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Clinical Article

THYROID PROFILE OF A HYPOTHYROIDISM AFFECTED DOE: A CASE REPORT

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SUMMARY

The present study reports a case of congenital goitre in a goat which was fed extensively on cabbage leaves as a main green fodder source. We observed that the three kids born per-vaginally found dead showing hyperplastic thyroid gland and deprived of hairs. The lower blood level of tri-iodothyronine (T3), thyroxine (T4) and thyroid stimulating hormone (TSH) in dam confirmed the present case as a congenital hypothyroidism.

Keywords: Congenital hypothyroidism, Triiodothyronine, Thyroxine, Thyroid Stimulating Hormone

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In goats, massive number of cases arise due to non-inflammatory and non-neoplastic growth of thyroid glands in foetus from birth and commonly known as congenital goitre (Al-Ani *et al.*, 1998). The thyroid gland becomes enlarged due to compensatory responses against hypothyroidic conditions (Raoofi *et al.*, 2017) and this hypothyroidism is a common problem associated to the lower iodine in diet or failure to get iodine due to goitrogenic substances (Bires *et al.*, 1996). Normally, lower levels of T3 and T4 stimulates amplified TSH yield, which leads to increased iodine uptake from the blood. This results in decrease in iodine concentration which leads to hyperplasia of the gland (Smith and Sherman, 2009). This clinical case report is presented with delivery of three kids from a doe and further T3, T4 and TSH levels were estimated in blood sample for future references.

A four-year-old, advance pregnant non-descript goat was presented to TVCC Nagpur with the complaint of not able to stand up. Animal was fed on the straw and cabbage leaves extensively. On per vaginal examination, cervix was found closed and on the first day, supportive therapy was given. On the second day, slight discharge was observed from the vagina of the goat and cervix was dilated one finger. The treatment was given as Inj. Dextrose 5% 250 ml intravenously, Inj. Calcium Sandoz 5 ml intravenously and 5ml subcutaneously and Inj. Epidosin 2ml intramuscularly. On the third day of the treatment, cervix was open fully and 3 foetuses were delivered, from which two were found dead at the time of birth and one found alive, which died after 10 minutes of birth. Blood was collected in clot activator by jugular venipuncture aseptically. Serum was collected after centrifugation at 3000 rpm for 15 minutes. Collected serum was sent for estimation of T3, T4 and TSH by use of VIDAS® Thyroid panel based on Enzyme Linked Fluorescent Assay kit (ELFA).

The symmetrical swelling hanging in the ventral portion of neck was visible from the distance i.e., grade +++as observed by Bhardwaj and Kukovics (2018) (Fig. 1).The two kids born initially were devoid of hairs and had bilateral thyroid enlargement (Fig. 2) and similar finding has been reported by Reddy *et al.* (2016). The third foetus was born alive with hairs but died due to asphyxia within some time. The dam was further treated with fluids, antibiotics and calcium supplementation.

The blood sample was analysed and levels of T3, T4, &TSH levels were found to be lower than normal i.e., 0.64 ng/ml (normal range 0.87-1.87 ng/ml), 0.68µg/dl (normal range 5.12-12.5 µg/dl) and 0.12 µIU/ml (normal range 0.25-5.1 µIU/ml), respectively. The levels of T3 in 24 months age goats were studied by Madan *et al.* (2019) and found to be 1.17±0.16 ng/ml, 0.72± 0.03 ng/ml by Dalvi *et al.* (2014) and the levels of T4 by Polat *et al.* (2014) as 4.73±0.12 µg/dl. These studies showed that our values are lower than normal range indicating iodine deficiency.

Major reasons of this congenital condition are iodine deficient diets (Paulikova *et al.*, 2002), goitrogens and genetic enzymatic defects (Mcdonald and Pineda, 1989). However, in this particular case, there was the history of feeding cabbage leftovers from the vegetable shop continuously during the gestation period having excess goitrin (thioxazolidone) in the *Brassica* spp. along with wheat straw. Similar kind of reports have been reported earlier (Cheema *et al.*, 2010; Honparkhe *et al.*, 2017; Singh *et al.*, 2019). This case report showed that the iodine is required for proper growth, metabolism, hair growth and proper respiration. We noticed that the kids without hairs had more goitre size as compared to other. The owner was

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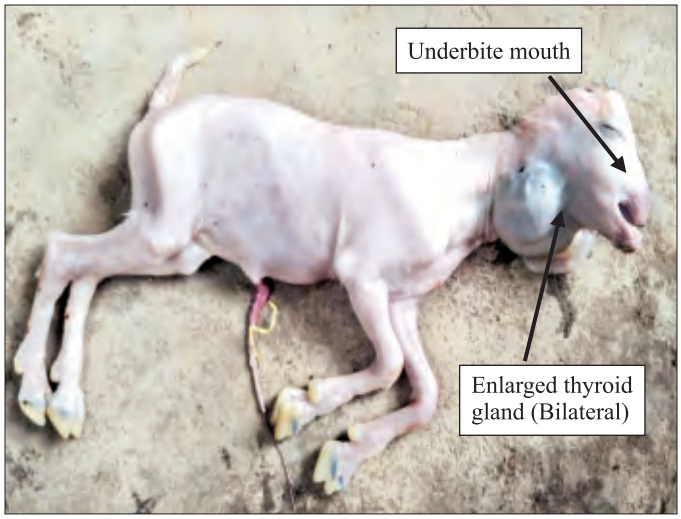

Fig. 1. Fetus showing enlarged thyroid gland and mouth deformity

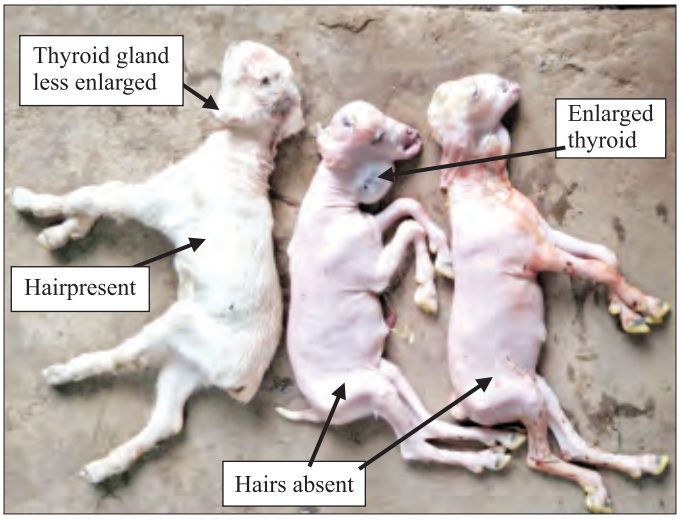

Fig. 2. Triplet born goat fetuses with congenital goitre

instructed further not to feed other goats extensively on the cabbage leaves as green fodder and addition of iodized salt to the diet on daily basis.

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REFERENCES

Al-Ani, F.K., Khamas, W.A., Al-Qudah, K.M. and Al-Rawashdeh, O. (1998). Occurrence of congenital anomalies in Shami breed of goats: 211 cases investigated in 19 herds. *Small Rumin. Res.* **28**: 225-232.

Bhardwaj, R.K. and Kukovics, S. (2018). Iodine deficiency in goats. Rijeka: Intech Open; https://doi.org/10.5772/intechopen.72728.

Bires, J., Bartko, P., Weissona, T., Michna A. and Matisak, T. (1996). Iodine deficiency in goats as a cause of congenital goitre in kids. *Vet. Med.* **41(5)**: 133-138.

Cheema, A.H., Shakoor, A. and Shahzad, A.H. (2010). Congenital goitre in goats. *Pakistan Vet. J.* **30(1)**: 58-60.

Dalvi, S.H., Shinde, N.V., Gholave, C.S. and Kumarasamy, J. (2014). Serum thyroid hormone levels during peripartum period in Osmanabadi goat. *Indian J. Vet. Sci. Bio.* **9(4)**: 99-102.

Honparkhe, M., Ahuja, A.K. and Dogra, P. (2017). Premature kidding due to goitrogenic plant intoxication in Beetal goat: a special case. *Int. J. Sci. Env. Tech.* **6(4)**: 2303-2306.

Madan, J., Kumar, S., Sindhu, S., Gupta, M., Pandey, A.K., Yadav, A.S. and Rose, M.K. (2019). A study of thyroid hormone levels in Beetal goats during different development stages. *Int. J. Bio. Stress Managem.* **10(2)**: 137-140.

McDonald, L.E. and Pineda, M.H. (1989). Veterinary Endocrinology and Reproduction. (4th Edn.), Lea and Febiger, Philadelphia, USA.

Paulikova, I., Kovac, G., Bires, J., Paulik, S., Seidel, H. and Nagy, O. (2002). Iodine toxicity in ruminants. *Vet. Med. Czech.* **47(12)**: 343-350.

Polat, H., Dellal, G., Baritci, Ý. and Pehlivan, E. (2014). Changes of thyroid hormones in different physiological periods in white goats. *J. Anim. Plant. Sci.* **24(2)**: 445-449.

Raoofi, A., Yourdkhani, S. and Bokaie, S. (2017). Comparison of serum triiodothyronine, tetra-iodothyronine and thyroid stimulating hormone concentrations in pregnant and lactating Beetal-cross and native goats in Garmsar township. *Iran. J. Vet. Med.* **11(3)**: 243-248.

Reddy, M.V.K., Kumari, G.A. and Reddy, K.R. (2016). Dystocia due to fetal goitre in a goat–a case report. *Haryana Vet.* **55(1)**: 116-117.

Singh, N., Sethi, G.P.S., Ghuman, S.P.S. and Gupta, K. (2019). Dystocia due to fetal goitre in a goat. *Int. J. Curr. Microbiol. App. Sci.* **8(1)**: 641-643.

Smith, M.C. and Sherman, D.M. (2009). Goat Medicine. (2nd Edn.), Wiley-Blackwell, Ames, USA.