Progesterone and estrogen levels in Awassi ewes treated with vaginal sponges

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Abstract
This study was conducted on 10 healthy Iraqi Awassi ewes that examined by ultrasonography technique, with ages between 2 to 3 years, presented at the farm of the College of Veterinary Medicine, Al-Anbar University, Fallujah, during the period from the end of the February until the half of the March 2012. Vaginal sponges saturated with 40mg Flurogestone acetate were inserted in the vagina of each tested animals in order to induce estrus For synchronization for 14 days, at day 13 of the experiment the animals were injected i.m. by Equine chorionic gonadotropine eCG (500 i.u.) then the sponges were removed and the animals injected i.m. with (200 i. u.) of Human chorionic gonadotropine (HCG). Blood samples were collected from jugular vein with vacutainer tubes each two days until the experiment was complete. Serum was collected after centrifugation with a speed 3000R/m for 10 minutes. Values of estrogen and progesterone hormones in serum were estimated by Enzyme Linked Immuno Sorbent Assay (ELISA) technique. Values of the estrogen and progesterone in the treated animals were (1.1932 ± 0.02380), (0.9558 ± 0.3282) respectively, while the levels of the two hormones for the control group was (1.1138 ± 0.02295) for the estrogen and (0.8702 ± 0.0152) for the progesterone. There was a significant different between the level of estrogen and progesterone hormones P < 0.05 in a treated group as a compare with the control group. It was concluded from this study that estrus synchronization of the ewes with vaginal sponge affected the values of estrogen and progesterone hormones in the serum.

Introduction
The success of reproduction depends on some complex physiology events, which lead to production and emission of mature gametes, and some behavioral changes that ensure ova and sperm will be in contact at appropriate time (Caraty et al., 2002). Estrus synchronization is commonly used in order to induce estrus and ovulation during the anestrous period, and to synchronize the estrus and shorten the duration of lambing, thus minimizing labour cost, during the breeding season (Wildeus, 2000; Schneder and Rehbock, 2003). There are several methods used for synchronization of oestrus, these includes the application of progesterone, prostaglandin and melatonin (Beardon et al., 2004). Synchronization and superovulation includes two stages. The first stage showed the insertion of vaginal sponges in the vagina while the second stage includes injection of HCG and eCG before and after sponges withdrawal. Hormonal levels have been estimated previously during oestrus synchronization (OS). These hormones involve Estrogen, Progesterone, FSH and LH. A considerable amount of information was produced and published on estrus synchronization in sheep (Wildeus, 2000). There was a little information about hormonal levels of estrogen and progesterone during oestrus synchronization. The aim of this study was to measure the levels of progesterone and estrogen before and during treatment with vaginal sponges in Awassi ewes.

Materials and Methods
This study was conducted on 10 healthy Iraqi Awassi ewes that examined by ultrasonography technique, with ages between 2 to 3 years, presented at the farm of the College of Veterinary Medicine, Al-Anbar University, Fallujah, during the

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period from the end of the February until the half of the March 2012. Vaginal sponges saturated with 40mg Flurogestone acetate were inserted in the vagina of each tested animals in order to induce estrus For synchronization for 14 days, at day 13 of the experiment the animals were injected i.m. by Equine chorionic gonadotropine eCG (500 i.u.) then the sponges were removed and the animals injected i.m. with (200 i. u.) of Human chorionic gonadotropine (HCG).

Blood samples were collected from jugular vein with vacutainer tubes each two days until the experiment was complete. Serum was collected after centrifugation with a speed 3000R/m for 10 minutes. Values of estrogen and progesterone hormones in serum were estimated by Enzyme Linked Immuno Sorbent Assay (ELISA) technique. Statistical analysis was done by student t_test (Steele and Torrie, 1980).

**Results and Discution**

Mean serum progesterone concentrations (ng/ml) of ewes are shown in table -1 and figure 1, 2. The mean serum progesterone concentration during the periods of sponges’ insertion was (0.9558±0.0328) ng/ml as compared with control group. No significant differences were found between the mean of progesterone concentration in treated and control group. This result agreed with the findings of Abu Gazal (2012). This might be due to that luteolytic mechanism results in progesterone decrease to basal levels in less than one day (Menchaca and Gabriel, 1999), on the other hand increase progesterone levels as a result of eCG administration leads to improve fertility of the ewes (Kor et al., 2012; Wildeus, 2000). Mean serum estrogen concentration (1.1932±0.0238) was found in a higher concentration during estrus synchronization as compared with control group. These high levels of estradiol further confirmed the presence of oestrus phase in animals (Karsch et al., 1979; Kaya et al., 2005). This might be due to the effect of eCG (equine chorionic gonadotropine) which stimulate ovarian follicular growth resulted in high estrogen level (Hafez and Hafez, 2000; pineda and Dooley; 2003).It was concluded from this study that estrus synchronization of the ewes with vaginal sponge affected the values of estrogen and progesterone hormones in Awassi ewes’ serum.

<table>
<thead>
<tr>
<th>Gropes</th>
<th>Progesterone</th>
<th>Estrogen</th>
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<tbody>
<tr>
<td>Treated</td>
<td>0.9558 ± 0.328</td>
<td>1.1932 ± 0.238 *</td>
</tr>
<tr>
<td>Control</td>
<td>0.08702 ± 0.0105</td>
<td>1.1138 ± 0.0229</td>
</tr>
</tbody>
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Showed hormones level
* There was a significant difference between different in (P < 0.05)
Showed the level of progesterone during different period (days).

Showing the level of estrogen during different period (days).

References
تقدير مستوى هرموني البروجسترون والاستروجين في النعاج العواسي
المعاملة بالأسفنجات المهبلية
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الخلاصة
أجريت الدراسة على (10) حيوانات من النعاج العواسي غير الحوامل والمشخصة بواسطة جهاز الموجات فوق الصوتية Ultrasonography، بعمر تراوح بين 2-3 سنوات والمرباة في الحقل التابعة لكلية الطب البيطري / جامعة الانبار للقرية من نهاية شعبان ولغاية منتصف آذار 2012. تم توزيع الاصطناعات المهبلية والتي تستلزم توحيد الشبق في النعاج المشبعة بمادة خلات الفلوروجستون (FGA) Flurogestone acetate تركيز 40 ملغم (FGA) Flurogestone acetate وجرعة 500 وحدة دولية بالعضل قبل يوم سحب الأسفنجة المهبلية، ثم حقن النعاج بهرمون محرض القند المشيمي البشري HCG 211 وحدة دولية بالعضل. تم سحب الدم من الوريد الوداجي بواسطة أنابيب مفرغة من الهواء وخالية من مانع التخثر بين يوم وآخر لمدة 00 يوم. تم قياس مستويات هرموني الاستروجين والبروجسترون بواسطة ELIZA technique. حيث كان مستوى هرموني الاستروجين والبروجسترون في الدم التحليلي HCG واجه مجموعه السيطرة بنتائج ذات صلة ومقترنة بالمستوى الهورموني في الدم. وسجل النتائج لمراحل الفحص، وذلك بعد اتخاذ كافة الإجراءات الت/(?م تنقية حتى تتماشى الهدف من الدراسة. وقد استنتج من الدراسة أن توحيد الشبق في النعاج بواسطة طريقة الأسفنجة المهبلية لها تأثير معنوي على مستوى هرموني الاستروجين والبروجسترون في الدم النعاج.