



A Case of Bacterial Postpartum Metritis in a 4-Year Old Duroc Sow

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SUMMARY

The attention of the Animal Health team of Swine Research Unit of Swine and Rabbit Research Programme of National Animal Production Research Institute (NAPRI) was drawn to a farrowing pen with a complaint of pus discharge from the vulva of a Duroc sow which farrowed 9 piglets 10 days earlier. Microbiological survey identified the presence of *Escherichia coli*, *Staphylococcus* and *Proteus* species from the sterile vaginal swab was taken from the sow. Antibioqram revealed the susceptibility of the three identified bacteria to ofloxacin, streptomycin and gentamicin in the order of increasing susceptibility. *Staphylococcus* species was also found to be susceptible to ciprofloxacin while *Proteus* species was susceptible to augmentin® and chloramphenicol. All the three species of bacteria were resistant to nitrofurantoin, rocephin® and ampiclox®. The sow was treated with deep intramuscular administration of streptomycin at 20 mg/kg once daily for 5 days and 10 IU of oxytocin once daily for 2 days. There was expulsion of macerated fetus about 24 hours following administration of the last dose of oxytocin and the macerated fetus was properly disposed and the entire pen was cleaned and disinfected. The vulva was noticed to be completely devoid of the mucous discharges after the course of the antibiotic regimen.

Key words: Metritis, Postpartum, Duroc, Sow, NAPRI.

INTRODUCTION

Infections of the urogenital tract in sows are common in many contemporary swine facilities. Although the infection can affect one or more organs of either the reproductive or urinary tract, the most commonly associated clinical signs is the appearance of a vulval discharge (Maes *et al.*, 1999). Following parturition, uterine infections in sows are very common on

farms and may cause serious economic losses. These infections are always followed by hypogalactia, thus influencing piglet's growth and health (Lazarevic *et al.*, 2012).

It is reported that uterine resistance to infection is highest in oestrus when plasma levels of oestrogen are high and progesterone levels are low and in contrast, susceptibility to infections is high during the

luteal phase, i.e. when progesterone levels are high and oestradiol is low (Dalin *et al.*, 2004). The uterus of pigs and other animals are able to eliminate infection while under oestrogen domination than when under progesterone influence (De Winter *et al.*, 1994). Wulster-Radcliffe *et al.* (2002) also reported that endogenous and exogenous progesterone reduces in gilts the ability of the uterus to resist infections. Bara *et al.* (1993) demonstrated in a longitudinal study that the cervical-vaginal microflora changes continuously due to intrinsic mechanisms of the sow's reproductive tract such as cyclic hormonal pattern, secretion of immunoglobulins and mucus and the phagocytic activity of the granulocytes (Lazarevic *et al.*, 2012).

CASE REPORT

Case History

The attention of the Animal Health team of Swine Research Unit of Swine and Rabbit Research Programme of NAPRI was drawn to a farrowing pen on 16th February 2016 with a complaint of pus discharge from the vulva of a 4-year old multiparous Duroc, weighing 120 kg. History further revealed that the sow had farrowed 9 piglets on the 6th of February 2016.

Physical and Clinical Examination

On clinical examination of the sow, milky vulval discharge was found on both the

vulval commissure and the floor of the pen (plates 1). The sow showed reduction in feed intake, hypogalactia and increase body temperature (39.8°C). Also, the piglets all died of starvation due to hypogalactia. The sow was not on antibiotic therapy for the past two weeks prior to examination.

Other parameters were within the normal range.

Tentative Diagnosis

Metritis was tentatively diagnosed based on the clinical signs of vulval discharge which started 36 hours post-partum, evidence of fever and reduced appetite.

Diagnostic Plan

Collection and submission of high sterile vaginal swabs for bacterial culture and sensitivity test was carried out early in the morning after cleaning of external part of the vulva with sterile cotton swap dipped in physiological solution.

Results

Microbiological survey identified *Escherichia coli*, *Staphylococcus spp.* and *Proteus spp.* from the vaginal swab taken from the sow. Antibiogram revealed susceptibility of the three identified bacterial species to ofloxacin, streptomycin and gentamicin in the order of increasing susceptibility. In addition, *Staphylococcus* species was also found to be susceptible to

Table 1: Antibiogram of the bacterial organisms isolated

Antibiotic	<i>Escherichia coli</i>	<i>Staphylococcus spp</i>	<i>Proteus spp</i>
Nitrofurantoin	R	R	R
Augmentin	R	R	+
Streptomycin	++	+	++
Ofloxacin	+	+	+
Chloramphenicol	R	R	+
Ciprofloxacin	R	+	R
Rocephin	R	R	R
Ampiclox	R	R	R
Gentamicin	+++	++	+++

Keys:

R = Resistance of the organism to the antibiotic

+ = Susceptibility of the organism to the antibiotic

ciprofloxacin while *Proteus* species was susceptible to augmentin® and chloramphenicol. All the three bacterial species identified were resistant to nitrofurantoin, rocephin® and ampiclox® (Table 1).

Treatment and Management

Streptomycin was administered based on culture and sensitivity test at the dose of 20 mg/kg body weight intramuscularly once daily for 5 days. Also, oxytocin (10 IU) was administered intramuscularly for 2 days. There was expulsion of macerated foetus about 24 hours following administration of the last dose of oxytocin and the macerated

foetus was properly disposed and the entire pen was cleaned and disinfected. The vulva was devoid of mucous discharges (Plate 2) after the course of the antibiotic regimen.

DISCUSSION

The flora of the vagina of healthy sows consists of a wide range of bacteria, including aerobic and anaerobic species. The most representative are *Streptococcus* spp., *Staphylococcus* spp., Enterobacteria, *Corynebacterium* spp., *Micrococcus* spp. and *Actinobacillus* species. Many of these bacteria are similar to those frequently reported in clinical cases of the vulval

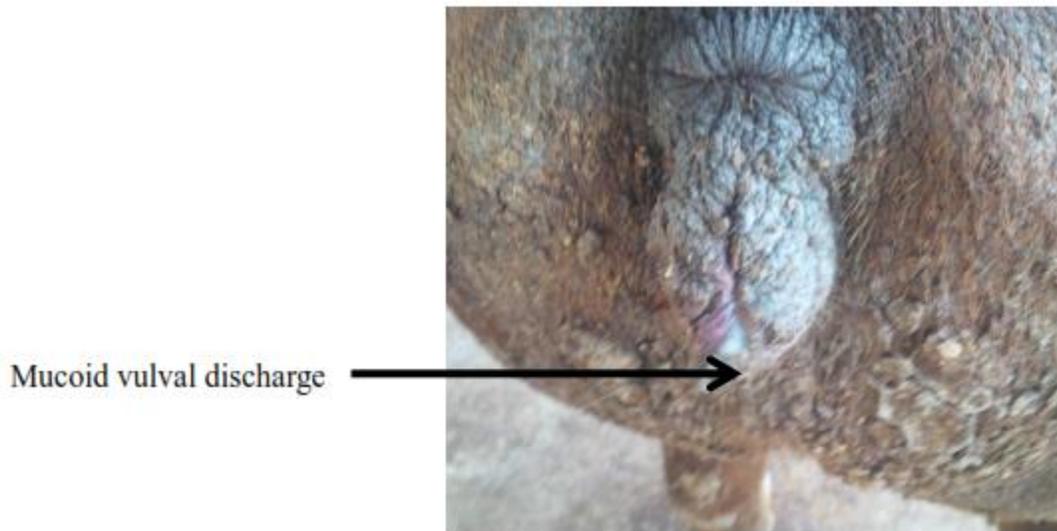


Plate 1: Vulva of the sow with mucoid discharge

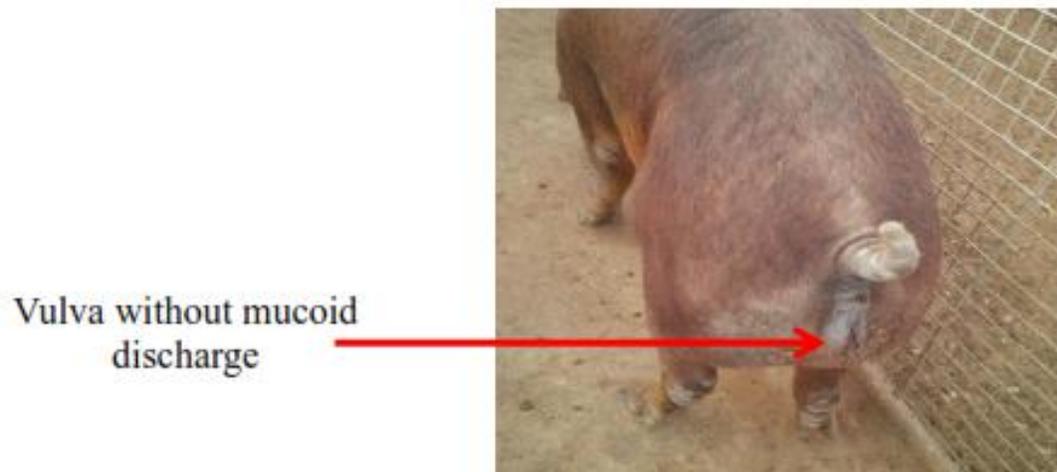


Plate 2: Vulva of the Sow without mucoid discharge after treatment

discharge syndrome (De Winter *et al.*, 1994).

DISCUSSION

The flora of the vagina of healthy sows consists of a wide range of bacteria, including aerobic and anaerobic species. The most representative are *Streptococcus* spp., *Staphylococcus* spp., Enterobacteria, *Corynebacterium* spp., *Micrococcus* spp. and *Actinobacillus* species. Many of these bacteria are similar to those frequently reported in clinical cases of the vulval discharge syndrome (De Winter *et al.*, 1994). The number of bacteria decreases gradually from the caudal to the cranial vagina (Berner, 1984). The presence of bacteria in the uterus does not always result in endometritis except for overwhelming infections; bacteria that enter the uterus at coitus or parturition are eliminated within a few days (Vandeplassche *et al.*, 1960). The hormonal status of the sow plays a role in the elimination of uterine bacteria (De Winter *et al.*, 1992).

Several investigators isolated bacteria from the uteri of normal sows. Scoffield *et al.* (1974) and Ludwig-Stössel (1985) isolated bacteria in the uterus in about 50% of the sows examined at slaughter. They isolated mainly *E. coli*, *Staphylococcus* spp. and *Streptococcus* spp., in some cases *Arcanobacterium pyogenes*, *Enterococcus* spp. and *Pasteurella multocida*. Normal uterus is sterile and devoid of infectious organism and its only few days after parturition and first day following mating that some bacteria can be isolated and the degree of which the bacteria is present in normal uterus in sows in early pregnancy is poorly understood (Meredith, 1986). Scoffield *et al.* (1974) reported that pregnancy can be established in an infected uterus, but that embryonic survival rates are much lower than in a sterile uterus.

The clinical presentation and isolation of bacteria (*Staphylococcus* species and *E. coli*) was in agreement with Robert (2014) who also stated that *Staphylococcus hyicus* and

E. coli are causative agents of endometritis. Although *Proteus* species was isolated during bacteriological culture in this case but, it has been a rare occurrence in endometritis.

The isolation of *E. coli*, *Staphylococcus* species and *Proteus* species with copious pus discharges and expulsion of macerated foetus two days following oxytocin injection indicated an infectious cause of post-partum metritis.

The entire farrowing pen was thoroughly washed and disinfected after the course of treatment.

ACKNOWLEDGEMENT

The authors wish to acknowledge the efforts of Mr. Dodo of Veterinary Microbiology Laboratory Ahmadu Bello University Zaria and Mr. Olorundare E. the higher technical staff of Swine Research Unit of Swine and Rabbit Research Programme NAPRI/ABU Shika Zaria.

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