

## Communications

### Spontaneous lesions in the thyroid of sheep and goats in Iran\*

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A slaughterhouse survey conducted in Ahwaz (Iran) revealed higher incidence of pathological lesions in the thyroid glands of goats (6.54 %) than in sheep (2.8 %). Goitre was found in 4.99 % and 1.96 % of slaughtered goats and sheep, respectively. However, ultimobranchial body cysts were present three times more in sheep than in goats.

*Key words* : Goat - Sheep - Thyroid gland - Pathology - Iran Islamic Republic.

### Introduction - Material and Methods

In endemic areas, hypothyroidism is known to co-exist in man and animals (5). Records in Pathology Section of the University Teaching Hospital Gholestan, Ahwaz, Iran (1) showed a high incidence of goitre as well as other diseases which affect the thyroid gland in man. There is no report on the pathological features of the thyroid in small ruminants in Iran. This prompted the authors to investigate and report such lesions in sheep and goats from Khoozestan Province, Southwest, Iran.

During November 1991 through October 1992, the thyroid glands of 1,100 goats and 2,500 sheep were examined at the municipal slaughterhouse Ahwaz, Iran. The thyroid glands of 70 sheep and 72 goats which showed macroscopic abnormalities were fixed in 10 % formal-saline. The sections cut at 5 µ were stained by hematoxyline and eosin. Special stains, namely the Gomoris Silver method and Toluidine Blue, were used wherever appropriate.

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### Results

#### Colloid goitre

The number of goats with colloid goitre lesions was higher (1.09 %) than the number of sheep (0.4 %). In general, both thyroid lobes were diffusely enlarged and were more translucent and lighter in colour than the glands with hyperplastic goitre. Histologically, there was less vascularity. Many microfollicles were formed distended with colloid. The follicular cells lining the microfollicles were flattened and atrophic.

#### Hyperplastic goitre

A higher number of goats (3.9 %) had hyperplastic goitre lesions than sheep (1.56 %). Both thyroid lobes were enlarged, especially in young animals. The affected glands were firm and dark red in colour because of inter-follicular capillary congestion. Histologically, the follicles were irregular in shape and size. The amount of light-coloured eosinophilic colloid varied greatly in the follicles. Numerous follicles were completely devoid of colloid material. The follicular lining cells were either in a single columnar layer or single cuboidal layer. Some follicles were filled with hyperplastic lining cells.

The gross and histological goitre lesions observed in the present study were in agreement with workers who have reported similar reactive hyperplastic changes in the thyroid in spontaneous and experimental hypothyroidism in sheep (3, 8) and in goats (4, 7, 9, 11).

#### Ultimobranchial body cyst

In general, the cysts varied from 2 to 3 mm in diameter and occurred mostly adjacent to their hilar region. The contents of the cysts were yellowish grey, inspissated and grumous. Microscopically, the number of cysts in sheep varied from 3 to 10 and in goats up to 4 in a single lobe. They were lined by one or more layers of squamous cells. The lumen contained eosinophilic keratin substance. Fourty four out of 70 pathological sheep thyroid glands and 7 out of 72 goat thyroid glands showed ultimobranchial cysts. These observations were in agreement with Singh *et al.* (10) regarding of sheep. In goats, a low percentage of thyroid with cysts was found compared to their observation. Further, in this study, a high number of sheep with ultimobranchial body cysts had concomitant hyperplastic goitre lesions (34.28 %), not reported in literature earlier.

#### Parenchymal cysts

It is well known that the involutionary stage of hyperplastic thyroid glands leads to the formation of colloid goitre. Many follicles become very large and coalesce to form

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cysts. In the present study parenchymal cysts were frequently associated with colloid goitre. Histologically, the cysts were lined by flattened cuboidal cells and/or squamous cells and the lumen contained eosinophilic colloid substance (figure 1). The importance of parenchymal cysts and ultimobranchial body cysts lies in differential diagnosis of these two types of cysts.

### Atrophy of thyroid gland

Goats had more cases of thyroid gland atrophy (13.8 %) than sheep (7.15 %). In general, the glands were smaller in size and lighter in colour than normal glands. Histologically, the follicles were small with little or no colloid. Follicular lining cells were tall and columnar. These changes could be a stage in the hyperplastic reaction of the thyroid to hypothyroidism. However, the authors preferred to describe it separately because of the smaller size of the glands in these cases.

### Discussion and Conclusion

The number of goats with thyroid pathology was higher (6.54 %) than the number of sheep (2.8 %). A similar trend in the incidence of goitre was observed in the two species. A deficient intake of iodine is known to be the dominant cause of the disease. In addition, a number of foods, including cabbage, cassava, cauliflower, brussels sprouts, turnips and others belonging to the *Brassica* and *Crucifera* families have been documented as goitrogenic in animals and humans (3, 6). Since both species of animals originated in and around the Ahwaz district and were possibly from similar pastures or feeding regimes, it is likely that the difference in the percentage of thyroid lesions could be because of species difference. Goats appear particularly susceptible than sheep, horses and

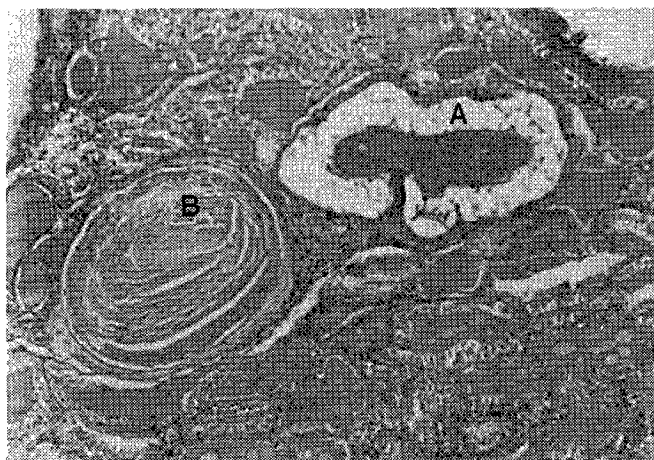


Figure 1 : Parenchymal cyst (A) lined by squamous cells and lumen contain colloid ; ultimobranchial body cyst (B) filled with keratin. Follicles show hyperplastic changes, H. & E.  $\times 85$ .

pigs. Cattle however seem to be more resistant to the development of congenital goitre and the associated effect of hypothyroidism (2). More work is needed to elucidate these problems.

The gross and microscopic features of colloid and hyperplastic goitre observed in sheep and goats could be compared to two well-known stages in the evolution of the diffuse nontoxic simple goitre in man, the hyperplastic stage and colloid involution. The cysts observed in animals have not been reported in man.

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SAIYARI (M.), HOSHIAR MANDAVI, MAYAHI (M.), SHARMA (R.N.). Observation de lésions spontanées dans la glande thyroïde de moutons et de chèvres en Iran. *Revue Elev. Méd. vét., Pays trop.*, **48** (3) : 231-232.

Une enquête conduite dans un abattoir à Ahwaz (Iran) a permis de mettre en évidence une incidence des lésions pathologiques dans la glande thyroïde, plus élevée chez les chèvres (6,54 p. 100) que chez les moutons (2,8 p. 100). On a décelé la présence d'un goitre chez 4,99 p. 100 des chèvres abattues et chez 1,96 p. 100 des moutons abattus. Cependant, la fréquence des kystes des corps ultimobranchiaux est trois fois plus élevée chez les moutons que chez les chèvres.

Mots-clés : Caprin - Ovin - Thyroïde - Pathologie - Iran (République islamique d').