
**A Note on the Occurrence of Struma
Colloides in Bovines in the
Transvaal.**

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THE frequency of pathological changes in the thyroid gland of cattle was noticed while making a collection of the endocrine glands from normal beef cattle, in the Pretoria Abattoir, for histological and anatomical study. The cattle slaughtered in the abattoir are from various districts in the Transvaal, but it was not possible to trace the exact locality from which they came. During the examination of the endocrine glands of 60 apparently normal slaughtered cattle, six showed pathological changes in the thyroid. These six were fully mature, Africander type cattle in good condition. The changes in the thyroid gland would not appear to have produced any clinical symptoms. The animals were not examined prior to slaughter, but the carcasses were of a high grade associated with health.

Macroscopically the thyroid showed some enlargement which in four cases was bilateral, and in two was confined to one-half of the gland only. The weight, except in one case, was not much changed. The thyroid which showed the greatest pathological change measured: Right, $6.5 \times 5 \times 2.8$ cm. Left, $7 \times 6 \times 2.5$ cm. Isthmus, 9×1.2 cm. Weight, 49 grams. This is considerably larger and heavier than the normal for the gland in cattle in this country. The unchanged size and weight in the other specimens can be accounted for by the fact that the pathological changes were entirely local, and not excessive.

The surface of the gland appeared irregular and showed cyst-like prominences, varying in colour from dark brown to amber, which were smooth and thin-walled. These cysts varied in size from .5 cm. to 2 cm. They were rounded or oval in outline. They were not diffusely distributed throughout, but were chiefly confined to the dorsal border. The remainder of the gland appeared unchanged. Changes in the isthmus were not observed. The number of cysts varied from two to five in each half of the gland. On section they contained a dark brownish to light brownish glistening transparent jelly-like material which was easily evacuated on pressure, leaving the cyst capsule collapsed. Neighbouring cysts presented a different appearance, some containing dark brown, others light brown to amber coloured contents. On close examination of the surface of section smaller vesicles were also evident in the neighbourhood of the larger ones, giving the cut surface a sponge-like appearance. In pathological specimens obtained from a bovine during routine post-mortem work at this Institute, the whole gland was involved, being entirely studded with cysts varying up to 3 cm. in diameter.

Microscopically, some of the vesicles are very much enlarged and filled with colloid. The enlarged vesicles are mostly in clumps, the neighbouring vesicles being normal in size. Some of those bordering on enlarged vesicles are flattened and deformed. The epithelium of the enlarged vesicle is of a flattened type and here and there has almost disappeared. In those vesicles, which are less swollen, the epithelium is of a low cubical type and

here and there tends to become flattened. The interstitium does not appear changed.

In the largest vesicle, which can be recognized with ease macroscopically, there is a proliferation of the epithelium. In some parts it is of a columnar type. In other parts there are local accumulations of epithelial cells which form bud-like processes extending into the lumen of the vesicle. In other places these bud-like accumulations of epithelial cells have formed long villi, some of which are single and some are branched and somewhat curved upon themselves. In the larger villi the epithelial cells are supported by connective tissue which contains small capillaries. Occasionally a villus which has been cut at a tangent appears free in the lumen of the vesicle. These large vesicles are all filled with colloid, and the villi are confined to the periphery. The branches of some of the villi fuse at their extremities forming small vesicles which contain a small quantity of colloid.

The pathological changes are entirely local, confined to circumscribed areas of the thyroid parenchyma. The larger portion of the gland appears normal.

This would appear to be the same condition described by *Trautmann* (1) as *struma colloides* with proliferation of the epithelium of the enlarged vesicles. In the vesicles where the enlargement is of a colloid nature, the epithelium is flattened in type, while in those showing papilliferous growth it is high cubical or columnar.

Struma colloides has frequently been described in bovines in other countries: *Hammer* (2), *Rossi* (3), *Woudenberg* (4), *Hedin* (5), *Krupski* (6). Attention has not been drawn previously to the prevalence of *struma* in cattle in this country. It is interesting, however, in view of the fact that natural cases of *struma* in human beings would appear to be of fairly rare occurrence in South Africa. Further, from the statistics of several thousand post-mortems carefully carried out at this Institute on the horse, sheep, pig, dog, and other animals, *struma* in South Africa would appear to be extremely rare in these animals.

It may be of interest to state that it has been found in a hyena which died at the Pretoria Zoological Gardens, and which was post-mortemed at this Institute.

In reading through the available statistics here, the following cases of *struma* have been described:—

Horse.—Two cases, one *struma colloides*, one *struma adenomatosa*.

Cattle.—Two cases, *struma colloides*.

Pig.—One case, *struma colloides cystica*.

Hyena.—One case, *struma adenomatosa*.

Raccoon.—One case, *struma adenomatosa*.

From a review of the statistics which are available from reports of the Pathological Division of this Institute for the past twenty years, it appears that *struma* in bovines is of rare occurrence in the Transvaal. It is all the more remarkable, therefore, that it should be found in 10 per cent. of the sixty cattle examined in the Pretoria Abattoir during the months of July and August this year.

It is unfortunate that the history of these animals could not be traced. An explanation of the high percentage affected with goitre may lie in the fact that they were raised in the same district.

LITERATURE.

1. Trautmann.—*Sp. path. Anat. der Haustiere*. Joest, Band 111. 1 Hälfte. Berlin, 1923.
2. Hammer.—*Diss. Giessen* 1911, cit. Trautmann (1).
3. Rossi.—*Nuova Ercol*, 1913, cit. Trautmann (1).
4. Woudenberg.—*Diss. Bern.*, 1909, cit. Trautmann (1).
5. Hédin.—*Hyg. de la Viande*, 1911, cit. Trautmann (1).
6. Krupski.—*Schweiz Arch. f. Tierhkk.*, 63, 1921, cit. Trautmann (1).

PHOTOGRAPH.

1. Strumous thyroid gland of a bovine showing very much enlarged vesicles filled with colloid, about two-thirds natural size.

MICROPHOTOGRAPHS.

2. Section from the thyroid gland of a bovine showing :—
 - (a) Enlarged vesicles filled with colloid ;
 - (b) Proliferation of the epithelium of a large vesicle forming papillae and new vesicles. $\times 40$.
3. Section of No. 2, showing formation of (a) new vesicles. $\times 85$.
4. Portion of the wall of an enlarged vesicle showing the papillary formation of the epithelium.

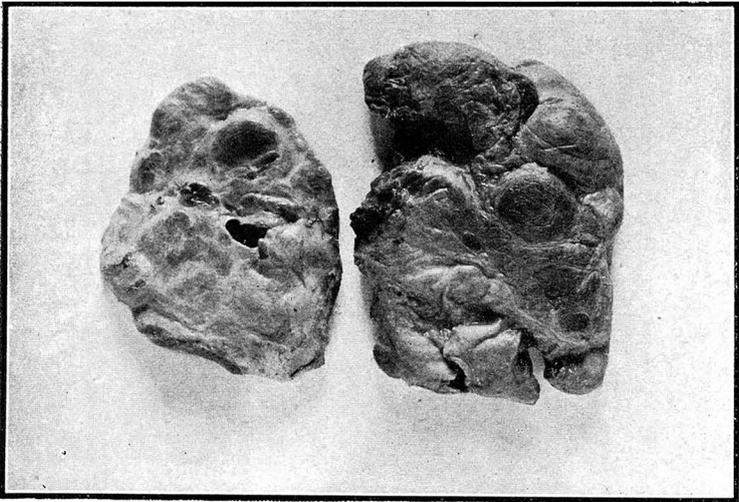


FIG. 1.

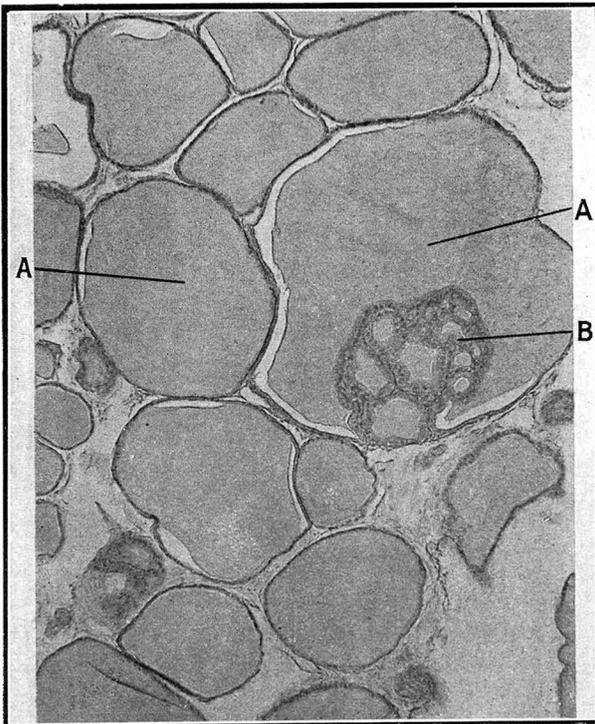


FIG. 2.

Struma Colloides.

[*Quinlan.*



FIG. 3.

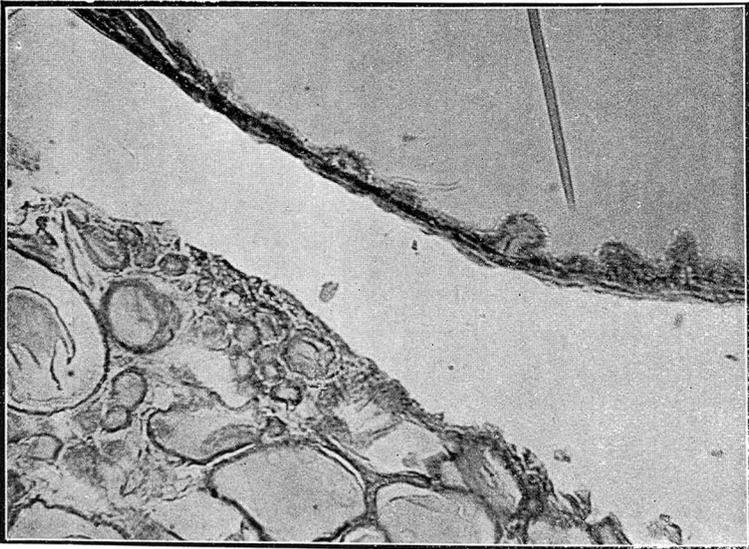


FIG. 4.

Struma Colloides.]

[*Quinlan.*