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Anatomo-histological structure of inner sexual organs of goats of Zaanenskaya breed

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The purpose. To investigate anatomical constitution and histological structure of inner sexual organs of goats of Zaanenskaya breed. **Methods.** Probes of constitution of sexual organs of goats in the age of 7 years was carried out by their dissections after slaughter, measurement of linear dimensions, weighting, sample drawing, preparation of specimens for histological probes, their scanning and documentating. **Results.** It is fixed that sizes of sexual organs of the examined goats on the average were the following: direct length of left ovary — 2,0 cm, direct length of right ovary — 2,4 cm, average mass of the left ovary — 0,6 g, average mass of the right ovary — 1,1 g. Oviducts had the length: left — 14,2 cm, right — 14,4 cm. Length of horns of uterus, measured on the big curvature, has made: left — 13,7 cm, right — 12,2 cm. Diameter of horns in the middle of their length made for left and right — 2,3 and 2,8 cm accordingly. Body of uterus had the length of 1,8 cm, uteral cervix had the length of 5,9 cm at diameter of 1,8 cm. Its mucosa organized on the average 4,7 cross folds which had a little bit spiral structure. Their tops were directed caudally. The length of vestibule of vagina was in average 4,7 cm. **Conclusions.** The gained results specify that sexual organs of adult Zaanenskaya goats have constitution and sizes inherent in small-sized cattle. Anatomical features of the port of uteral cervix need to be considered at artificial fertilization of goats which in the future becomes the basic method of reproduction of these animals.

Key words: *goats, zaanenskaya breed, sexual organs, constitution, anatomy, a histology.*

Introduction. Goat breeding is one of the traditional livestock sectors in Ukraine. Goats provide valuable food products, in particular milk, meat, wool, skin, fluff. In our country, mainly the goat breeding of the dairy direction of productivity is predominantly developed. Basically bred Zaanen, Nubian, Alpine and Toggenburg breed goats and ordinary local. Historically, this branch of animal husbandry developed mainly in small private farms. Today, there is an active development of goat breeding on a much larger scale than before. The development of this industry requires the development of knowledge about the recreation of these animals, since planning of breeding is impossible without knowledge of the anatomy and histology of the reproductive system of goats. In the literature there are data on the features of the structure of the genital organs, the manifestation of their function in different species of ruminant animals. On the knowledge of the anatomical and physiological characteristics of females, many biotechnologies for the reproduction of farm animals are based. If these questions are sufficiently covered for cows and heifers [1, 2, 3, 4, 5, 8], the sheep are somewhat smaller [11, 12, 14, 15, 7], then only single publications [6, 10, 14, 16]. This happened because until recently, the reproduction of goats did not interest the specialists in reproduction, they were little studied and the prevailing opinion was that the reproduction processes in sheep and in goats occur in the same way. An example of this is the manual on artificial insemination of sheep and goats [9]. However, observations of goat breeding workers showed that goats differ significantly in some signs of hunting [7], there are very few original studies in this direction. Therefore, considering the need to further introduce the method of artificial insemination into practice of goat breeding, studies of the lining of the internal genitalia of goats are timely and necessary.

The purpose of the research to investigate the anatomical structure and histological structure of the internal genital organs of goats of the Zanon breed.

Research methods. The study of anatomical features of the structure of the internal genital organs of goats was carried out on animals of the Zanon breed imported into the village. Galayki Taraschansky district of the Kiev region from Latvia. The material for studying were genital organs from goats at the age of 7 years. After slaughter and bleeding, the goats separated the genital organs. They were then placed in an enamel cuvette and using a measuring tape, ruler and calipers measured the linear dimensions of the ovaries, diameter and length of the uterine horns over a large curvature, length uterine length and diameter of the cervix, the number and characteristics of the structure folds of mucous membrane, the number karunkuliv , Their height and diameter. Square karunkuliv calculated by the formula $S = \pi r2$, where S – area of a circle, π – is a mathematical constant equal to 3,14, and r – the radius of the circle. Internal genital organs weighed on laboratory weights. The obtained data was processed statistically by the program Statistics.

Research results. It is established that the size of genitals examined goats average were: longitudinal length of the left ovary was 2,0 cm, right – 2,4 cm. The average weight of the left ovary was 0,6 grams, right – 1,1 g oviduct have the following length – left 14,2 cm, 14,4 cm right. The length of the uterine horns was – 13,7 cm left, right – 12,2 cm. diameter horns in the middle of their length were respectively the left and right – 2,3 and 2,8 cm (Table 1).

1. The dimensions and mass of the genitalia of the goats (n = 4)

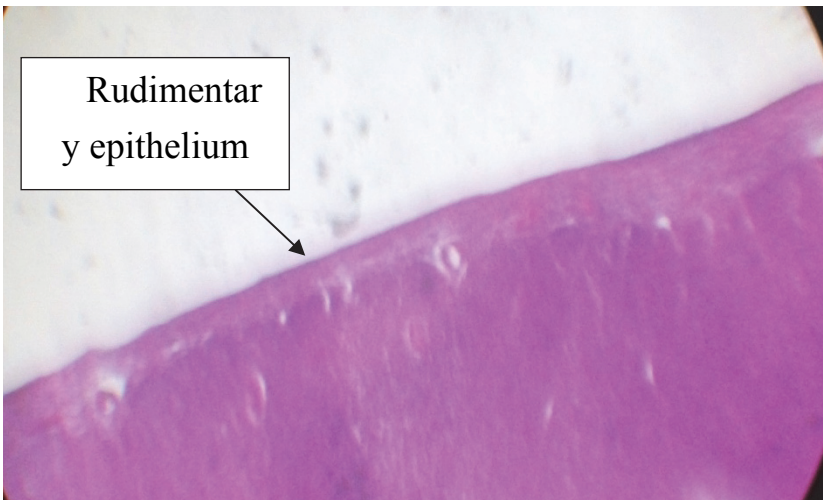
Parties to the location of bodies	**Statistical indicators**	**Organs**				
		ovaries		**oviducts**	**horns of uterus**	
		length, sм	**mass, g**	**length, sм**	**length, sм**	**diamete, sм**
left	M±m	2,0±0,06	0,6±0,06	14,2±0,16	13,7±0,63	2,3±0,07
	Cv, %	6,6	12,3	2,3	9,1	6,4
right	M±m	2,4±0,04	1,1±0,04	14,4±0,15	12,2±0,75	2,8±0,08
	Cv, %	5,4	9	2,1	12,2	6,1

The body of the uterus had a length of 1,8 cm. Its neck was 5,9 cm with a diameter of 1,8 cm. Its mucosa formed an average of 4.7 transverse folds having a somewhat spiral structure. Their tops were directed caudally. The length of the vestibular vestibule averaged 4,7 cm (Table 2).

2. The size of the odd genitals of goats

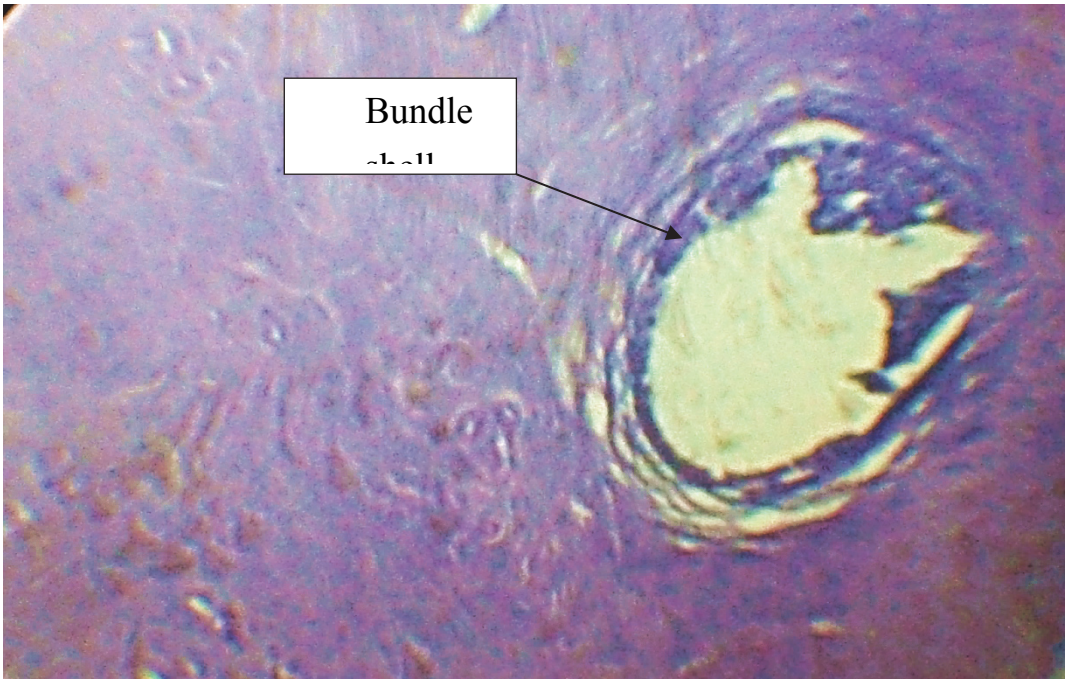
Statistical indicators	Organs								
	body of uterus	cervix utery			caruncles				Vestibule of the vagina
	length, sм	length, sм	diamete, sм	quantity of fold	height	diamete, sм	amount	circus, $sм^2$	length, sм
M±m	3,8±0,15	5,9±0,29	1,8±0,08	4,7±0,50	0,5±0,06	0,7±0,10	96,5±1,70	0,4±0,10	4,7±0,18
Cv, %	8,1	9,8	9,3	20,1	26,5	23,1	3,5	41,1	6,48

A review of the histological preparations of ovary goats showed that the ovary was externally coated with the embryonic epithelium of the cubic form (Draving 1).



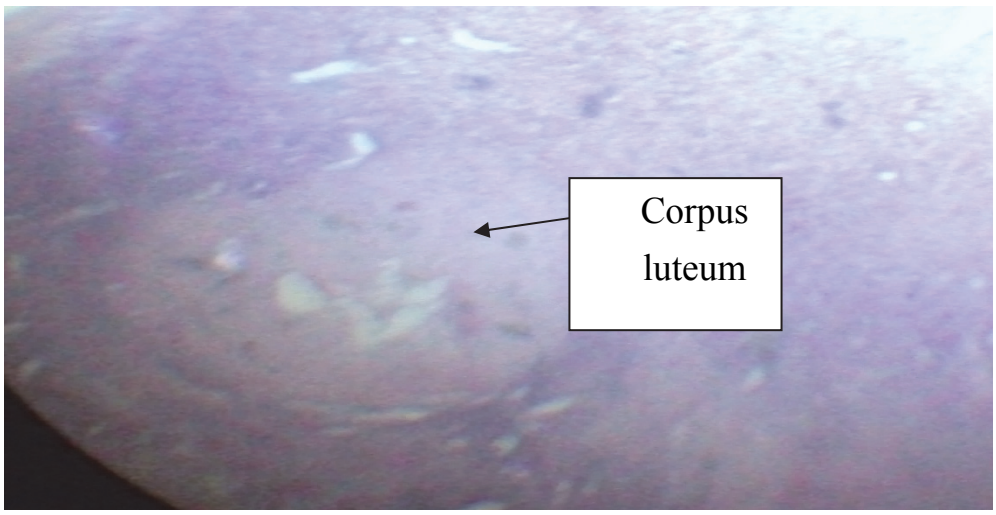
Drawing. 1 Germinal epithelium of the ovary

Under the layer of the embryonic epithelium there is a cork layer (follicular zone). It consists of a connective tissue in which follicles are found at different stages of development or atresia. The atretic follicles had a thick layered membrane, resembling connective tissue (Draving 2).



Draving. 2 Atetrical follicle

In some preparations, the inner surface of the follicles was covered with a layer of lutein cells, part of the follicles were filled with internal yellow bodies (Draving 3).

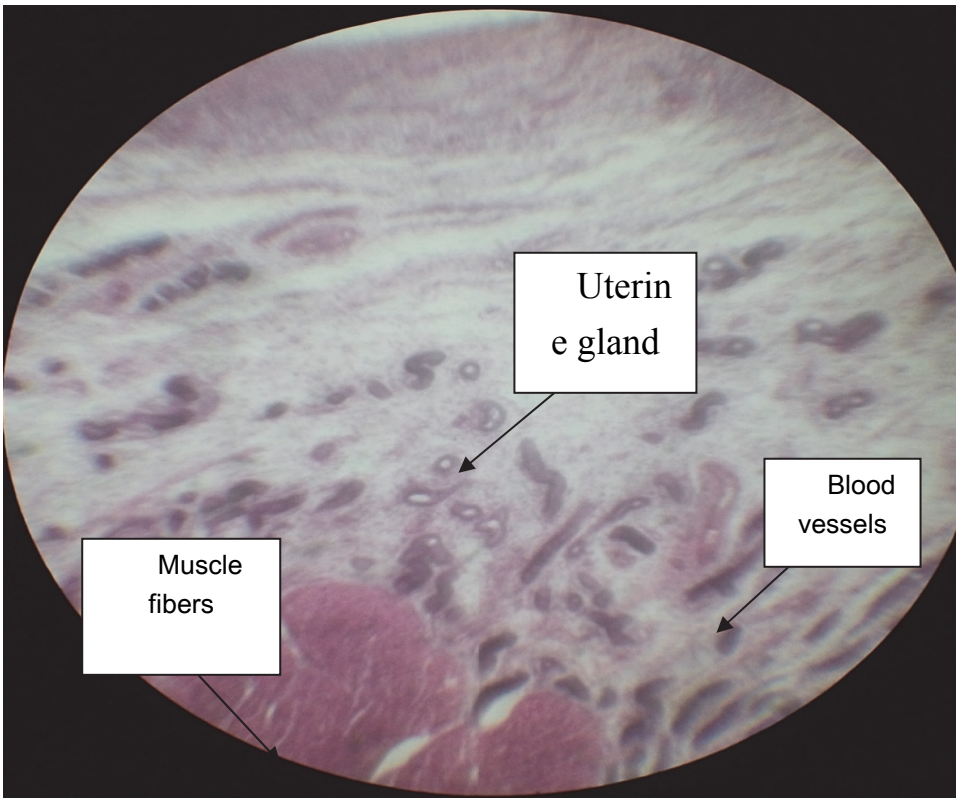


Draving 3 Internal yellow body of neovulovanogo follicle

Since the preparations were made from the internal genital organs of goats that were in the anesthetic period, it can be concluded that the ovaries at this time are in an inactive state - the process of folliculogenesis does not reach the formation of graafial follicles. There is either their atresia or luteinization. Insufficient secretion of sex hormones, caused by this position of the ovaries, does not allow full manifestation of all the phenomena of the sexual cycle.

In the middle of the ovaries was a vascular zone, where connective tissue, muscles and vessels were observed.

The wall of the uterus consists of three membranes - the inner mucosa, in the middle of the muscular and outside - serous. The mucous membrane of the uterine horns is covered with epithelium and contains uterine glands, which play an important role in the process of feeding the zygote in the initial stages of pregnancy **(** Draving **4).**



Draving 4 uterine glands

In the mucous membrane of the cervix, there are no such glands.

Conclusions

1. The anatomical structure of internal genital organs of goats of Zaanen breed in an anestral period was investigated. It is established that these organs have a structure and dimensions that are inherent in adult small cattle. Anatomical features of the structure of the cervix should be considered when artificial insemination of goats.

2. In the ovaries of goats during the anesthetic period, the processes of growth and atresia or luteinization of the follicles, which have not reached the stage of graafovian bubbles, simultaneously occur. In the mucous membrane of the uterus, there are many uterine glands, which indicates its readiness for a new fruiting.

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