

A case of congenital goitre in goat kids

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ABSTRACT

A 6 year old pregnant goat was presented with the complaint of straining for one day. The animal has completed the gestation period. The c-section was performed and three kids were delivered, out of which one was alive and two were dead. The dead kids were brought to postmortem and necropsy was conducted. The animals showed pale, thickened skin with myxedema and devoid of hair from the body. The thyroid glands of both animals were enlarged bilaterally. Grossly the enlarged thyroid gland was red and hard in consistency and free from any attachment in the neck region. Histopathologically, various sizes of thyroid follicles filled with colloid and hyper cellularity or c-cell hyperplasia and complete absence of absorption vacuoles were observed. On the basis of gross and histopathology, the case was diagnosed as bilaterally diffused congenital goitre in kids.

Keywords: Congenital goitre, goat, thyroid gland

Thyroid gland plays an important role in goats by contributing in reproduction, growth and productivity¹. Goitre is a non-neoplastic growth of thyroid gland which generally occurs because of lack of iodine in body and as result there is hyperplastic growth of thyroid gland. Among domestic animals, goat kids are most susceptible for congenital goitre. Congenital goitre also leads to prolongation of gestation and dystocia. Iodine plays an important role in production of 3, 3, 5-Triiodothyronine (T3) and tetra-iodothyronine or thyroxine (T4)², thus lack of iodine caused improper thyroxine production which sends a negative feedback to pituitary and hypothalamus leading to increase thyroid stimulating hormone (TSH) release, that in turn cause diffused hyperplastic growth of thyroid gland.

In the present study, a pregnant female goat of age 6 years with history of straining and inappetence for 1 day was brought to Multispecialty Veterinary Hospital, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana. The gestation of dam was completed and was put on induction protocol but unable to deliver, so C-section was performed and 3 kids were delivered out of which two were dead and one alive. Postmortem of both the dead kids was conducted. On through physical examination of carcasses, both the animals had pale, thickened skin with myxedema and devoid of hair from body (Fig. 1). There was bilateral enlargement at cranio-ventral region of both kids which were very easily visible and palpable on physical examination of carcasses. Thyroid gland were extracted, grossly both were diffusely enlarged and dark red in color (Fig. 2). The affected animals show enlargement of thyroid gland, myxedema and alopecia³. The thyroid samples collected in 10% neutral buffered formalin were processed, sectioned to 5 micron for routine histopathology and stained hematoxylin and eosin stain⁴.

On histopathological examination, variable sized follicles containing colloid with single to multiple layers of follicular cells indicating follicular cell hyperplasia and severe congestion in vessels were observed (Fig. 3). In some areas, C-cell hyperplasia was also appreciated (Fig. 4). Further, the periphery of colloid follicle towards the lumen was wavy in appearance which may be due to formation of endocytic resorption vacuoles at apical surface of follicular cells and

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follicular cells were also observed forming papillary projections into colloid. Thus, on the basis of gross and histopathological examination, it was concluded that both kids were suffering from diffuse hyperplastic congenital goitre.

Similar hyperplastic goitre in kids has been reported by other workers^{3,5-7}. Deficiency of iodine in dam lead to goitre in kids which may be due to dietary iodine deficiency, ingestion of goitrogens such as plants of *Brassica* family or any hereditary condition like congenital dysmorphogenetic goitre. Congenital bilateral goitre is mostly associated with abortions in late gestation, still births or early neonatal death. The affected animal exhibit alopecia and myxoedema⁷. Foetal development retardation and goitre associated weak or dead

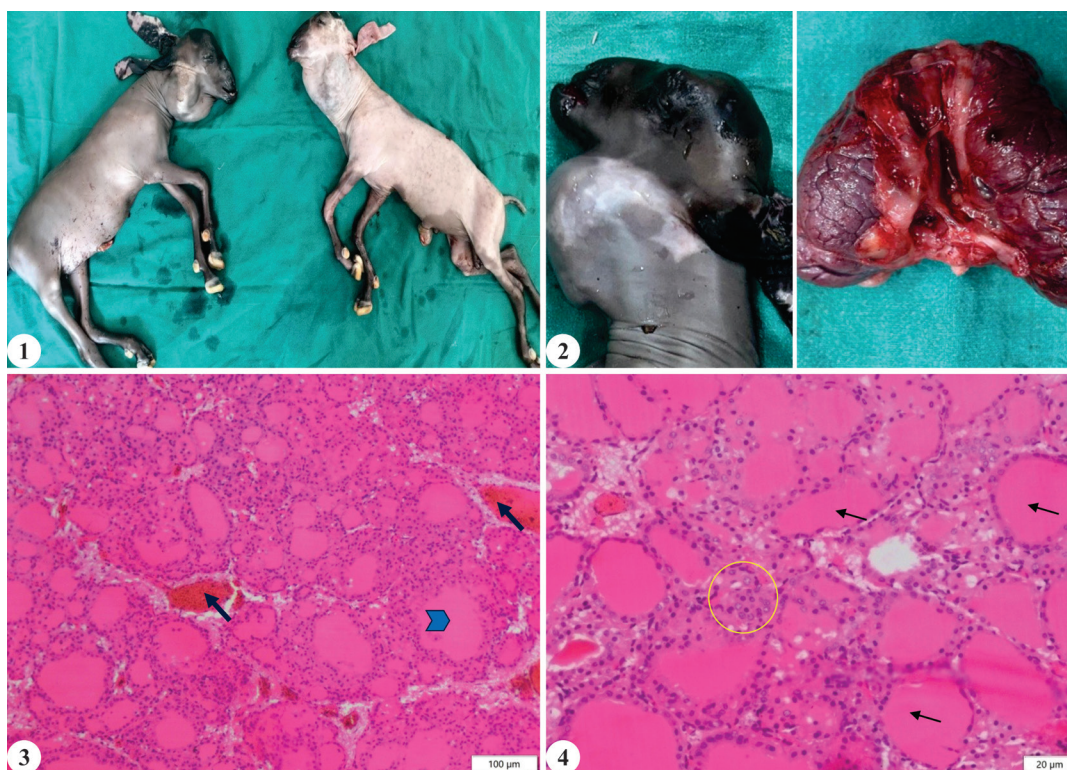


Fig. 1. Goat kids with enlarged thyroid gland and myxedema and alopecia; **Fig. 2.** Bilaterally enlarged thyroid gland; **Fig. 3.** Photomicrograph showing follicles of various sizes filled with colloids (arrow head) along with congested blood vessels (arrow) (H&E, Bar = 100µm); **Fig. 4.** Photomicrograph showing follicles of various sizes filled with colloids (arrow) along with congested blood vessels. Follicular and para-follicular cells hyperplasia (circle) was also observed (H&E, Bar = 20µm).

neonates were the adverse effect of iodine deficiency during pregnancy⁸. Wassner and Brown⁹ stated that in newborns iodine deficient enlarged thyroid glands were associated with high mortalities. Mostly hyperplastic congenital goitre was characterized by excessive thyroid secretory epithelium growth forming solid clusters and slit-like follicles¹⁰.

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