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Short communication

Gross and histomorphology of Internal Parathyroid Gland of Surti Goat (*Capra hircus*)

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Introduction

The parathyroid glands play an essential role in raises of serum calcium concentrations by multiple actions on the bone, kidney and gut. The position of external parathyroid gland is always cranial to the thyroid gland and may be in the mandibular salivary gland in sheep (Krause, 1953). In sheep, the external parathyroid gland is located as in cattle but in the goat, may be near the atlas (Ellenberger-Baum, 1943). Sometimes the external parathyroid gland was embedded inside the remnants of thymic tissues in goat. The internal parathyroid gland may be intimately associated to thyroid tissue mostly buried in the cranial part itself. In goat, the parathyroid glands have two embryological origins. The external parathyroid and the internal parathyroid originate from III and IV pharyngeal pouches respectively (Nehal *et al.*, 2018). The present study reveals about internal parathyroid glands topographic position and microscopic observations in adult Surti goat.

Materials & Methods

A study was conducted on the thyroid glands of 10 apparently healthy postnatal Surti goats irrespective of sex. The thyroid glands were collected from Surti goats sacrificed at the local abattoir of Navsari District, Gujarat. The approximate age of postnatal Surti goats was estimated by dentition pattern (Noden and De Lahunta, 1985). The Surti goats were divided equally into three age groups based on approximate age *viz.*, group-I (25 days to 6 months), group-II (> 6



months to 9 months) and group III (> 9 months to 5 years). These samples were fixed in 10 % neutral buffered formalin and paraffin sections were stained with Harri's Haematoxylin and Eosin (H&E) method for cellular details and age associated structural differentiation (Singh and Sulochana, 1997).

Results & Discussion:

Gross Morphology:

Plates

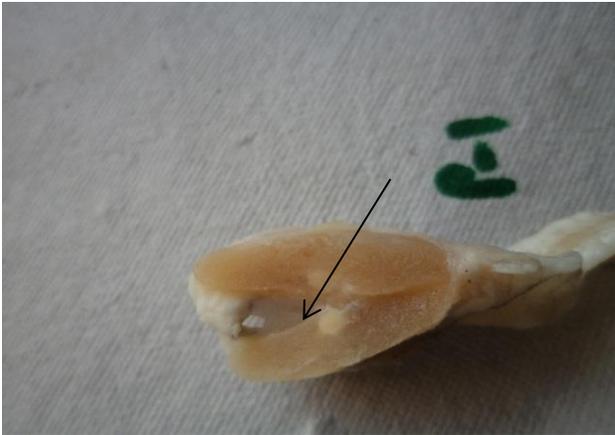


Plate 1: Photograph showing the internal parathyroid embedded in right thyroid lobes (75 days)

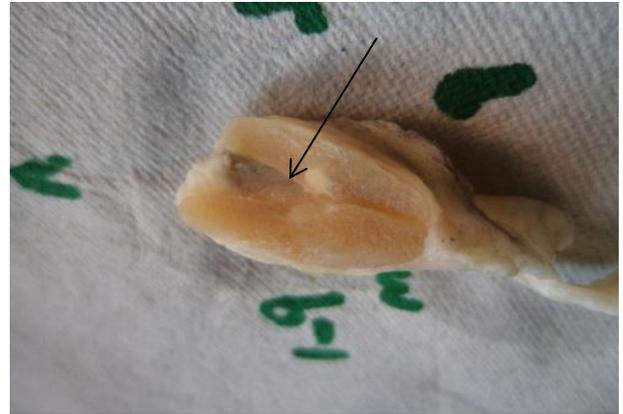


Plate 2: Photograph showing the internal parathyroid embedded in left thyroid lobes (75 days)

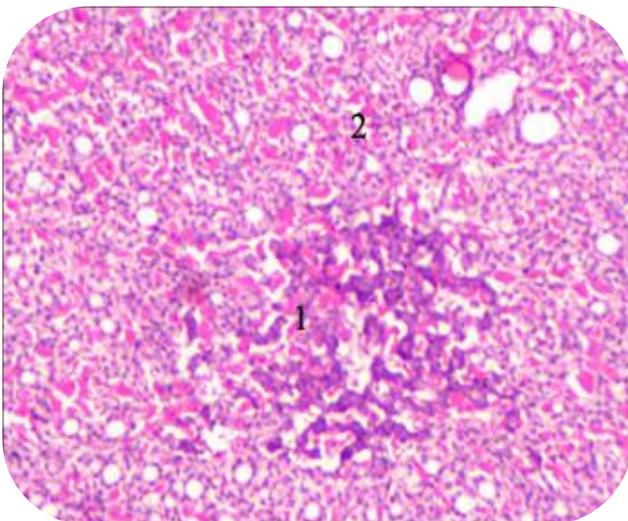


Plate 2: Photomicrograph showing the thyroid parenchyma with internal parathyroid in tissue section of the thyroid gland (75 days). H&E X 100
1. Internal parathyroid
2. Thyroid parenchyma

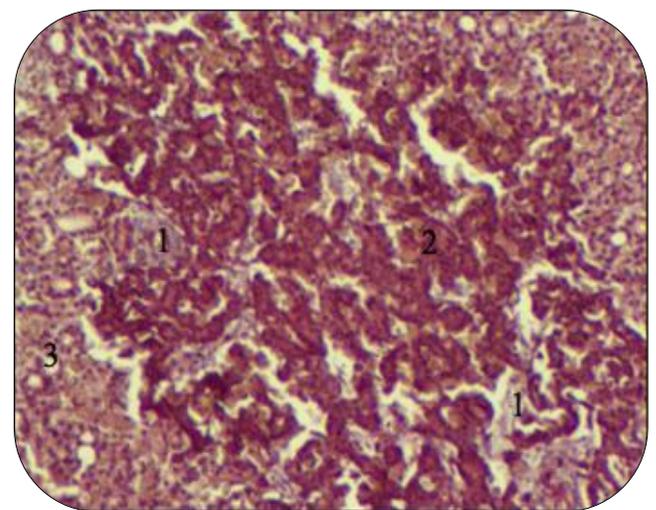


Fig.4: Photomicrograph showing internal parathyroid gland demarcated by collagen fibers (75 days). Masson's Trichrome Method x 100
1. Collagen fibers
2. Internal parathyroid parenchyma
3. Thyroid parenchyma



The internal parathyroid gland was seeming to be very small and observed grossly by making serial sectioning or prepared serial segments in the formalized thyroid lobes. It appeared as a pale rounded area definitely marked either from the cranial end or the middle of thyroid lobe (Plate.1 & 2). Similar observation was found that the internal parathyroid gland was embedded inside the thyroid tissue in adult goat (Nehal *et al.*, 2018).

Histomorphology:

The internal parathyroid gland was embedded inside thyroid tissue and separated from the connective tissue septae (Plate.3). The parenchyma richly supported by collagen fibers (Plate 4) and mostly populated by chief cells. The chief cells are two kinds are differentiated by staining affinity as dark and light cells. Rajalakshmi *et al.*, 2018 reported that same kind of cells found in sheep internal parathyroid glandular parenchyma.

Conclusions:

Parathyroid gland plays a vital role in regulation of blood calcium level very precisely in animals as well as in humans also. The slight changes also results in clinical manifestation of musculo-skeletal systems. It carries very unique pattern of histogenesis during embryonic stage and adults also very specified its pattern of location in different animals. However, the present study reveals about internal parathyroid of postnatal morphological features of Surti goat.

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