

Regional Variation in Elastic Fibers on Different Regions of the Skin in Neonatal Goat (*Capra hircus*)

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Abstract- The present study was conducted in 10 neonates (birth to 3 months of age) indigenous goat. With orcein the elastic fibers stained dark brown in the reticular layer of dermis. These were sparsely distributed in the papillary layer. They are rare and finely branched sparsely distributed in the papillary layer and arranged perpendicular to skin surface, abundantly present in between and around hair follicles but sparse around sweat glands. The fibers are found intermingled in arrector pili muscles. Mostly present superficial to the level of the sweat glands. Regional difference reported is common in all samples that elastic assimilation was intensely found in neck and ventral region of the skin. The fibers were found moderate to weak in other body regions such as dorsal, thigh and flank.

Index Terms- Neonates, Dermis, Elastic, Papillary & Reticular layer.

I. INTRODUCTION

Goat fiber production is affected by genetic and environmental influences. Environmental influences include bio-geophysical factors photoperiod, climate-herbage system and soil-plant trace nutrient composition, nutrition factors and management factors. Nutrition and management directly influences rate of stocking, supplementary feeding of energy and protein, live weight change, parturition and management during rearing along with health.

Elastin, a major fibrillar protein component of various connective tissues, is critical for the normal physiological function of organs such as skin, lungs, and the blood vessels (Sandberg, Ryhanen & Foster 1981-82). Elastic fibers impart elasticity to tissues such as skin, lungs, ligaments and arterial walls.

In the present study skin samples were processed in the laboratory to see the regional changes in elastic fibers. The mammalian skin fibers represent an interesting biological material and also are in use in various industries.

II. MATERIALS AND METHODS

The present study was conducted in 10 neonates (birth to 3 months of age) indigenous goat. The skin samples were collected from different regions of the body of neonatal goat- dorsal, ventral, thigh, flank and neck region were taken with the help of razor blade, scissors and forceps. The tissues were fixed in 10% neutral buffered formalin solution for 36 to 48 hours. (Lillie and Fullmer, 1976; and Drury and Wallington, 1980). The tissues were then processed in laboratory by adopting standard methods

(Drury and Wallington, 1980) of dehydration, clearing and embedding. They were processed and sectioned using routine histological procedures. The paraffin tissue sections of 3-5 um thickness were stained with orcein stain to study elastic fibers configuration.

III. RESULTS AND DISCUSSION

Elastic fibers as reported in the study are found in high intensity in the neck and ventral region as manifested with the working caliber of elasticity.

Elastic fibers are the 'rubberband' fibers responsible for the 'snap back' quality of young skin. As described by Dr. Peter Pugliese M.D., elastic fibers are important 'youth Protein' fibers of skin. They give young, smooth, firm skin its resiliency - its retraction and 'snap'. Elastic fibers are considered as the skin's very important "rubberbands."

With orceine the elastic fibers were stained dark brown in the reticular layer of dermis.

Regional differences reported are general in all samples that elastic assimilation was highest (intense) found is neck and ventral region of the skin. The fibers were found moderate to weak in other body regions such as dorsal, thigh and flank.

The elastic was abundantly present in between and around hair follicles but sparse around sweat glands. They intermingled in the arrector pili muscles. The elastic fibers were mostly presented superficial to the level of the sweat glands. As reported in other structural aspects the dermis did not show much structural variation in different regions of the body.

The arrangement and size of the hair follicles varied in different regions of the body in neonatal goat. In neck region the follicles were oval to elongate in shape, arranged in two rows superficial and middle, mostly in group of three, which were oriented parallel to the surface and well clinched with elastic fibers (fig 4). These were nearly of equal size at places shows an oblique radial arrangement. In dorsal and flank region the linear arrangement was more conspicuous well supported by elastic fibrils.

The sebaceous glands in all the skin regions were simple branched alveolar types. These glands were always associated with hair follicles and located just above the sweat glands, between hair follicles, arrector pili muscle and skin fibers, presented only in upper part of papillary layer of dermis in all the skin regions.

The sweat glands as reported were sparsely layered with elastic fibers, tubular, deeply located in the dermis below the sebaceous gland.

Table 1. Histological analysis of cutaneous elastic in neonatal goat

Neonates	Neck	Dorsal	Thigh	Ventral	Flank
1	+++	++	+++	+++	++
2	+++	+++	++	++	++
3	++	+++	+++	+++	++
4	+++	++	++	+++	+++
5	+++	++	++	+++	++
6	+++	++	++	++	++
7	+++	++	++	+++	++
8	+++	++	++	+++	+++
9	++	+++	++	+++	++
10	+++	++	++	+++	+++

+++ Intense, ++ Moderate

PHOTOGRAPHS



Fig 1. Photomicrograph – cross section of skin of Neonatal goat, dorsal, orcein stain Showing hr-hair, sg-sweat gland, eln- elastic fibres.

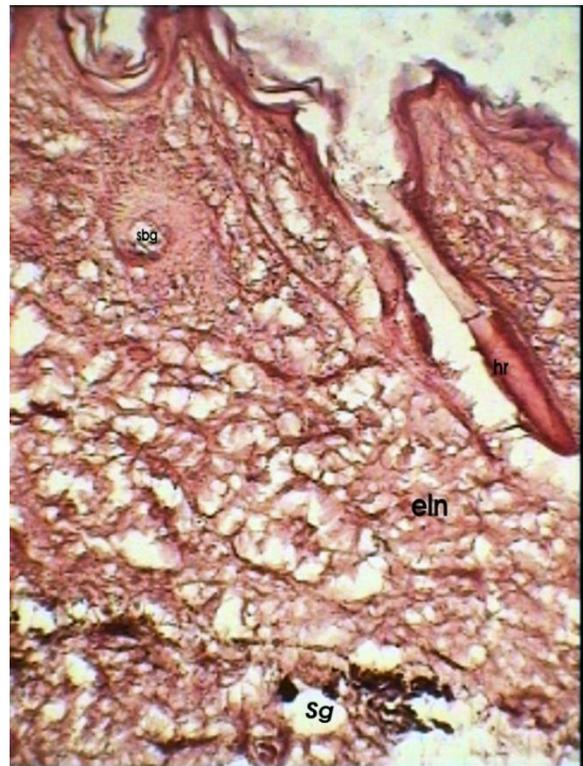


Fig 2. Photomicrograph – cross section of skin of Neonatal goat, ventral, orcein stain Showing hr-hair, sg-sweat gland, eln- elastic fibres & sbg-sebaceous gland.



Fig 3. Photomicrograph – cross section of skin of Neonatal goat, Thigh, orcein stain Showing hr-hair, sg-sweat gland, eln-elastic fibres.



Fig 4. Photomicrograph – cross section of skin of Neonatal goat, Neck, orcein stain Showing hf-hair follicle, sg-sweat gland, eln-elastic fibres & sbg-sebaceous gland.

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