MORPHO-ANATOMICAL CHANGES OF AWASSI EWES 
GENITALIA AT DIFFERENT PHASE OF ESTRUS 2 - THE 
UTERINE

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ABSTRACT

A total of 99 healthy genitalia of Awassi ewes were collected from AL-Shula and local abattoirs, Baghdad province, for biometrical measurement of uterus, viz. weight and length of uterus, no. of caruncles in uterus body and horns, the greater and lesser curvature length of both left and right horns and the diameters of both horns. The results revealed that the mean weight and length of uterus respectively 34.365 g and 1.354 cm were significantly differ due to different phases of estrus cycle. The mean total of caruncles in uterus body and horns were 3.566 and 90.999 which were insignificantly differ due different phases of estrus respectively. The greater lengths of the right and left horn were 17.270 & 17.769 cm while the lesser lengths were 11.274 & 12.542 cm respectively which were insignificantly differ due to different phases of estrus. However, the mean different of the right & left horns were 1.62 & 1.339 cm respectively which were significantly differ due to different phases of estrus; met estrus showed the highest values.

INTRODUCTION

Seasonal variation in sexual activity is known to occur in most species of animals. Domestic breeds of ewes varied from being seasonal polyestrous to polyestrous animals (1). In tropical and sub-tropical countries such as Iraq, ewes breed through the year (2). How-ever reproduction is a complicated process as which depend largely on the co-ordination between the female genital tract and rhythmic activity of the hypothalamus-pituitary ovarian axis when co-operate properly, the uterus is considered to be the most important target organ (3). Iraqi sheep are fertile and mainly reached for reproductive performance and milk production. Precise information regarding the activity of the ovaries during estrus cycle phases are an important to understand the pattern of the reproduction capacity of this breed (4). Biometrics data of normal uterus is essential to compare those having reproductive disorder. However, few studies were carried on the biometrics data of Iraqi ewes breeds genitalia (4, 5). No attention has been worked out yet to study the functional uterine activity of different Iraqi breeds during different phases of estrus cycle. Therefore, this investigation was designed to elucidate the biometrics values of uterus during different phases of estrus cycle of Awassi ewes.

MATERIAL AND METHODS

Genitalia of 99 healthy ewes were collected from AL-Shula and local abattoirs at Baghdad province. Ewes age was determined by denotation and their age ranged between 3-6 years. They include: 28 at pro-estrus; 12 at estrus; 13 at metestrus and 46 at diestrus phases. The animals were checked prior slaughter and the healthy genitalia were only taken immediately after 5-10 minutes of slaughtering and kept in glass containers contained saline 0.9% (Na Cl) and left in a cool box containing ice at 4 °C.
RESULTS

The overall mean weight of uterus was 34.365g. The weight of uterus was significantly differ among different phases of estrus cycle (Table 1). The highest weight was recorded at proestrus (42.187 g) followed at estrus (39.369 g), while the lowest weight were recorded at proestrus and diestrus phases. However the overall mean length of uterus was 1.354 cm which were significantly differ with different phases of estrus cycle. The shortest length (1.008 cm) was recorded at estrus phase, while the longest length was recorded at diestrus. The overall mean numbers of caruncles in the uterine body and uterine horns were 3.566 caruncles and 90.909 respectively, but no significant differences among different phases were recorded, in spite of the estrus phase showed slightly higher values than other phases. The greater curvature lengths of both right and left horns were 17.270 and 17.769 cm, respectively. The length of the left horn exceeded the right horn 0.499 cm, but no significant differences among different phases was shown. In the mean, while, the lesser curvature length of both right & left horns were 11.974 and 12.542 cm respectively, same trend was shown that the left horn exceeded the right horn by 0.568 cm. also no significant differences in those lengths among different phases of estrus cycle were detected. The outer diameter of the mean diameter of the right and left horns were 1.362 and 1.339 cm respectively, which were significantly (P< 0.01) affected by different phases of estrus cycle. Metoestrus showed the highest values followed estrus phases.
Table (1) The mean values of biometrical measurement of uteri due to different phases of estrus of Awassi ewes S.E.

<table>
<thead>
<tr>
<th>Character</th>
<th>Overall mean</th>
<th>Proestrus</th>
<th>Estrus</th>
<th>Metestrus</th>
<th>Diestrus</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of observe</td>
<td>98</td>
<td>28</td>
<td>12</td>
<td>13</td>
<td>46</td>
</tr>
<tr>
<td>Weight of uterus (g)</td>
<td>34.364 ± 2.766</td>
<td>32.454 ± 1.878</td>
<td>39.369 ± 2.897</td>
<td>42.187± 3.700</td>
<td>32.012± 2.20</td>
</tr>
<tr>
<td>Length of uterus (cm)</td>
<td>1.354± 0.031</td>
<td>1.361 ± 0.096</td>
<td>1.008± 0.0374</td>
<td>1.292± 0.134 1.86b</td>
<td>3.587 ± 0.098 Aa</td>
</tr>
<tr>
<td>No. of caruncles in uterus body</td>
<td>3.56± 0.470</td>
<td>3.39± 0.358</td>
<td>4.03± 0.543</td>
<td>3.00± 0.424</td>
<td>3.6± 0.215</td>
</tr>
<tr>
<td>No. of caruncles in uterus horns</td>
<td>90.939 ± 4.725</td>
<td>90.607 ± 3.465</td>
<td>95.000 ± 5.916</td>
<td>91.54± 3.341</td>
<td>90.028± 1.285</td>
</tr>
<tr>
<td>The greater curvature length of right uterus horn (cm)</td>
<td>17.270± 0.677</td>
<td>16.88± 0.515</td>
<td>17.358± 0.636</td>
<td>17.354± 0.659</td>
<td>17.454± 0.324</td>
</tr>
<tr>
<td>The lesser curvature length of right uterus horn (cm)</td>
<td>11.974± 0.635</td>
<td>11.836 ± 0.041</td>
<td>12.208± 0.691</td>
<td>12.108± 0.077</td>
<td>11.959± 0.324</td>
</tr>
<tr>
<td>The diameter of right horn (cm)</td>
<td>1.362± 0.065</td>
<td>1.339± 0.038</td>
<td>1.433± 0.057</td>
<td>1.638± 0.109 Aa</td>
<td>1.278± 0.028 Bb</td>
</tr>
<tr>
<td>The greater curvature length of left uterus horn (cm)</td>
<td>17.769± 0.698</td>
<td>17.732± 0.495</td>
<td>17.800± 0.689</td>
<td>17.377± 0.786</td>
<td>17.89± 0.033</td>
</tr>
<tr>
<td>The lesser curvature length of left uterus horn (cm)</td>
<td>12.542± 0.626</td>
<td>12.571± 0.338</td>
<td>12.542± 0.773</td>
<td>12.069± 0.638</td>
<td>12.659± 0.335</td>
</tr>
<tr>
<td>The diameter of left Horn (cm)</td>
<td>1.339± 0.060</td>
<td>1.28± 0.036</td>
<td>1.433± 0.053</td>
<td>1.539± 0.081 1.29 ± 0.030 B</td>
<td></td>
</tr>
</tbody>
</table>

Different small letters showed significant difference at %.
Different capital letter showed significant difference at %.

**DISCUSSION**

The weight of uterus increased significantly and progressively from proestrus phase up to metestrus. This could be attributed to an increase of estrogen induced protein synthesis (10). The length of the uterus (1.354 cm) was nearly similar to those found (1.38 and 1.50 cm). By (11) and (12) respectively, but was lower than that showed (2.62 cm), by (13). Using Libyan ewes. The significant differences in the length of uterus due to different phase of estrus cycle was in agreement to those found by (13), and (11). However number of caruncles in the uterus body and both horns were insignificantly due to different phases of estrus cycle, but they were slightly higher at estrus phase, this could be attributed to an increase of estrogen induced protein synthesis (10).
greater curvature length of the right uterus horn was lower than the left uterus horn. Some trend was conducted by (12) who found that the length of the right horn, was 12.60 cm and the left horn was 13.56 cm, but (7) showed no differences between the two horns. However, the lesser curvature lengths of both right and left horn showed similar trend, as greater curvature lengths, but (7) and (5) found contrary result. No significant differences in the length of the greater and lesser curvature of both horns during different phases of estrus were obtained which were in agreement with those obtained by (7) and (12). The mean diameter of the right horn was slightly higher (0.023,0) than the left one, this trend was similarity those found by (14), but he found higher values than this study. Mean while, the diameters of both horns at estrus as metestrus phase were highly significant. Compared with those at diestrus of proestrous phase as a result of ovulation, but (7) found no significant difference in the diameters among different phases of estrus cycle. This work concluded that the uterus activity increased in estrus phase. Similar to that of ovary and other organs of female reproductive system.

Fig 1: Showing the structures of genitalia of awassi ewes.
دراسة التغيرات التشريحيّة للجهاز التناسلي للنعام العوسي بحِلَل أطوار الرحم

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الخاصة

جثمت 29 جهاز تناسلي للنعام العوسي بصحة جيدة من مزرعة النعامة في الجزء الكهفِي التربيي، واحد لكل المئات، مربى في نعامة نموذجية، بعد نفخ الرحم في النعامة. انطلاقاً من أن معدل الأوزان والطول للأطوار الديناميكية، وفق (cm) متوسطة ترايناً (34.65) و(35.4) و(36.22) و(37.7) cm، وقود وفري طفيف الرحم. يشير النتائج إلى أن معدل الأوزان والطول للأطوار الديناميكية، وفق (cm) متوسطة ترايناً (177.69) و(188.7) و(199.82) و(211.94) cm.

أما لطول الأحشاء الإكليل على الأيدي، والأطر (cm) و(212.0) و(223.1) و(234.2) و(245.3) cm، فوفقاً لـ (12.542) و(13.798) و(15.054) و(16.312) cm. 

هناك اختلاف غير ملحوظ في الأطوار الديناميكية. حيث لوحظ معدل الاختلاف في طول الأحشاء الإكليل على الأيدي، بما بعد النعامة، تظهر في على.

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