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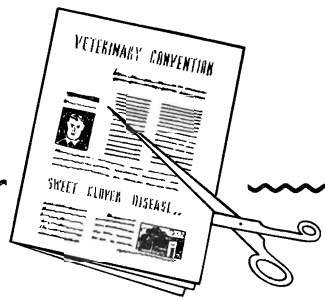
Abstracts

ABSTRACTS



BASIS FOR SULFANILAMIDE THERAPY IN BOVINE MASTITIS. Late study has revealed that the administration of sulfanilamide orally to cows suffering from bovine mastitis is of little curative value, although the number of organisms may be reduced to some extent. This was shown to be true after laboratory experimentation with *Streptococcus agalactiae* in vitro. Introduction of the drug into the teat duct, however, was found to be quite effective in destroying the organisms. At least three factors prevail in treatment of bovine mastitis with this drug.

First, sulfanilamide in a concentration of 20 mg. per cent has no germicidal effect against *S. agalactiae* at normal body body temperature, which is about 37.5°C. Serious damage is produced if the blood concentration is brought much above this level. To destroy the bacteria at such a concentration, the temperature must be at approximately 40°C. This was shown by incubating the sulfanilamide and live organisms in tryptose broth at 40°C. for 5 to 12 hours.

Next, evidence presented showed that injections of sulfanilamide into the udder in concentrations above 100 mg. per cent was germicidal for the test organisms. This was proven on the basis of the agar cup-plate method in which the incubation period was 24 hours at a temperature of 37.5°C.

Lastly, it was shown that para-aminobenzoic acid, an essential growth substance for some bacteria, was a sulfanilamide inhibiting substance. Tests were carried out by utilizing tryptose broth cultures to which para-aminobenzoic acid and sulfanilamide were added in varying amounts.

Use of sulfanilamide against Lancefield group B streptococci per orum apparently depends upon the temperature of the patient at the time of treatment, the concentration of the drug in the infected area, and the presence of exudate or fluid with its sulfanilamide inhibiting substances.

(Kakavas, J. C., 1945. In vitro studies of the basis for sulfanilamide therapy in bovine mastitis. Am. J. of Vet. Res. 4(18):9-16)

ACTINOMYCES BOVIS ISOLATED FROM FISTULOUS WITHERS AND POLL EVIL. Characteristics of lesions in fistulous withers and poll evil suggest a possibility of anaerobic organism being involved.

Aseptic precautions were observed in obtaining material for bacteriologic examination from cases that were typical, unopened, and had never received treatment. This material was obtained by vigorous curettings the tops of the supraspinous processes of the second, third, fourth and fifth thoracic vertebrae and from the undersurface of the ligament in this same area. Isolation of the organism was difficult in cases where the operator was unable definitely to find a tract leading to the supraspinous bursa region. The atlantal bursa was removed surgically in poll evil cases and pieces from the bursa

wall and inner surface scrapings were used for culture material.

Only the "smooth" type of *A. bovis* has been isolated from fistulous withers. The "smooth" type is a pleomorphic diphtheroid, consisting of slender fusiform and filamentous elements with cultures frequently assuming a short-rod form not characteristic of the species. It is nonmotile, Gram-positive, nonacid fast. The exudate from fistulous withers does not contain the club-bearing rosettes or "sulfur granules." The authors suggest that rosette formation may be associated only with the "rough" type.

Actinomyces bovis was isolated from 40 of 55 typical cases by this procedure. It has never been isolated from material extraneous to the animal body, has been found frequently in fistulous withers, and a large number of colonies frequently develop from clinical material. These facts are offered as strong presumptive evidence of growth of this organism within the involved tissue.

(Kimball, Alice, and Frank, E. R., 1945. The isolation of actinomyces bovis from fistulous withers and poll evil. Am. J. Vet. Res. 6(18):39-44)

ABORTED BOVINE FETUSES FROM BRUCELLOSIS-FREE HERDS. The results of bacteriological examination of aborted fetuses from Brucellosis-free herds suggest a number of agents that may cause premature birth of calves. Among those reported are Trichomonas foetus, Vibrio fetus, Corynebacterium pyogenes, hemolytic streptococci, avian tubercle bacilli, Bacillus prodigiosus, B. coli, various molds and fungi, vesicular venereal disease and certain Gram-positive bacilli, one of them being Listerella monocytogenes. Of the above the trichomonads and V. fetus have assumed the greatest importance.

In the work done by the authors cultures were made of organisms isolated from aborted fetuses from two Brucellosis and Trichomonoas-free herds.

In a herd of 30 Holstein cows, cultures from a fetus from an aborting heifer revealed Salmonella choleraesuis var. kunzendorf. Two other heifers from this herd aborted and were marketed, and neither showed signs of brucellosis or trichomoniasis. To check the abortifacient properties of the S. choleraesuis group a pregnant heifer was injected intravenously with 5 cc. of a 24 hour culture in physiological saline. The heifer was carefully examined for brucellosis and trichomoniasis. Her temperature rose to 105.6° F. on the third and fourth days, dropped to normal and rose again on the tenth day. It remained thus until the sixteenth day when a five months' fetus was aborted. Salmonella choleraesuis was regained in pure culture from the fetus but cultures from the vaginal and uterine discharges of the heifer were negative.

The same procedure was followed with the fetus of an aborting heifer from a herd of 12 cows. Five abortions had occurred in the preceding two years, all during the fourth or fifth months. This fetus had been aborted at five months. It showed the presence of Erysipelothrix rhusiopathiae. Three pregnant heifers were injected intravenously with organisms from the culture. All carried full term, two producing normal live calves and one a normal dead calf. Erysipelothrix rhusiopathiae was recovered from the dead calf's stomach, the only place it was found.

In a third fetus of five months, Corynebacterium pyogenes was isolated. When 5 cc. of a saline suspension was inoculated into a pregnant heifer it produced, on the fifth day, a slight elevation of temperature and a soft fluctuating swelling of the right hock. On the eighth day a maximum temperature of 105.0° F. was noted. The heifer aborted on the fourteenth day, and the abortion was accompanied by elevation of temperature, inappetence, constipation, accelerated heavy breathing, and edema of the extremities. She remained recumbent until death two weeks later. Both the fetus and dam showed the organism.

(Johnson, J. E., and Groham, Robert. 1945. The results of bacteriological examination of aborted bovine fetuses from brucellosis-free herds. Cornell Vet. 35:36-40.)