is recorded. The possibility that this observation may reflect a true carrier state and be responsible for field outbreaks of obscure origin is considered.

INTRODUCTION

There is general consensus that an animal that has recovered from contagious bovine pleuropneumonia may harbour one or more sequestra in one or both lungs, and that these sequestra, which may contain viable *M. mycoides* organisms, may break down and excrete infective material via the bronchi and thus serve as an active focus in initiating a new outbreak in the field. Windsor & Masiga (1977) stated that there is no published work which proved beyond doubt that these "lunger" or "carrier" animals are infectious. After unsuccesful attempts to reactivate old contagious bovine pleuropneumonia lesions, these authors concluded that sequestra did not break down easily. In field outbreaks of obscure origin, investigation should be thorough before the conclusion was reached that an animal with an old sequestrum was responsible. The isolation of *M. mycoides* from the frontal sinus of an ox therefore suggested that this "carrier" state might be the true source of infection in obscure outbreaks.

MATERIALS AND METHODS

Source of specimens

Four specimens were received from Gobabis, SWA/Namibia. Three of these animals were serologically (CFT) positive. Samples of lung and pleural fluid were taken from them. The 4th sample, from an animal that was serologically negative, cachectic and with obvious dyspnoea, contained lung, spleen and kidney tissue, bronchial and nasal swabs and pericardial and frontal sinus fluid. At necropsy an area of the lungs was dark with very prominent interlobular septa.

Isolation procedures

The specimens were processed for the isolation of both mycoplasmas and bacteria. Hayflick's agar and Hayflick's broth culture media, containing 0,5 mg/mℓ Ampicillin, (Hayflick, 1965) were used for the isolation of *M. mycoides*.

Agar cultures. 0,2 mℓ each of pleural, pericardial and frontal sinus fluid was plated on agar. One cm of the organ samples was placed in 1,0 mℓ of phosphate buffered saline (PBS), fragmented and filtered through sterile gauze before being plated on agar.

Broth cultures. The broth was seeded with 0,2 mℓ of either pleural, pericardial or sinus fluid. Lung, spleen and kidney tissue was homogenized separately, 1 mℓ of PBS was added to each sample and passed through a 650 nm millipore filter. These filtrates were then used to seed the broth cultures (0,2 mℓ per tube).

Identification of isolates

Mycoplasma isolates were identified by the direct fluorescent antibody test (Baas & Jasper, 1972).

The following monospecific, hyperimmune rabbit antisera were used: *Mycoplasma bovirhinis* PG43, *Mycoplasma bovis* Donetta, *Mycoplasma bovoculi* M165/69, *Mycoplasma* species Group 7, *Mycoplasma arginini* G230, *Mycoplasma mycoides* ss *mycoides* N14 and *Acholeplasma laidlawii* PG8 (sewage A).[1]

RESULTS

No mycoplasmas were isolated from the 3 serologically positive specimens, or from lung, spleen, kidney and pericardial fluid from the sero-negative animal. However, the frontal sinus fluid of the latter sample proved positive for *M. mycoides* and *M. arginini* in spite of the fact that the donor animal was serologically negative. *M. arginini* was recovered from the nasal swab. *Corynebacterium pyogenes* was isolated from the lungs, kidney and spleen, *Pasteurella haemolytica* from the nasal swab and *Pasteurella multocida* from the frontal sinus fluid.

DISCUSSION

No mycoplasma isolations were made from the 3 seologically positive animals. Two *Mycoplasma* species, however, identified as *Mycoplasma mycoides* and *Mycoplasma arginini*, were isolated from the serological negative sample. This discrepancy between the serological test results and the recovery of the agent, however, occurs on very rare occasions and may be due to abortive infections. Furthermore, a negative test does not necessarily imply that an animal is uninfected (Gourlay, 1965, 1983; Hudson, 1971).

That mycoplasmas were recovered from the frontal sinus, an apparently "new" site, presents a most interesting phenomenon and poses the question whether head sinuses on occasion harbour sufficient numbers of *M. mycoides* organisms for long periods to serve as the true carrier. This observation will be further investigated should another field outbreak manifest itself.

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[1] Obtained from the National Collection of Type Cultures, London.