

Vaginal bacteria flora concurred with vaginal sponges in black Iraqi goats

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Abstract

The aim of this study was to identify the vaginal bacteria flora in black Iraqi goats subjected to estrus synchronization. Sixteen multiparous black Iraqi goats presented in the farm of the College Veterinary Medicine, Al-Anbar University, were included in this study, during the breeding season, from May 2011 to July 2011. The ages of the animals were 2-4 years. A polyurethane sponge containing 20 mg of micronized progesterone (fluorogestone acetate progestagen) was inserted in the vagina for 14 days. Standard bacteriological procedures were performed on vaginal mucus swabs obtained before application of the sponges and at sponges withdrawal. Results of this study revealed that the most bacterial flora was Gram positive Bacilli before insertion of sponges, while most of Gram negative Bacilli were present after sponges withdrawal. Bacterial culture of vaginal swabs taken before insertion of sponges showed 8 isolates (50%) G⁻ and 8 isolates (50%) G⁺, while after withdrawal of sponges the bacterial culture showed 10 isolates G⁻ (45.4%) and 12 isolates (54.6%) G⁺. The most prevalent bacteria isolated were *S. aureus* (10 isolates) 26.3%, *E. coli* (6 isolates) 15.8%, *P. vulgaris* (6 isolates) 15.8%, *C. (4 isolates) 10.5%* and other bacteria where having 2 isolates 5.2% for each one includes, *Enterococcus fecalis*, *Enterococcus*, *Enterobacter*, *Klebsiella pneumonia*, *Pseudomonas aeruginosa* and *Salmonella*. In conclusion, using progestagen impregnated sponges in the vagina for estrus synchronization could stimulate inflammation of the vaginal mucous membrane and increase of bacterial infection.

Keywords: Vaginal flora; Vaginal sponges; Goats.

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الجراثيم المصاحبة للأسفنجيات المهبلية في الماعز العراقي الأسود

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الخلاصة

هدفت هذه الدراسة الى معرفة الجراثيم التعايشية في مهبل الماعز العراقي الأسود المطبق عليها نظام توحيد الشبق. استخدم في هذه الدراسة ستة عشر من اناث الماعز العراقي الاسود التي لها عدة ولادات متواعدة في الحقل التابع لكلية الطب البيطري/ جامعة الأنبار/ فلوجة، خلال الموسم التناسلي للفترة من مايس ٢٠١١ إلى تموز ٢٠١١. تراوحت أعمار حيوانات التجربة ٢-٤ سنوات. ادخلت الاسفنجيات المهبلية الحاوية على ٢٠ ملغم من الكرونولون (خلات الفلورجيستيرون السترويدي) في مهبل الماعز لمدة ١٤ يوم. طبقت الطرائق القياسية في فحص الجراثيم على المسحات المهبلية التي اخذت قبل إدخال الاسفنجيات وبعد سحبها. بينت نتائج الدراسة أن معظم الجراثيم قبل إدخال الاسفنجيات كانت موجبة لصبغة الكرام بينما كانت معظمها سالبة الكرام بعد السحب. كانت نسبة العزلات قبل إدخال الاسفنجيات موجبة ٨ (٥٠%) وسالبة ٨ (٥٠%) لصبغة الكرام، بينما بينت نتائج الفحص بعد سحب الاسفنجيات أن ١٠ عزلات (٤٥,٤%) كانت سالبة الكرام و ١٢ عزلة (٥٤,٦%) كانت موجبة الكرام. لوحظ أن الجراثيم التي تم عزلها تشمل *S. aureus* (١٠ عزلات) وبنسبة ٢٦,٣%، *E. coli* (٦ عزلات) وبنسبة ١٥,٨%، *P. vulgaris* (٦ عزلات) وبنسبة ١٥,٨%، NS-C (٤ عزلات) وبنسبة ١٠,٥%، وأما بقية الجراثيم التي تم عزلها فكانت عزلتين لكل نوع وبنسبة ٥,٢% وشملت *E. fecalis*، *Enterobacter*، *Klebsiella pn.* و *Salmonella*. يستنتج من نتائج هذه الدراسة أن استخدام الاسفنجيات المهبلية الحاوية على البروجستينات المستخدمة في توحيد الشبق قد يؤدي إلى تنشيط حدوث التهابات مخاطية المهبل وزيادة الإصابة بالجراثيم.

Introduction

Several protocols have been reported to be used for estrus synchronization in goats (1-5). Intravaginal sponges impregnated with progestagens being the most commonly used. These sponges are manufactured from different substances that can create changes in the vaginal environment (5). Vaginitis was the common reproductive disorder of small ruminant genital tract. It is caused by secondary bacterial invaders, mainly, *E. coli* species, and gram positive bacteria (6). The aim of this study was to identify the vaginal bacteria flora in black Iraqi goats subjected to estrus synchronization.

Materials and methods

The study was conducted on sixteen multiparous black Iraqi goats, presented in the farm of College of Veterinary Medicine, Al-Anbar University, Fallouja, during the breeding season, from May 2011 to July 2011. The age of the animals ranged 2-4 years.

A polyurethane sponge containing 20 mg of micromsed cronolone (Fluorogestone Acetate Progestagen) was inserted in the vagina of the goats for a period of 14 days. Vaginal swabs were taken using aseptic techniques before insertion of the sponges and at sponges withdrawal. The samples were transported to the diagnostic lab of College of Veterinary Medicine, Al-Anbar University, Fallouja. Within half an hour and then cultured on Blood Ager Nutrient ager, MacConkey ager and then cultured on selective media. The plates were incubated at 37°C and examined daily for bacterial growth, for a period of 3 days. Genera of bacteria were identify according to the basis of colony characteristics gram staining, microscopic morphology and biochemical test, which including, Oxidase, Catalase, O/F, Indol, MR, VP, Citrate, TSI, H₂S and Gas production. Genera were classified according to Quinn (7).

Results and discussion

All vaginal swabs showed bacterial growth. The total number of isolates was 38. The predominant bacteria isolated were gram positive (G⁺) which constitute 57.9% (22/38 isolates), while the gram negative (G⁻) bacteria showed 42.1% (16/38 isolates). Similar observations have been made by (3 and 5). It has been reported that presence of a foreign body, such as sponge in the vagina stimulated bacterial growth and local mucous secretion during sponge treatment and these changes create a localized inflammation (1,8).

Bacterial culture of the vaginal swabs before insertion showed 8 (50%) isolates G⁻ and 8 (50%) isolates G⁺, while

after withdrawal of sponges the bacterial culture showed 10 isolates G⁻ (45.4%) and 12 Isolates (54.6) G⁺.

The most prevalent bacteria isolated were *S. aureus* (10 Isolates) 26.3%. *E. coli* (6 Isolates) 15.8%, *P. vulgaris* (6 Isolates) 15.8%, Coagulase Negative Staphylococcus (C-N.S.) (4 Isolates) 10.5% and other bacteria where having 2 isolates 5.2% for each one includes, *Enterococcus fecalis*, *Entrococcus*, *Entrobacter*, *Klebsiella pneumonia*, *Pseudomonas aeruginosa* and *Salmonella*.

Similar observation has been reported by others (1-5). Progesterone suppresses specific components of the immune system and natural killer cell activity, while it has a mainly positive influence on other non specific components (9,10). It is also reported that hormonal changes status such as estrus cycle or synchronization could be effect on vaginal bacterial population especially when progesterone levels were high (1).

It could be concluded from the results of this study that using of progestagen impregnated sponges in the vagina for estrus synchronization could stimulate inflammation of the vaginal mucous membrane and increase of bacterial infection.

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