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# Observations on colloid goiter of dromedary camels in the Sudan

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**RÉSUMÉ**

TAGELDIN (M. H.), SID AHMED EL SAWI (A.), IBRAHIM (S. G.). — Observations sur le goitre colloïde chez le dromadaire au Soudan. *Rev. Elev. Méd. vét. Pays trop.*, 1985, **38** (4) : 394-397.

Le goitre nodulaire colloïde semble très courant chez le dromadaire, dans la région de Darfur, où cet animal s'est révélé plus sensible que les autres espèces à la carence en iode.

Des circonstances inhabituelles dans les cycles pastoraux de nomadisation ont joué un rôle décisif dans le développement de ces troubles.

*Mots clés :* Dromadaire - Goitre colloïde - Carence - Iode - Soudan.

**SUMMARY**

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Nodular colloid goiter appeared to be quite common among the dromedary camels in Darfur region. The camel was found to be more sensitive to iodine deficiency than other domestic animals. Unusual circumstances of migratory grazing cycle have played a major role in the development of condition.

*Key words :* Dromedary camel - Colloid goiter - Iodine deficiency - Sudan.

## INTRODUCTION

In Darfur region (Western Sudan) camel has been raised mainly in the Northern part between latitude 14°-18° N and longitude 23°-26° E (Fig. 1). Current climatic and ecological changes in the region, followed by draught and desertification, had enforced camel owning nomads to move southward in a reverse direction up to 10° N latitude. This has created nutritional and husbandary problems.

A single report of camel goiter has been traced in the literature (2). In the Sudan, human cases of goiter was well documented amongst Fur tribe of Jebel Marra (3) but the condition in animals, particularly camel, was not investigated.

The present investigation is dealing with the pathology and various factors that might contribute for the disease sequences.

## MATERIALS AND METHODS

The thyroid glands of 21 adult (6-8 years) camels (14 males and 7 females) slaughtered at El Fasher abattoir were collected weighed, and representative portions fixed in 10 p. 100 formal-saline, processed by the standard procedure and stained with H & E and Van Gieson's stains.

## RESULTS

The thyroid weight (both lobes) scaled between 29 g and 234.5 g (medium 58 g, mean 73 g) and in one incidence the weight was 3 250 g (Fig. 2).

Grossly, all thyroids were variably, bilaterally enlarged, cystic, solitary or multiple. In some cases the enlargement was enormous. The cysts

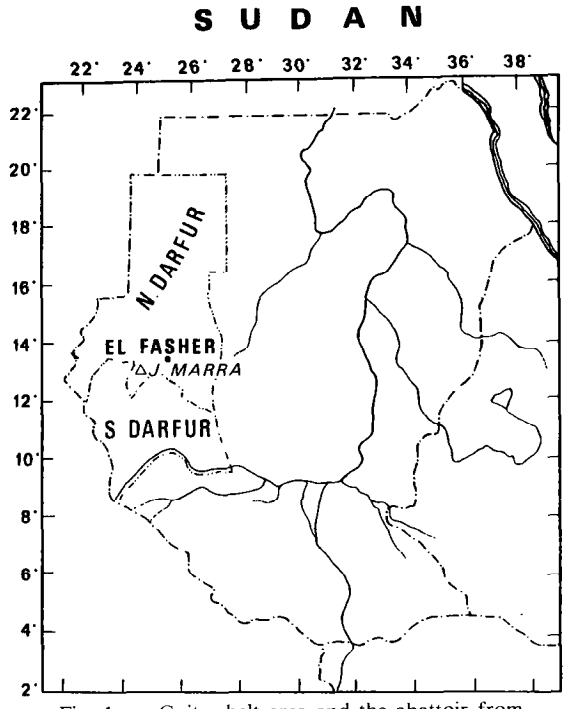


Fig. 1. — Goiter belt area and the abattoir from where specimens were collected.

were varying in sizes from 2 to 7 mm in diameter, bulging from the surface and usually involving both lobes and the isthmus. Some glands displayed large fluctuating cysts. The colour varied from pale to brown. The texture of some thyroids were a bit firm, others spongy. Their cut surfaces exudated slightly sticky, clear fluid or translucent jelly-like, in some instances leaving a honeycomb-like empty space.

Histopathologically, a predominently colloid goiter was conspicuous. In the early stages, changes usually start from the periphery which showed variation in follicular size. Some follicles become large and distended with colloid, group of follicles might rupture and coalesce to form a large cyst with the colloid seeping into the interfollicular spaces (Fig. 3).

Other cases were characterized by enlargement of the follicles. Some of them were empty and parts of the follicular epithelium protruded into the lumen to form small papillary projections.

While the more chronic cases showed distinct papillary unfolding and thick interfollicular

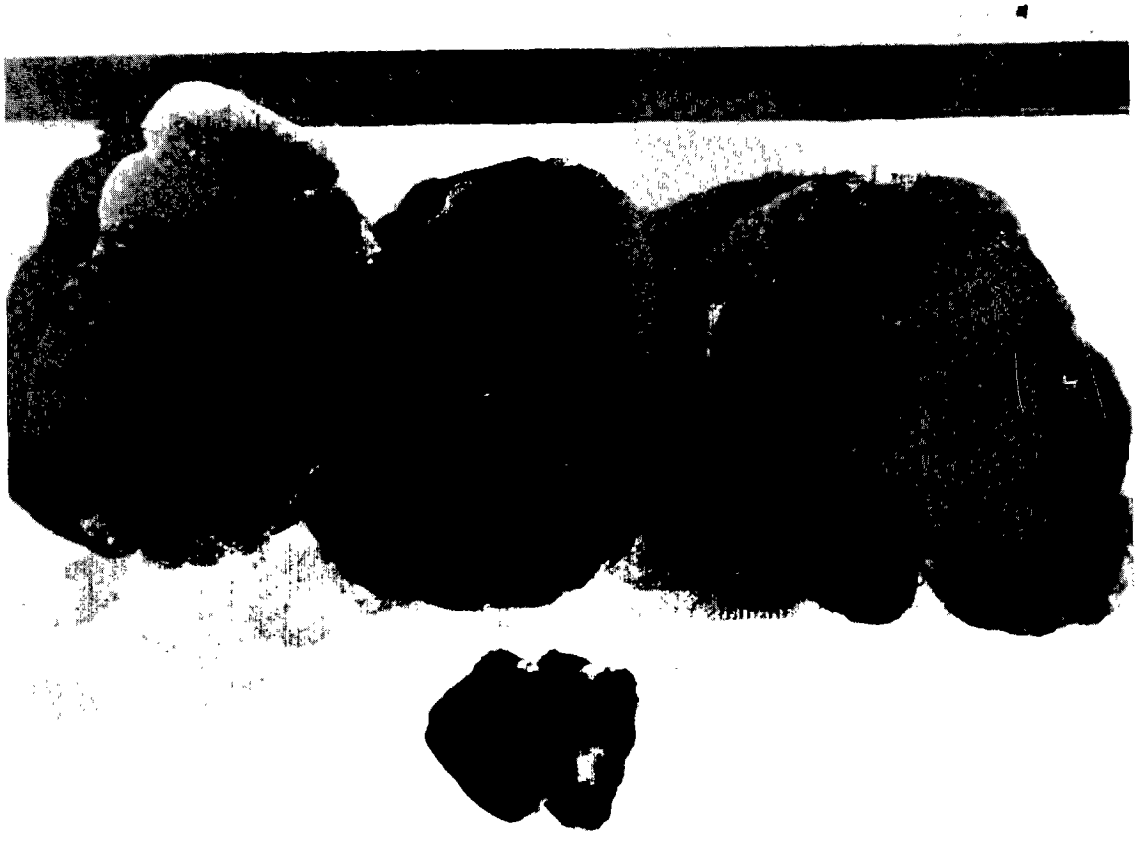

Fig. 2. — Longitudinally sectioned upper R and L colloid goiter (note the size) and lower L normal thyroid.

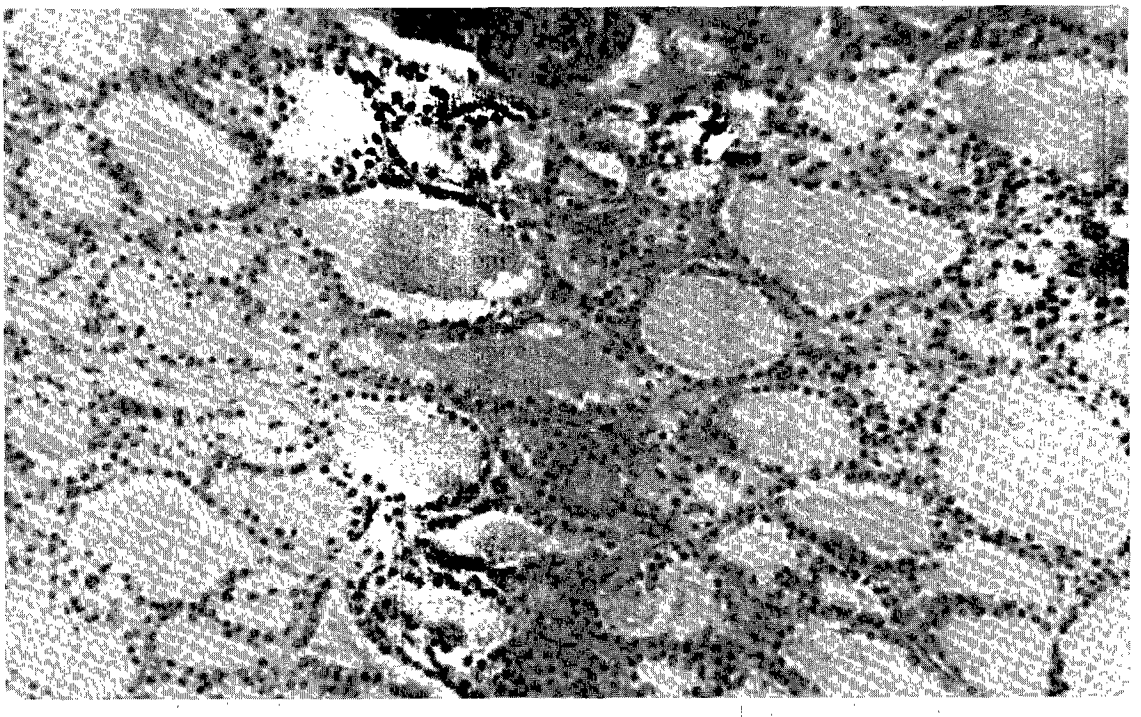

Fig. 3. — Variation in follicular size. Note the follicles and the interfollicular spaces filled with colloid. H & E × 400.

spaces as a result of fibrous tissue proliferation, diffuse fibrosis was evident in some areas (Fig. 4).

## DISCUSSION

Goiter was described in men and animals elsewhere and generally endemically present in the mountainous areas. Colloid goiter in a new born and aborted foetus of dromedary camels was reported by HRUSKA and McDERMID (2). In the region concerned, goiter in camel is designated locally as « El-hauta » (fish-shape tumour). It was encountered with moderate morbidity. The carcasses of the affected subjects were in good condition and passed for human consumption.

It appears that camels are more sensitive to iodine deficiency than other animals raised in the same environment (personal communication). This may be explained by the low iodine uptake of the camel (1), integrated with the unaccustomed shift in grazing into the known

Fig. 4. — Distortion of architecture. Note the very prominent papillary projection and thick interfollicular septa. H & E × 100.

iodine deficient zone. Moreover, the effect of goiterogenous plants that may be found in the area is not beyond the bounds of possibility.

Disturbance of thyroid function has a direct impact on the reproductive system, hence studies should be carried out in correlation with camel.

In addition, camel could be used as a model for furhter investigation of iodine assimilation.

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## RESUMEN

TAGELDIN (M. H.), SID AHMED EL SAWI (A.), IBRAHIM (S. G.). — Observaciones sobre el bocio coloide en el dromedario en Sudán. *Rev. Elev. Méd. vét. Pays trop.*, 1985, **38** (4) : 394-397.

El bocio coloide nodular parece muy común en el dromedario de la región de Darfur dónde este animal padeció más la carencia de yodo que otras especies.

Circunstancias inhabituales en los ciclos pastorales de la cría nómada desempeñaron un papel importante en el desarrollo de estos desordenes.

*Palabras claves :* Dromedario - Bocio coloide - Carencia - Yodo - Sudán.

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