

1927

Histopathology of the Thyroid of the Guinea Pig in Experimental Scurvy

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Recommended Citation

Day, Katherine R. (1927) "Histopathology of the Thyroid of the Guinea Pig in Experimental Scurvy," *Proceedings of the Iowa Academy of Science*, 34(1), 317-319.

Available at: <https://scholarworks.uni.edu/pias/vol34/iss1/110>

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the cranium or the anterior trunk muscles, and are inserted on the endolymphatic sac, in the angle made as the latter abruptly turns ventrally into the ear capsule. In the skates the sac is small, compact and flattened; in the sharks it is more extended. Dr. Norris finds that in *Platyrrhinoidis* this muscle of the parietal fossa is innervated by a twig from one of the anterior spinal nerves.

The exact function of the endolymphatic sac and its muscle is yet to be determined. We can hardly agree with Daniel in assigning the function of a tympanum to the structures in the parietal fossa. Nothing like Davidson's shield-shaped membrane could be found. It is most likely, as Dr. Norris has suggested, that the endolymphatic sac and its muscle have a function related to pressure adjustment and accommodation. In elasmobranchs the duct opens externally so that at unaccustomed external pressures the equilibratory system may need adjustment. The pressure within the labyrinth should be maintained at a constant level. The sac with its convolutions and attached muscle would readily lend itself to constriction in this case. It may be also that the muscle aids in clearing the duct of an excess accumulation of lime crystals. In any event the final solution will require careful experimentation with living animals.

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HISTOPATHOLOGY OF THE THYROID OF THE GUINEA PIG IN EXPERIMENTAL SCURVY

KATHERINE R. DAY

Chronic scurvy was induced in guinea pigs by a diet of dried foods supplemented by 0.25 cc to 5 cc orange juice given daily per os by means of a pipette.

Animals of as nearly the same age and weight as possible were selected. The sexes were divided equally between control and experimental groups.

After a period of fifty-one days, the animals were decapitated, and the thyroids dissected out intact with the trachea. These were fixed in Zenker's fluid; serial sections made and stained with Delafield's haemotoxylin and Eosin.

The colloid in follicles of comparable areas from the two groups of animals was measured in two diameters and the number of follicles in the same areas counted. The results showed no significant difference in the amount of colloid.

Estimation of the amount of interfollicular tissue gave the results tabulated below:

	AREA I		AREA II		AREA III		AREA IV		AREA V	
	AMOUNT OF CELLS BETWEEN FOLLICLES	EVIDENCE OF HEM-ORRHAGE	AMOUNT OF CELLS BETWEEN FOLLICLES	EVIDENCE OF HEM-ORRHAGE	AMOUNT OF CELLS BETWEEN FOLLICLES	EVIDENCE OF HEM-ORRHAGE	AMOUNT OF CELLS BETWEEN FOLLICLES	EVIDENCE OF HEM-ORRHAGE	AMOUNT OF CELLS BETWEEN FOLLICLES	EVIDENCE OF HEM-ORRHAGE
Control I.....	slight	negative	slight	negative						
Control II.....	slight	negative	slight	negative	slight	negative	slight, much in places	negative	slight	negative
Control VII.....			slight	negative						
Control VIII....	slight	negative	slight	negative	slight	negative	slight	negative		
Scurvy V.....	increased over normal	negative	increased over normal	negative	increased over normal	positive	increased over normal	positive		
Scurvy VI.....	increased over normal	negative	slightly increased over normal		increased over normal	positive	greatly increased over normal	positive	greatly increased over normal	positive
Scurvy X.....			slightly increased over normal		slightly increased over normal	negative	slightly increased over normal	doubtful	slightly increased over normal	doubtful
Scurvy XII.....							greatly increased over normal	positive	greatly increased over normal	positive

The table shows an increased amount of interfollicular tissue in all thyroids from guinea pigs in chronic scurvy. This is interpreted as an indication of pathology in the thyroid as a result of scurvy. The hemorrhagic condition is further indication of abnormality.

Investigation is being continued.

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SULPHATE RETENTION FOLLOWING BILATERAL ADRENAL EXTIRPATION

W. W. SWINGLE AND W. F. WENNER

Introduced by GILBERT L. HOUSER

Previous experiments by the senior writer have clearly shown that the cause of death following adrenal removal is an acid intoxication probably due to phosphoric and unknown organic acids. In the absence of the hormone of the adrenal cortex, the kidney fails to function properly with the result that marked acid and nitrogen retention occurs. In our previous work on the acid-base equilibrium the acid values of the serum protein, bicarbonate, chloride, and phosphorus were calculated. Total acid was taken as the sum of all the determined acids. Organic acid was calculated by subtracting total acid from total base and included the sulphate ion.

It was found impossible to obtain sufficient blood from cats to determine the acid-base equilibrium and for sulphate determination at the same time. Recently however, in a series of experiments performed upon dogs it has been found that a marked retention of sulphur (as sulphate) occurs following bilateral adrenal removal. The sulphur content of normal unoperated (or unilaterally operated) dogs varies from .6 of a milligram to 2 mgm. per 100 cc. of blood. Following the onset of serious symptoms of adrenal insufficiency the sulphur of the blood rises markedly. A few hours before death the sulphur may be 12-13 mgm. per 100 cc. of blood. It seems probable that sulphate retention is an important contributing factor in the acid intoxication of adrenal insufficiency.

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