

# Some Bacteria Isolates from the Uterus of Slaughtered camels (*Camelus Dromedarius*) in Sokoto, Nigeria.

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## Abstract

A bacteriological study was carried out on the uterus of camels. Swabs for culture were taken from the uterus of normal non-pregnant camels, infected non-pregnant uterus and from normal pregnant camels. In the normal non-pregnant uterus, the organisms isolated were *Escherichia coli* and *Staphylococcus aureus* while from infected non-pregnant uterus *E. coli*, *Staphylococcus aureus*, *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, *Proteus Vulgaris* and *Klebsiella Pneumoniae* were isolated. No isolates were recovered from cultures of swabs from the uterus of pregnant camels.

**Key Words:** Bacteria isolations, uterus, camel Dromedary, Abattoir.

## Introduction

This bacteriological study was carried out on the uterus of camels slaughtered at the Sokoto main abattoir. Several bacteria have been reported to infect and to cause lesions in the uterus of camels. Bacteria such as *Brucella abortus* (Mukasa-Mugerwa, 1981); *Staphylococcus aureus*, *Streptococcus*

*zooepidemicus*, *Escherichia coli* (Wernery and Wernery, (1992); Wernery, and Ali, (1989) and *Streptococcus pyogenes* (Wernery, 1991) have all been reported. Reports on bacteriological studies in the camel reproductive tract as a whole are generally scanty and particularly lacking in Nigeria.

Most investigations were conducted

on slaughtered camels with no previous breeding histories (Merck et al., 1987). Zaki and Mousa (1965) isolated from normal genital tracts of pregnant and non-pregnant slaughtered camels different bacteria like *Corynebacteria*, *Anthracooids*, *Staphylococcus aureus*, *Sarcina* spp., *Gaffkya* spp., and Gram negative bacilli. Almost the same spectrum of bacterial species were found by Eidarous et al. (1983) who also identified *Staphylococcus epidermicus* and *E. coli* among others.

The aim of this study was to obtain information on the normal flora and the bacterial pathogens infecting the uterus of the camel in Sokoto, North West Nigeria. This will form a baseline information for further research into the reproductive tract of the female camel.

### Materials and Methods

Mucous samples from fifty uterine specimens were collected from the Sokoto Central Abattoir using sterile swab sticks. Twenty (20) of the swabs were from apparently normal non-pregnant uteri, another twenty (20) from uteri with varying degrees of inflammation to pyometra, while ten (10) specimens were from pregnant uteri. The mucosa of the uteri were swabbed with sterile swab sticks and these were inoculated immediately after sample collection. The inoculation on media plates (Nutrient and McConkey agar) were done by direct streaking and plates were incubated at 37°C for 24 hours. The different growths obtained were sub-cultured for further studies. Bacterial organisms were identified using different criteria including Gram's staining reaction, morphology, motility, size in mm, colony characteristics, oxidation fermentation reactions and specific biochemical characteristic using stan-

dard procedures (Barrow and Feltham, 1993) and (Cheesebrough, 1985).

### Results

Altogether six different species of organisms were isolated. Two species were isolated from apparently normal non-pregnant uteri. These were the organism *Staphylococcus aureus* and the organism *Escherichia coli* (Table 1). From cultures of the infected uteri, six different bacterial organisms were isolated and identified, these were the bacteria, *Staphylococcus aureus*, *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, *E. coli*, *Proteus vulgaris* and *Klebsiella Pneumoniae*. However, no growth was seen on culture from pregnant uteri.

### Discussion

Six different organisms were isolated from the uteri of camels in this study. Almost the same spectrum of bacterial organisms were isolated by Zaki and Mousa, (1965) and Eidarous et al. (1983). Namboothripad and Raja (1976), Eduvie et al (1984) and El-Azab et al. (1988) isolated from the uteri of cows such bacteria as *Staphylococcus aureus*, *E. coli*, *Pseudomonas aeruginosa*, *Corynebacterium pyogenes*, *proteus mirabilis*, *Streptococcus* spp., *Pasteurella multocida*, *Proteus vulgaris*, *Klebsiella* spp. and several aerobic micro-organisms. The organisms *E. coli* and *Staphylococcus aureus* often regarded as contaminants or commensals (Stewart and Beswick, 1977) were also isolated by Zaki and Mousa, (1965) in their bacterial isolations from normal genital tracts of pregnant and non-pregnant slaughtered camels.

Isolations from camel uteri with infections such as endometritis, metritis and pyometra revealed *Staphylococcus aureus*, *E. coli*, *Proteus vulgaris* and

*Klebsiella pneumoniae* (Table 1). These findings have been equally reported by Eidarous *et al.* (1983) and Wernery and Wernery, (1992). In a related study, Nawito (1973) isolated these organisms among others in the uteri of 2,075 dromedary camels of unknown history killed at the Cairo abattoir. The bacterial organisms isolated from infected uteri have also been isolated by Wernery and Wernery, (1992) in barren camels with or without endometritis. Nawito (1973) isolated same organisms as those isolated from the present study from lesions such as uterine abscess, catarrhal endometritis, haemorrhagic endometritis, pyometra and pyometra with macerated foetus (Nawito, 1973).

No growth was obtained from swab samples of pregnant uteri (Table 2). This finding agrees with those of Zaki and Mousa (1965), in which no bacterial isolation could be made from the amniotic fluids of pregnant camels. They suggested that the presence of bacteria in this fluid could be as a result of bacteria ascending through the cervix or coming via the maternal circulation. Some workers speculated that there could be a cleansing mechanism, perhaps hormonal, which helps in eliminating opportunistic organisms during pregnancy (Ott, 1986). This fact can be contrasted with the sometimes rapid increase in bacterial population in the uterus post-partum, resulting in mild to acute endometritis. However, there are no reports on post-partum infection of the uterus of camels.

*E. coli* was isolated in this study (Table 1 & 2 from normal uninflamed and from inflamed uteri either with endometritis, metritis or in some cases with pyometra. The organism has equally been isolated from the normal uterine horn of camels by Zaki and

Mousa, (1965). It has been isolated as a flora of the genital tract of female camels (Eidarous *et al.* 1983) and as pathogens from camel uterine lesions (Nawito, 1973). Wernery and Wernery (1992) also isolated *E. coli* from the uteri of 98 barren female camels with and without endometritis.

Sporadic abortions due to *E. coli* have been reported (Wernery and Wernery, 1992). They suggested that following stress, the organism reaches the fetus and placenta via hematogenous routes from there on spreading or ascending to the rest of the genital tract, causing abortion. *Staphylococcus aureus*, *pseudomonas aeruginosa*, *Proteus vulgaris* and *Klebsiella pneumoniae* were also isolated in the present study; a finding which was in conformity with the reports of Zaki and Mousa, (1965), Nawito (1973) and Eidarous, *et al.* (1983). The isolations were either from normal or inflamed uteri. These organisms have been implicated in playing predominant roles in endometritis (Nawito, 1973); Hegazy *et al.* 1979; Wernery and Wernery, 1992 and Wernery and Ali, 1989).

### Conclusion

Results of isolations obtained in this study are in agreement with earlier reports on bacterial isolations from female camel. Bacteriological examinations of uterine smears from slaughtered animals with no breeding or management histories as those slaughtered in our abattoir are only an indirect means of assessing the flora and pathogens of the uterus. A more clinical approach to the study is suggested. Isolations from identified herds with breeding and management history will give a clear picture of the bacterial flora and pathogens of the camel.

References

- Barrow, G.I. and Feltham, R.K.A. (1993) In: Cowan and Steel's Manual for the identification of Medical Bacteria (3rd Ed.). Cambridge University Press. Pp. 50-150.
- Cheesebrough, M. (1985). Medical Laboratory for Tropical countries. Vol. II ELBS Edition, Pp. 31-69.
- Eidarous, A., Mansour, H. and Abdulrathier, A. (1983). Bacterial flora of the genital system of the male and female camel. Zagazig Vet. J. Vol. 4; PP. 24-27.
- Hegazy, A. Youseff, H.I. and Salim, S.. (1970). Bacteriological and Histopathological studeis on the endometrium of the camel. J. Egypt Vet. Med. Ass. 39, 81-97.
- Merckt, H., Mousa, B., El-Naggar, N.A. and Rath, O. (1983). Reproduction in Camels. A Review F.A.O. Animal Production Health Paper.
- Mukasa-Mugerwa, E. (1981). The Camel (*C. dromedarius*). A bibliographical review. ILCA mongraph International Livestock Centre for Africa, Addis Ababa, Ethiopia .
- Nwaito, M. (1973). Uterine Infections in the Camel, Egypt J. Vet. Sci. 10, 17-22.
- Ott, R.S. (1986). The efficacy of uterine treatment with antimicrobial drugs, In "Current Therapy in Theriogenology. 2 pp. 39.
- Stewart, F.S. and Beswick, T.S.L. (1977). Bacteriology, Virology and Immunology for students of Medicine (10th Ed.) ELBS Bailliere Tindall, London.
- Wernery, U. (1991) The barren camel with endometritis: Isolation of *Trichomonas fetus* and different bacteria J. Vet. Med. B. 38, 523-528.
- Wernery, U. and Ali, A. (1989). Bacterial Infertility in camels (*C. dromedarius*). *Campylobacter fetus*. Dtsch. Tierarzt. Wschr. 96. 497-498.
- Wernery, U. and Wernery, R. (1992). Uterine Infections in the camels – A review, Proc. 1st Int. Camel Conf. 155-158. Dubai, U.A.E.

**TABLE 1: Bacteria Isolated from Uteri with infections**

Gram Positive	Gram Negative
<i>Staphylococcus aureus</i>	<i>Pseudomonas aeruginosa</i>
<i>Streptococcus pyogenes</i>	<i>Escherichia coli</i> <i>Proteus vulgaris</i> <i>Klebsiella pneumoniae</i>

**TABLE 2: Bacteria Isolated from Non-infected and Pregnant Uteri**

Isolations from Non-Infected Uteri	Isolation from Pregnant Uteri
<p>Gram Positive</p> <p>i. <i>Staphylococcus aureus</i></p> <p>Gram Negative</p> <p>ii. <i>Escherichia coli</i></p>	<p>All samples were negative</p>