

## GROSS AND HISTOLOGICAL STUDY ON THE THYROID GLAND OF A WEEK - OLD RHINO CALF (*RHINOCEROS UNICORNIS*)

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Systematic study of thyroid gland of rhino is sparse in literature, specially that of the young calf. Hence, the present investigation was undertaken to record the gross and histomorphology of thyroid gland of young rhino during early post-natal life.

The thyroid was collected immediately after death from a 7 day old rhino calf of Assam State Zoo, Guwahati. Its weight, length, breadth and thickness for each lobe were recorded as per Roy *et al.* (1975). The glands were sliced into 3-5 mm thick pieces and fixed in neutral buffered formalin. The tissues were processed and sections at 3-5  $\mu$ m thickness cut for histomorphological observations. The routine histological stains for cellular and fibrous components were employed during the investigations.

The two lobes of thyroid gland were flattened and triangular in outline. They were dark reddish brown in colour and existed at the ventro-lateral aspect

of trachea, extending from second to the fourth tracheal ring. The two lobes were connected by slightly flat isthmus which was situated ventrally in between first and second tracheal rings. It simulated the thyroid of ox, while it was recorded as oval in horse (Venzke, 1977), and elliptical in sheep and goat (Venzka, *loc.cit.* and Talukdar, 1984). The present study recorded the weight, length, breadth and thickness of the right lobe of thyroid gland as 5.20 g, 3.5 cm, 2.8 cm and 1.0 cm and that of the left as 3.71 g, 3.5 cm, 2.5 cm, and 1.5 cm, respectively which did not tally with the reports in young goat (Roy *et al.*, *loc.cit.*; Baishya *et al.*, 1986; and Talukdar *et al.*, 1994). The isthmus measured 5.0 cm in rhino calf.

The present investigation revealed that the gland was covered by capsule which contained collagen, reticular and few elastic fibers. The connective tissue trabeculae from the capsule divided the gland into lobes, lobules and follicles as also reported in bull and bullock

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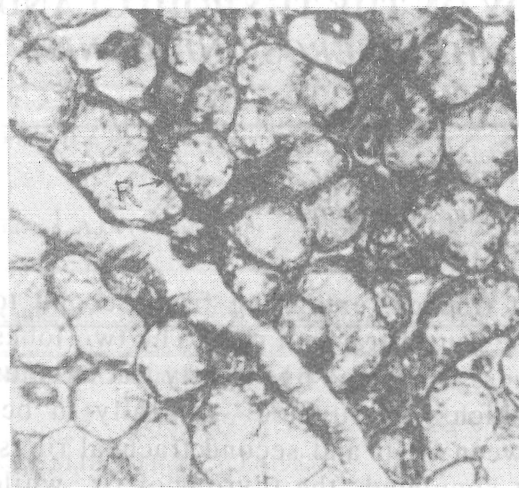


Fig. 1 Photomicrograph of thyroid of rhino calf showing the distribution of reticular fibers (R). (Gomori Stain)

(Das *et al.*, 1965), and goat (Talukdar, 1984). However, the present study revealed that reticular fibers were prominent around the follicular wall (Fig. 1).

The mean diameter of the follicles was 0.05 to 0.1130 mm in common seal (Harrison *et al.*, 1962), 0.2 to 0.9 mm in man (Bloom and Fawcett, 1968), 16.50 to 105.25  $\mu$ m in female kid aging zero to fifteen days (Talukdar, 1984) and 38.9783  $\mu$ m (average) in male kid (Baishya *et al.*, *loc. cit.*). The thyroid follicle of rhino calf measured 96 to 1145.4  $\mu$ m with an average of 228.32  $\mu$ m. Turner and Bangara (1975) reported that the larger follicles generally existed near the periphery which was contrary to the present findings.

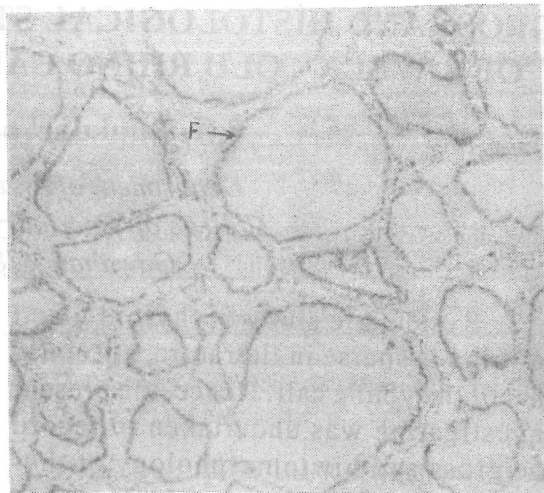


Fig. 2 Photomicrograph showing the thyroid follicles (F) of Rhino calf (H. & E.)

The thyroid follicles of rhino calf were lined by high cuboidal epithelium (Fig. 2). But some small follicles and follicles in their course of development were lined by low cuboidal or squamous cells. Talukdar (1984) mentioned that in some follicles of young kids, one side was lined by cuboidal type and other, by squamous type of epithelial cells. Such follicles could not be observed in rhino calf. Cytoplasm towards the luminal border of follicular cells of rhino calf was more eosinophilic as compared to the basal part.

The follicular cells in hyperactive state of the gland were tall, in the process of mitosis, and the mass of the colloid was relatively small (Tice, 1977). Most

of the follicles of rhino calf were also found in hyperactive state with depleted colloid, and in some cases, the colloid near the follicular cell was more eosinophilic than the central part of the colloidal mass. Few follicles contained no colloid.

The average epithelial height of follicular cells of 0-15 days old kid measured 8.1933  $\mu\text{m}$  in male kid (Baishya *et al.*, *loc.cit.*) and 5.95  $\mu\text{m}$  in female kid (Talukdar, 1984). In rhino calf it

was 9.76  $\mu\text{m}$ .

The presence of thymic tissue embedded within or close to the vicinity of thyroid gland was not observed in the present study as reported by Roy *et al.* (*loc.cit.*) in 26.9 per cent of the animals.

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