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Comparative Gross Morphological Evaluation of Female Rabbit *(Oryctolagus cuniculus)* Ovaries at Different Postnatal Ages: Kitten, Adult, Senior

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Abstract: Aims of current study to evaluated morphological appearance of rabbit ovary at three ages postnatal, kitten (one month), adult (seven month), senior (one year). And to record the morphometrical measurement of three ages. In this study used fifteen female rabbit (5 rabbit for each age). The animals were anesthetized, after which a longitudinal incision was made in the abdominal wall to record the anatomical characteristics. The ovaries of female rabbits exhibited marked age-related morphological variations during postnatal development. The ovaries increased progressively in size and weight from the kitten stage to the senior stage, with the greatest measurements recorded in senior rabbits. In all age groups, the right ovary was positioned slightly cranial to the left ovary. The ovarian color and external appearance also changed with age, being semitransparent in kittens, yellow in adults, and pale yellow in senior rabbits. Furthermore, the presence of follicles and corpus luteum became more prominent with advancing age, reflecting the progressive maturation and functional activity of the ovaries.

Keywords: Development, Growth, Ovary, Postnatal, Rabbit.

Research Paper

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INTRODUCTION

The female reproductive system composed of tube structures (cervix, oviducts, uterus, and vagina) required for gamete transport and consists of two glands (gonads, ovaries) where gamete production occurs. Although the female reproductive system responds to many of the exact hormones that secrete from male, it experiences significant alterations during pregnancy and the estrous cycle (James *et al*, 2007). Like other mammals' anatomy systems, rabbits have two organs from each: ovaries and oviducts, a uterus, a cervix, a vagina, and external genitalia in their female reproductive tract. Males are categorized as bucks, females as does, and newborns as kits (Hafez and Hafez, 2000).

The production of eggs (ova), the production of female sex hormones, and the maintenance of a pregnancy are the primary roles of the female reproductive system. It facilitates reproduction by enabling sexual activity, transporting eggs, providing a site for fertilization and fetal development, and enabling childbirth. If fertilization doesn't occur, the system sheds the uterine lining through menstruation (Harcourt-Brown, 2002). Puberty starts around two months of age, but animal size rather than its age usually determines reproductive activity. Compared to larger breeds, dwarf breeds reach sexual maturity earlier. Ovulation is induced manner in rabbits. A rabbit's reproductive life lasts about four years. They have special reproductive activity by being receptive for 14–16 days, after which they are no receptive for 1–2 days (Harcourt-Brown, 2002).

Requirement and Procedures

The present research study was approved by the University of Al-Qasim Green/Veterinary Medicine College and carried out between (December 2025 / March 2026). Fifteen female local rabbits (Oryctolagus cuniculus) of three distinct ages were chosen. The animals that seem to be in good health. The obtained rabbits were one month kittens (five animal), seven month adult (five animals), aged mature rabbits senior (five animals). A sensitive weighing balance was used to weigh each experimental rabbit before an intramuscular injection of sodium pentobarbitone (140 mg/kg bw) was used to end their lives. To reveal the structures in the peritoneal cavity, a midline abdominal incision was made cranio-caudally from the xiphoid cartilage to the pubic symphysis. The ovaries were dissected after being exposed and photographed. Vernier calipers and a

weighing scale with a sensitivity of 0.0001 g were used to measure the weight and length, respectively. From pignion to terminal, the ovarian length was measured. The acquired data is shown as mean ± standard error (Mean ± SE). Significant values were defined as probability value under 0.05.

RESULTS AND DISCUSSION

Figure 1 : photo-macrograph ventral view of ovary of rabbit at (1months) show: the left and right ovary (O), oviducts (D), uterine horn (U).

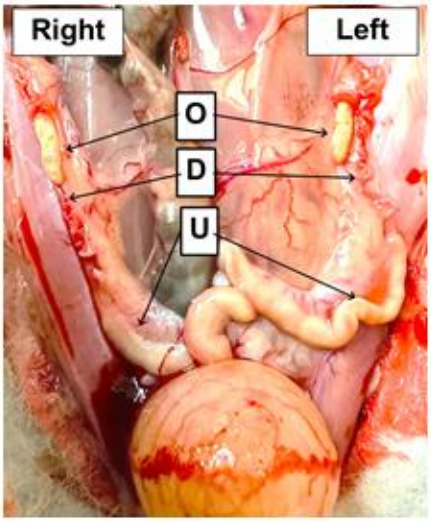

Figure 2 : photo-macrograph ventral view of ovary of rabbit at (7 months) show: the left and right ovary (O), oviducts (D), uterine horn (U).

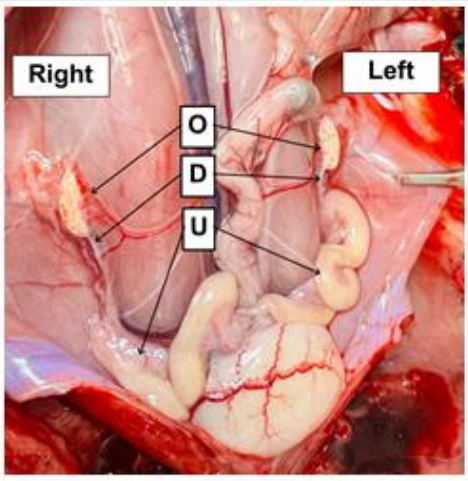

Figure 3: photo-macrograph ventral view of ovary of rabbit at (1 years) show: the left and right ovary (O), oviducts (D), uterine horn (U).

Figure 4: dorsal view of the left ovary of rabbit at the age of (1months)

Figure 5 : dorsal view of the left ovary of rabbit at the age of (7 months) , shows the follicle

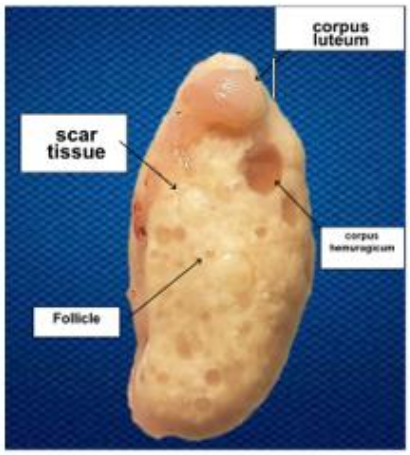

Figure 6 : dorsal view of the left ovary of rabbit at the age of (1 years) , shows the corpus luteum , scar tissue , corpus hemuragcum , follicle

The reproductive system of rabbit was consist of (ovary, oviduct, uterine horn) and the uterus. The weight of female kitten was (0.048g) and the adult was (0.0012 g) in weight, lastly the senior was weight about (0.16 g). The ovary of the kitten was located at the abdominal cavity caudally to the kidney at it was appear smallest in size that connected with the mesovarium, have two surface and two borders with two pole (dorsal and ventral), the pole was attached with the oviduct .While the ovary of adult have the same appearance, two surface and two borders with two pole, it was appear large in size, that located in the abdominal cavity ventrally to the kidney. The senior rabbit ovary have the same appearance and location of the adult rabbit ovary (Fig. 1,2,3). This agrees with (Capello, 2005; AL-Delemi *et al*., 2010; Hargaden *et al*., 2012)

The right ovary of rabbit at three age (kitten, adult, senior) was not located at the same level of the left ovary, it was located superior to the left ovary. The ovary of rabbit was appear in different color at three age (kitten, adult, senior) at kitten was appear semitransparent , with present of the primary smallest follicle , at the adult the ovary was appear yellow in color with the present of the corpus lutium and follicles, in the senior the ovary appear as pale yellow in color with the present of corpus lutium and follicles these findings come 95 in consistency with those of Ozdemir *et al*., (2005) in porcupine and AL Murshidi, (2015) in golden hamster and Al-Saffar and Almayahi, (2018a) in rabbit. (Fig. 4,5,6).

The morphological results revealed that the ovarian length in female rabbits was highest in the senior age group, followed by the adult mature group, whereas the shortest ovarian length was recorded in the kitten group. Similarly, ovarian weight was significantly greater in the senior group and lowest in the kitten group, with a highly significant difference observed between them. In addition, both ovarian width and thickness showed the highest values in the senior age group (table. 1). These findings were in agreement with another study in local rabbits (ALSaffar and Almayahi, 2018).

Table 1: The final measurements of the ovaries of experimental animals

Group	Length	Weight	Width	Thickness
Kitten	9.02±0.04	0.0012±0.03	2.12±0.41	1.68±0.20
Adult	12.11±0.12	0.0498±0.1	5.22±0.36	2.11±0.04
Senior	13.02±1.04	0.1642±0.32	5.14±0.24	5.52±1.06

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Ethical Approval: The current research has followed the ethical conduct principles of Veterinary Medicine College accepted principles of ethical conduct by University of Al-Qasim Green, qglc/qgec/84/2026.

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Credit Author Statement

Maryam Hayder Ali: Conceptualization, Methodology, Validation, Writing – Original Draft, Writing – Review and Editing.

Siraj Moner Al-kafagy: Conceptualization, Methodology, Review and Editing, Supervisor.

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