

Isolation and identification of microflora species at different levels of the ewe genital tract

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Abstract: *The aim of the present study was to isolate and identify microflora species at different levels of the female genital tract (cervix, body of uterus, horns of uterus and oviducts) of ewes and estimate their prevalence. Ninety-six samples (cervix, uterine body, right and left uterine horns, and right and left oviducts) were taken from sixteen ewes genital systems in Al-Hilla slaughterhouse at period from December 2012 to March 2013 and the swabs were from each part of genital system for bacteriological studies. The results indicated that there were different types of bacteria distributed throughout genital system as E-coli (37.83) %, Salmonella (21.62) %, Klebsiella (10.81) %, Staphylococcus aureus (6.75) %, Strptococcus spp. (6.75) %, Proteus (6.75) %, Micrococcus (5.4) % and finally others (S.epidermid and Pseudomonus) (4.05)%. We concluded that E-coli were the most predominant bacteria in normal and pathological cases.*

Keywords: *Ewe, microflora, genital system, E-coli.*

I. Introduction

Awassi sheep is a highly productive indigenous dairy breed as well as producing wool and meat (1). The main factors responsible for infertility in sheep are specific infectious agents. Much veterinary research into sheep reproduction concentrates on these problems. Structural, functional and management factors are of limited importance (2). Kassimet *al.* (3) referred to acquired pathological conditions are the major causes of abnormalities of the genital tract. Palmieriet *al.* (4) reported that poor fertility was a common phenomenon and related to several and heterogeneous diseases involving different genital tract and therefore, more tools are needed at the herd level to investigate the problems and one of this is certainly close examination of slaughterhouse material.

There are many studies reported the microflora inhabited in genital system in ewes (5, 6, 7, 8). Martinset *al.* (9) recorded that microflora is usually harmless until presence of predisposing factors such as trauma or another infection which may be pathogenic and cause disease. All these studies and others do not describe the microflora that found in uterus and oviduct. Therefore, the purpose of conducting this study was to isolate and identify microflora species at different levels of the female genital tract (cervix, body of uterus, horns of uterus and oviducts) of ewes and estimate their prevalence.

II. Materials And Methods

Collection of samples:

Ninety-six samples (cervix, uterine body, right and left uterine horns, and right and left oviducts) were taken from sixteen ewes' genital systems in Al-Hilla slaughterhouse at period from December 2012 to March 2013 and the swabs were rubbed gently on the mucosae from each part of genital system after dissected by surgical blade for bacteriological studies. Each swab was cultured immediately or stored in a transport medium (Difco) until cultured.

Isolation and identification of bacteria:

Culture media used for isolation and purification of bacteria included: blood agar, MacConkey agar and nutrient agar (Oxoid). Inoculated media were incubated aerobically at 37 °C for 24 hours. Bacteria isolated from specimens were then identified.

Methods:

After positive results of growth were appear, bacterial samples were identified with Gram stain and Biochemical test.

- Biochemical test:

Gram negative bacterial isolates were identified by standard biochemical tests. (Enterobacteriaceae pathogens) identified by:

1. IMVIC test (indol production, methyl red, vogas-proskauer and citrate utilization).

2. TSI (triple sugar iron)
3. Gelatin liquefaction.
4. SS agar medium (for *Salmonella*)

Gram positive bacterial isolates were identified by:

1. Catalase test.
2. Coagulase test (tube and slide method).
3. Mannitol salt agar (for *S. aureus*).

All the tests above done according to Forbes *et al.* (10).

III. Results And Discussion

The results of this study showed there were 10 different types of bacteria. The total samples were 96, 74 (77.08%) were positive and 22 (22.91%) were negative results for bacteria culture. Table (1) showed the percentages of bacteria distributed as *E-coli* (37.83) %, *Salmonella* (21.62) %, *Klebsiella* (10.81) %, *Staphylococcus aureus* (6.75) %, *Streptococcus spp.* (6.75) %, *Proteus* (6.75) %, *Micrococcus* (5.4) % and finally others (*S.epidermid* and *Pseudomonus*) (4.05)% from the positive results. These results are in agreement with other studies that reported presence of different types of bacteria (5,6,11,12,13,14,15 and 16).Furthermore; Martins *et al.* (17) confirmed the presence of staphylococcal isolates in the vaginal microflora of clinically healthy ewes.

The genital systems were divided into normal and pathological cases according to external feature of system. Pathological cases include pyometra, presence of caseous materials and presence of remnant of placenta (pasty and chocolate in color) (figure 1). Table (2) shows the bacteria that found in each organ in normal and pathological cases for each part of the genital system. It was found that, the gram negative bacteria werethemost predominant (66.6%) and this result was similar to that obtained by other studies (7, 9).However,Bruno *et al.* (18)demonstratedthat, gram positive bacteria were the most frequently recovered in infected female genital tract.The differences may be attributed to different case history such as previous parturition or bad hygienic condition (2, 19).



Figure 1: Uterus of ewe with caseous materials and presence of remnant of placenta.

Table 1: Bacteria distribution in different parts of ewe genital system.

Part	<i>Staphylococcus aureus</i>	<i>Streptococcus Spp.</i>	<i>Micrococcus</i>	<i>E-coli</i>	<i>Salmonella spp.</i>	<i>Klebsiella</i>	<i>Proteus</i>	Others	Total
Right Salpinx	-	1	1	5	3	1	-	-	11
Left Salpinx	1	1	1	4	4	1	1	-	13
Right Uterine horn	1	2	-	2	4	2	1	<i>S.epidermid</i>	13
Left Uterine horn	2	1	1	3	-	3	1	-	11
Uterine body	-	-	1	7	2	-	2	<i>Pseudomonus</i>	13
Cervix	1	-	-	7	3	1	-	<i>S.epidermid</i>	13
Total	5 (6.75%)	5 (6.75%)	4 (5.4%)	28(37.83%)	16 (21.62%)	8 (10.81%)	5 (6.75%)	3 (4.05%)	74(77.08%)

Table 2: Bacteria distribution in normal and pathological cases in different parts of ewes' genital systems.

Organ	Normal cases	Pathological cases	Total
Right Salpinx	<i>E-coli</i> (4) <i>Salmonella</i> (3) <i>Streptococcus faecalis</i> (1)	<i>Micrococcus</i> (1) <i>Klebsiella</i> (1) <i>E-coli</i> (1)	N=8/11 P=3/11
Left Salpinx	<i>E-coli</i> (3) <i>Salmonella</i> (3) <i>Streptococcus</i> (1) <i>Staphylococcus aureus</i> (1) <i>Proteus</i> (1)	<i>Micrococcus</i> (1) <i>Klebsiella</i> (1) <i>E-coli</i> (1) <i>Salmonella</i> (1)	N=9/13 P=4/13
Right Uterine horn	<i>E-coli</i> (2) <i>Salmonella</i> (4) <i>Klebsiella</i> (2) <i>Proteus</i> (1) <i>S.epidermid</i> (1) <i>Streptococcus</i> (1)	<i>Streptococcus</i> (1) <i>Staphylococcus aureus</i> (1)	N=11/13 P=2/13
Left Uterine horn	<i>E-coli</i> (2) <i>Klebsiella</i> (3) <i>Proteus</i> (1) <i>Micrococcus</i> (1) <i>Streptococcus</i> (1) <i>Staphylococcus aureus</i> (1)	<i>Staphylococcus aureus</i> (1) <i>E-coli</i> (1)	N=9/11 P=2/11
Uterine body	<i>E-coli</i> (6) <i>Salmonella</i> (1) <i>Proteus</i> (1) <i>Micrococcus</i> (1) <i>Pseudomonus</i> (1)	<i>E-coli</i> (1) <i>Proteus</i> (1) <i>Salmonella</i> (1)	N=10/13 P=3/13
Cervix	<i>E-coli</i> (5) <i>Salmonella</i> (3) <i>Staphylococcus aureus</i> (1)	<i>E-coli</i> (2) <i>S.epidermid</i> (1) <i>Klebsiella</i> (1)	N=9/13 P=4/13

IV. Conclusions

From our results, we can concluded that gram negative bacteria particularly *E-coli* were the most predominant microflorain normal cases. Additionally, in pathological cases, *E-coli*were the most recovered bacteria in infected female genital tract.

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