THESIS ABSTRACT
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ABSTRACT

The present studies were conducted on Nagpuri buffaloes to determine the qualitative and quantitative investigations on ovaries during various reproductive stages along with changes in the uterine structures.
The ovaries and uterine tissues were fixed, embedded, sectioned, stained and examined histologically. The average weights and dimensions (Length x Breadth x Thickness) in cycling and non-cycling buffaloes were $2.71 \pm 0.13$ gm, $2.21 \pm 0.06$ cms x $1.39 \pm 0.03$ cms x $1.48 \pm 0.04$ cms and $3.36 \pm 0.19$ gm, $2.45 \pm 0.07$ cms x $1.52 \pm 0.05$ cms x $1.68 \pm 0.05$ cms respectively.

The ovarian surface follicular count can be used as an indicator of actual population of total follicles present in ovaries. In the present studies the average number of small, medium and large size surface follicles recorded was $3.33 \pm 0.30$, $1.77 \pm 0.25$ and $1.22 \pm 0.22$ follicles respectively in cycling buffaloes while in non-cycling buffaloes the average number of follicles were $3.43 \pm 0.28$, $1.54 \pm 0.18$ and $0.8 \pm 0.11$ follicles respectively. The average number of dissected follicles against surface follicles recorded was $3.68 \pm 0.29$, $2.60 \pm 0.27$ and $2.00 \pm 0.24$ follicles respectively in cycling buffaloes and $4.06 \pm 0.31$, $2.50 \pm 0.25$ and $1.12 \pm 0.13$ follicles, respectively in non-cycling buffaloes.

Microscopic architecture of the Nagpuri buffalo ovary showed germinal / surface epithelium, basement membrane, tunica albuginea, outer cortex and inner medulla. The cortex constitutes the major part of the ovary with various stages of development and regression of follicles, corpora lutea, blood vessels, nerves and lymphatic. Primordial follicles were distributed in the peripheral part of the cortex close to the tunica albuginea. In general primordial follicles contained one oocyte but occasionally two or more oocytes were observed. The average number of primordial follicles was significantly more
(5000.47 ± 266.25) during high breeding season than (3303.52 ± 178.56) during low breeding season. While in cycling and non cycling buffaloes it was 3943.89 ± 213.29 and 4360.14 ± 292.31 follicles respectively.

The average number of Graafian follicles in cycling buffaloes was 7.52 ± 0.61 and in non cycling buffaloes it was 6.85 ± 0.65 follicles.

Depending upon the gradual degenerative changes in oocyte and follicular granulose cells atresia was classified into three degrees. In cycling Nagpuri buffaloes the average number of atretic follicles recorded was 8.79 ± 0.69 as compared to 9.64 ± 0.98 atretic follicles in noncycling buffaloes. The average number of atretic follicles was significantly higher 12.35 ± 0.92 during low breeding season than 6.08 ± 0.42 during high breeding season (P < 0.01).

Following ovulation the wall of the follicles collapsed into folded structure. The corpus luteum presented two types of cells, the granulose lutein cells and theca lutein cells. In aged corpus luteum distinct thickening of arteria was seen.

The endometrium during follicular phase of the ovary was lined by simple columnar type with few patches of pseudostratific cells. During luteal phase the surface epithelium was pseudostratified but of high columnar cells. The endometrial glands during follicular phase were numerous but were simple and coiled further down. While in luteal phase the glands were simple and
coiled further down. In luteal phase the glands were numerous, highly tortuous with a wide lumen, many of which opened at the endometrial surface.

Seasons had significant effect on most of the aspect of ovary.