

Some histological observations on the interstitial glands in she _camel ovary

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Abstract:

Histologically , the interstitial glands in she – camel ovary at one year aged was well- developed and scattered as cords among collage -nous fibers of the stroma in the ovary cortex . The interstitial glands appeared as arborised compound branched tubular glands , which composed of the interstitial polyhedral or round cells with round or oval nuclei . The cytoplasm was clear due to presence of numerous lipid droplets .

The present study was revealed that the interstitial glands were distributed in the stroma of she – camel ovarian cortex .These glands were adjacent to the blood vessels and atretic follicles. When the animal was advanced in age (3years old) ,the glands will change to simple tubular and decreased in number. Our results about the histological description , was noticed for the first time in the immature she – camel ovaries .

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بعض الملاحظات النسجية على الغدد البينية (الخلالية) في مبيض الناقة

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قسم التحليلات المرضية المعهد التقني- كوفة

الخلاصة:

نسجيا ؛ كانت الغدد البينية في مبيض الناقة عند عمر سنة واضحة التطور ؛ وتتوزع على هيئة حبال بين الألياف الغراوية لمتن قشرة المبيض . ظهرت الغدد البينية كغدد أنبوبية متفرعة مركبة منشجرة ؛ تتركب من خلايا بينية ؛ متعددة الأضلاع مدورة الشكل ولها انويه بيضيه أو مدورة . ساينو بلازم الخلايا كان رائقا بسبب وجود أعداد كبيرة من القطيرات الدهنية . أظهرت الدراسة الحالية أن الغدد البينية تتوزع في قشرة مبيض الناقة ؛ وكانت هذه الغدد قريبة من الأوعية الدموية ومن الجريبات الراجعة . تقل أعداد الغدد البينية وتصبح غدد أنبوبية بسيطة عندما يتقدم الحيوان بالعمر (عند عمر ثلاث سنوات) . نتائجا حول الوصف النسيجي كانت للمرة الأولى في مبايض النوق غير البالغة.

Introduction:

The interstitial cells of the ovary of rabbit were first described in 1863 ,but in 1865 he described them in

detail in the ovary of the cat (1) . On the histogenesis of the ovarian interstitial gland in rabbits ,(2)

showed that " primary interstitial gland cells" have abundant smooth endoplasmic reticulum were developed prior to development of follicular Atresia, accumulation of lipid droplets occurred in the epithelial cells of medullary cords and granulosa cell nests .

Comparative study of the ovarian interstitial gland in non-hibernating and hibernating mammals, was conducted to determine the influence of hibernation and estrous cycle on the structures and function of the ovarian interstitial glands in guinea pigs, rabbit, mices , ground squirrels, bats and women ,(3) .

Studies of the fine structure of ovarian interstitial tissue in the fowl was described for the first time by (4) . Several types of glandular tissue in the mammalian ovaries and the adjacent mesovaria , which are generally described as interstitial gland cells. Most of the cytochemical studies has been carried out on the interstitial cells of thecal or connective tissue origin in the ovaries of variety of mammalian species(5,6) .The cyclic changes of interstitial glandular tissue of the human ovary was studied by (7) .

The previous studies was conducted on the interstitial gland of ovary of ewes from birth to sexual maturity (8) .The postnatal development of interstitial glands in rabbit ovaries was observed by(9) .

Materials and methods :

Twenty –four left and right ovaries of immature one – humped camel *Camelus dromedaries* were collected from the AL- Najaf

slaughter house , the ages of she-camels were ranged from 1-4 years old . The age of animals was estimated through examination of the teeth . The animals were given adequate clinical observations by veterinarian experience . The ovaries were removed from carcasses without ligaments and adipose tissues, (10,11).

Results and discussion :

The interstitial glands of she-camel ovaries are located in the stroma of the ovary cortex among stromal cells, the interstitial glands were arborised compound –tubular glands or sporadic simple tubular glands which are composed of large poly-hedral interstitia cells, the nucleus was large , vesicular and distinctly poly chromatic , the cytoplasm was crowded with droplets of lipid substance (figures 1,2,3) . These present study was identical to previous studies (12, 13), were mentioned , in some mammals , especially rodents and bitches. (14). described clusters of epithelioid cells were scattered in the stroma of the cortex , these interstitial cells contain small lipid droplets and bear a marked resemblance to luteal cells , it is thought that these interstitial cells arise from the theca interna of follicles that are undergo atresia . In human ,the interstitial cells are most abundant during the first year of the life.

This observations were different with previous study by (7) which identify three distinct types of gland cells occur in adult human ovaries

and those of other mammals , these are:-

interstitial gland cells formed from theca interna cells of degenerating (atretic) follicles , hence present from infancy to old age. luteal gland cells formed from the theca interna cells of ripening follicles , hence present only in individuals that are sexually mature or nearly so, near/or at the time of ovulation . luteal cells formed from the granulosa cells of ovulated follicles and from the undifferentiated stromal cells surrounding them.

While (6) showed two types of interstitial cells in the ovaries of non-pregnant and pregnant grey bats *Myotis grisescens* .The first type of cells were developed and occupied in the stroma of the ovary except the periphery, which the second type of interstitial cells in the bat ovary were in the form of cords of small epithelial cells , irregularly distributed among the first type , these observations varied with our histological results .

Figure (1) revealed , the interstitial glands, which are simple tubular glands occupied the stroma of the she-camel ovary cortex at 3 years old. The glands are distributed as group or sporadic among abundant collagenous fibers with stromal cells and fibroblasts which are spindle-shaped , the cytoplasm has cytoplasmic processes extended from the cell bodies . The interstitial glands are composed of large polygonal cells , with large oval nuclei and vesicular cytoplasm ,which loaded with fat droplets , the interstitial cells resting on the distinct basement membrane.

Our findings are in agreement with recent studies on some, rodents(bats , ground squirrels) and women , by using histological methods and transmission electron microscopy in the ovarian stroma of the studied mammals and women ,they found nests or cords of polyhedral epithelium like cells called interstitial glands (3) .

In figures :(2,3) the cords of interstitial cells aggregated among abundant collagenous fibers, the our findings were similar to previous studies carried out by(8) , they mentioned an abundant epithelial cell cords in the ovaries of new born lambs (3)

Figure 4: show the interstitial glands distributed in stroma of the ovarian cortex , adjacent to the blood vessels and atretic follicles .Our findings was supported by previous study (9) , he believed that the interstitial gland cells were formed by the hypertrophy of the theca interna cells of atretic follicles, due to the locations of the glands near to the atretic follicles , and these glands have the shape of islets of lipid-loaded cells, adjacent to theca interna or in the inter follicular area . They seem as well-defined structure arranged as endocrine glands .Our observations was ensured the previous studies on the human , rabbits and bats (12,9,3) . they mentioned , in human interstitial cells are most abundant during the first year of life , the period during which atretic follicles are most numerous , in adult they are present in widely scattered small groups , their role in ovarian physiology is

unknown , in human they elaborate estrogen , where as in the rabbits , the interstitial cells are well developed and produce progesterone .(9) suggested that both primary and secondary interstitial glands of rabbits have ability to metabolize progesterone . while (3), based on this comparative study ,said that the interstitial gland could be regarded as endocrine

steroid-producing structure of the ovary , manifesting species specificity in different mammals and women . Our results revealed that the interstitial glands in the she-camel ovaries were noticed at early age (one year) was well-developed

and well-defined and when animal advanced in the age , the interstitial glands was decreased in the number and converted from arborised compound –tubular branched glands at 1 – 1.5 year, to simple tubular gland at age of three year. These findings were identical with the results of some works (12). Some authors believed this structure (interstitial and hilar cells) was originated from vestigial remnants of embryonic wolffian duct , the wolffian duct remnants in the medulla and hilum of ovary, persist as irregular tubules lined by flat or cubical epithelium (rete ovarii) (15).

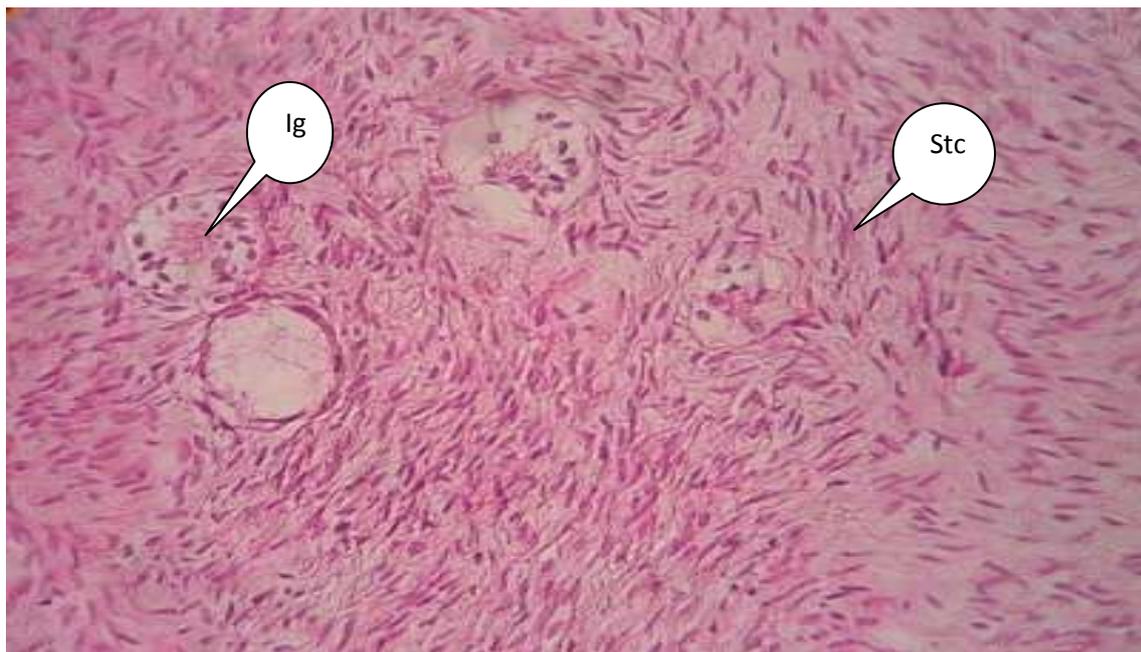


Figure 1 : showed interstitial glands (Ig) , simple tubular glands lined by Large polyhedral cells with oval nuclei , and the cytoplasm is clear , heavy load with fat droplets. The interstitial glands Scattered among abundant collagenous fibers contains stromal cells (Stc) In the ovary cortex of she- camel at 3 year old.Hematoxylin And Eosin . 450x .

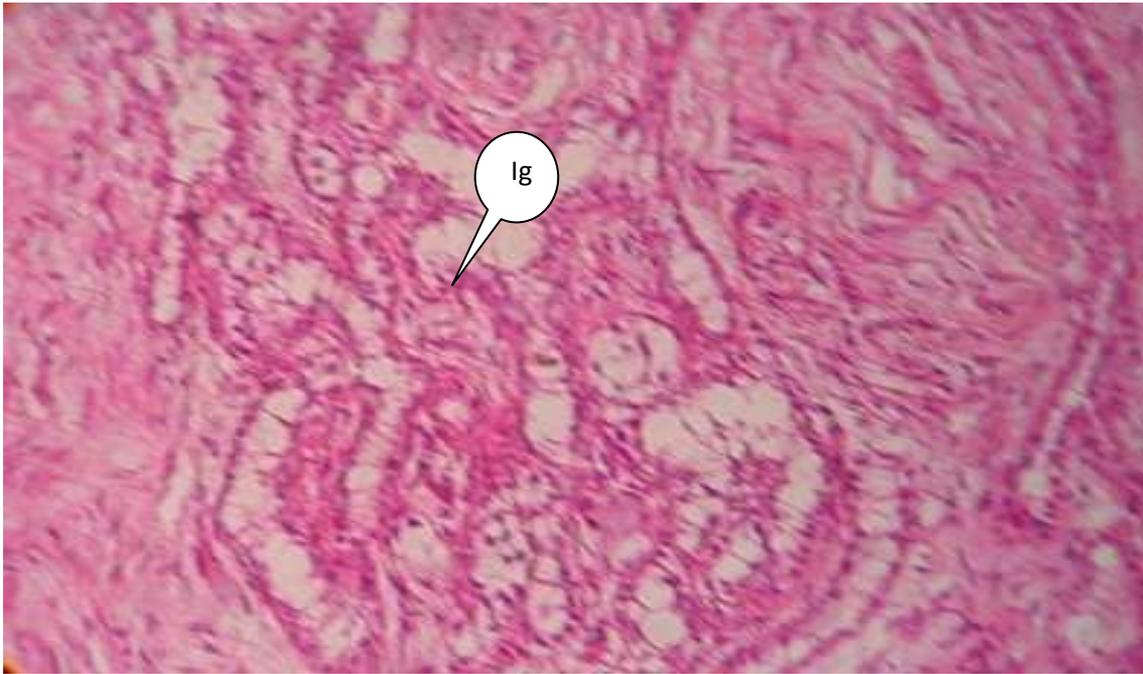


Figure 2 : the interstitial glands (Ig) appeared as cords , arborised Tubule-compound branched glands lined by epithelioid Large polygonal cells bears fat droplets , these glands occupied the stroma in ovary cortex of she –camel at age 1 year . Hematoxylin and Eosin . 450x .

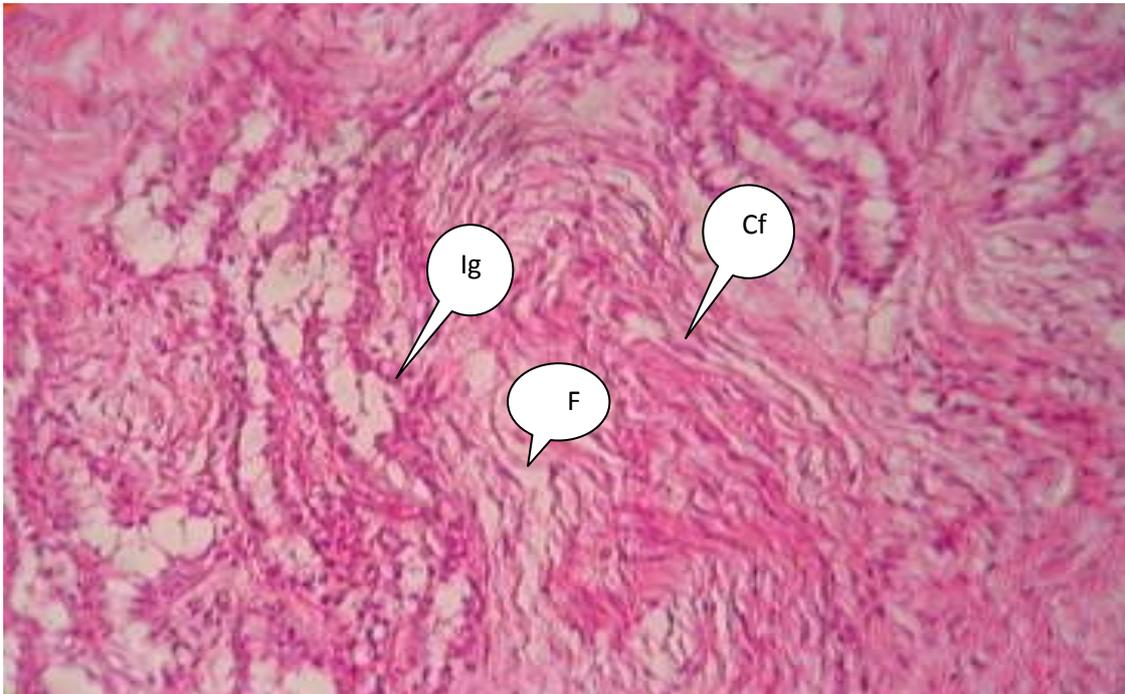


Figure 3 : showed large abundant collagenous fibers (Cf) contain Large number of fibroblasts (F) . the interstitial glands (Ig) extended among the bundles of collagenous fibers in the ovary of she-camel at age 1.5 year old. Hematoxylin and Eosin .450x .

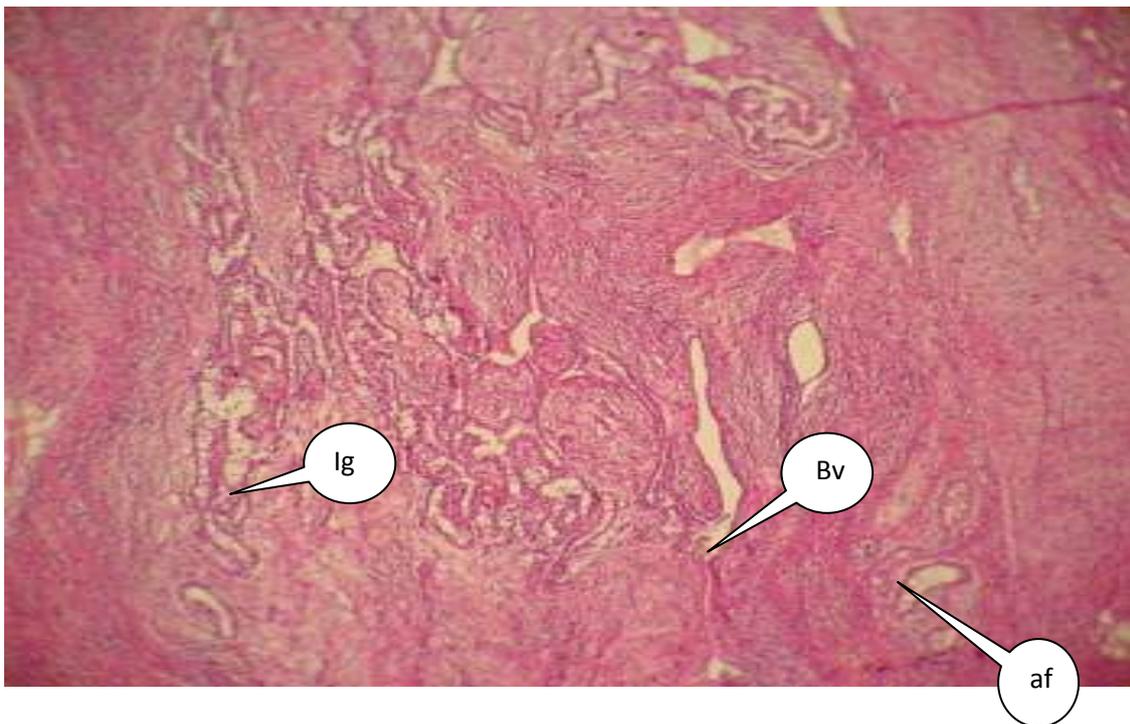


Figure 4: the interstitial glands (Ig) observed adjacent to the blood Vessels (bv) and atretic follicles (af) in the cortex of she-camel ovary . Hematoxylin and Eosin 250x .

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