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The Role of *Streptococcus equisimilis* in Swine Infertility, Fetal Death, and Abortion

M. K. Doty* and M. W. Vorhies, D.V.M., M.S.**

**Introduction**

*Streptococcus equisimilis* was isolated from vaginal swabs, aborted fetuses, and uterus of a sacrificed gilt submitted to the Iowa Veterinary Diagnostic Laboratory (IVDL) by a Marshall County farmer. Fifteen other cases with similar history and the same laboratory results were handled at the IVDL between June 1970 and March 1971. Proper gilt selection and antibiotic medication in the feed or water may eliminate this problem from a swine herd.

Abortions and stillbirths are responsible for approximately one-fourth of the losses suffered in pigs of preweaning age. Causes of abortion and stillbirth of swine remain undetermined in about 75% of the submitted cases. For clarity purposes, the terms abortion, stillbirth, fetal death, mummified fetuses, and embryonic death will be defined here.

Abortion is birth before completion of the gestation period. Thus the fetus is either dead or dies shortly thereafter. Stillbirth refers to fetuses which have reached *in utero* maturity, but are born dead near or at the end of gestation. They should have had a normal chance to survive had they been born alive. Fetal death and mummified fetuses are terms used to describe those fetuses which have had some calcium deposited in their skeletons, have died, and are being dehydrated by absorption. Embryonic death refers to death of the embryo before any calcium is deposited in the skeletal frame.†

**Case Report**

On Nov. 28, 1970, a Marshall County farmer submitted a live gilt, three aborted fetuses, and vaginal swabs from another gilt that had aborted, to the IVDL for post mortem examination and culture. The gilt submitted had aborted the previous day, and was the fourth abortion on his farm in the past week.

Post mortem examination of the sacrificed gilt revealed a metritis with fluid accumulations in the oviducts, and a non-suppurative polyarthritis. The only significant gross lesion in the aborted fetuses was enlarged hemorrhagic kidneys.

Bacterial culture of the vaginal swabs from a sow that previously aborted, the aborted fetuses, and uterus of the sacrificed gilt isolated a *Strep. equisimilis*. This organism was sensitive to furachin, chloromycetin, penicillin, and terramycin.

On March 10, 1971, the IVDL was notified by the same farmer that three more of his sows had aborted. A field trip was arranged for the following day.

Observation of this swine operation revealed excellent facilities for all phases of a swine production unit, and above average management. It was learned that 80 gilts had to be selected for exposure to...
boars to get about 35 gilts pregnant. Cervical and vaginal swabs were obtained from two gilts that had never been exposed to a boar, and one older sow that had previously had normal litters.

Strep. equisimilis, sensitive to furacin, chloromycetin, penicillin, and terramycin was isolated from the two sows that had just aborted. The bacterial cultures of the two gilts and the older sow did not isolate any streptococcus organisms.

The following recommendations were made to help rid this swine herd of this problem:

1. Include one of the antibiotics that the organism is sensitive to in the ration at feed additive levels. Feed this ration from three weeks prior to breeding until the end of lactation.
2. Use therapeutic levels of a sulfa or antibiotic in the drinking water during the breeding and farrowing period.
3. Save replacement gils from litters that had no stillbirths or mummified fetuses.

Discussion

Beta hemolytic streptococci have been isolated from several cases where abortions and stillbirths occurred in swine. Their role is not fully understood, but veterinarians at the IVDL strongly feel that beta hemolytic streptococci do indeed cause abortion in swine.

Between June 1970 and March 1971, Strep. equisimilis was isolated from 15 abortion cases submitted to the IVDL. In most cases the abortions were about two weeks prior to the end of a normal gestation with mummified fetuses, stillbirths, and live weak squealer pigs being present in the same litter. The abortions would differentiate the problem from the SMEDI virus problem which Dr. Dunne states never causes abortion.

An uncontrolled study was conducted on the Michigan State University purebred swine herd. Infectious MMA was a severe problem in the herd as well as having several litters with stillborn pigs, mummified fetuses, and weak squealer pigs. Strep. equisimilis was isolated from vaginal swabs of sows that were having the abortion and MMA problem. Gilts saved from these sows would also culture positive for Strep. equisimilis at breeding time. In general, gilts saved from sows with negative culture for the streptococcus were always negative when cultured at breeding time. The problem in this herd was reduced by putting ASP-250 in the sow ration and putting sulfamethazine in the drinking water at breeding and farrowing. The only unanswered area in this study was that the boars were never cultured.

Since Strep. equisimilis often causes arthritis in swine, you would expect herds with a beta hemolytic streptococci abortion problem to also have an arthritis problem. This has not been true in those cases seen at the IVDL. This is explained by recognizing that there are three biochemical types of Strep. equisimilis. Type II is more prevalent in the reproductive tracts of sows, and rarely seen in baby pig arthritis, while types I and III are commonly seen in pig arthritis.

Treatment for this condition can be instituted in a variety of ways, according to the individual situation and particular swine set-up. Strep. equisimilis is a very poor immunity producer, as are most streptococci, so the problem repeats itself with each farrowing. This limits the use of bacterins to prevent the problem. Having a complete dispersal and then repopulating would be one way to eliminate the problem, if clean stock were used for repopulation. This may be expensive and unnecessary to eliminate this problem.

Including antibiotics in the ration and or the drinking water is probably the method of choice to clear a swine herd of Strep. equisimilis. Several antibiotics have been used, including ASP-250, nitrofurans, and erythromycin. Bicillin and gallimycin have also been effective when injected at breeding and farrowing.

Selection of gilts from negative culturing sows is recommended since they have been shown to produce negative culturing gilts.
REFERENCES


Drug Abuse; Abusive Use of Drugs

by William G. VanMeter, A.B., B.S., Ph.D.*

Drug abuse or the abusive use of drugs has been brought into the limelight recently as regards man in western society. However, the abuse of medically usable materials has been with man since his early beginnings. If we can accept a definition of drug abuse as meaning the use of any drug in a manner that deviates from the accepted use within a given culture or society, then perhaps man’s drug related problems began when he stopped being a food gatherer and hunter and started an agriculturalist’s existence. Moreover, we need not go into ancient times in an effort to find primitive people involved with drug-like substances. The aborigines of Australia chew the leaves of the piuri plant which when chewed releases a nicotine-like material and is used as a “pick-me-up.” The Bushmen of Africa’s Kalahari Desert and the Cape Hottentots smoked a form of Cannabis sativa (marijuana) until they were introduced to tobacco from Europe. Even today the South American Indian tribes descendant to the Inca’s prefer to use the coca leaves which contain a well known substance, cocaine. Also, of interest historically, is the observation that such figures as Sherlock Holmes, Sigmund Freud, Dr. Halstead (inventor of the rubber surgical glove) and more recently Maurice Chevalier all had their problems with the stimulatory properties of cocaine. While pepper kava is used in the Pacific as an intoxicant, betel nut chewing is done in Malaya, India and Polynesia for its tobacco-like effects, khat tea is taken for its feeling of excitement, we find today in our western culture the intravenous administration of milk, peanut butter

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