

## A HISTOLOGICAL STUDY OF THE EFFECT OF RED MEAT ON THYROID AND PARATHYROID GLANDS IN DOGS

### *Canis familiaris*

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**ABSTRACT:** The study includes four littermate domestic house dogs, two of them male and female were fed natural food, and the other two male and female were fed red meat only.

The results have shown normal histological picture of thyroid and parathyroid glands in the control dogs. The test dogs showed hyperplasia and hypertrophy of thyroid and parathyroid glands which indicated that the overintake of red meat leads to nutritional secondary hyperparathyroidism.

### INTRODUCTION

Nutritional secondary hyperparathyroidism (NsH) in the dogs is a disease in which parathyroid hyperactivity is induced by an imbalanced dietary calcium-phosphorus ratio in which a generalized osteitis fibrosa is the outstanding morphologic change. The origin of this disease has been established by the work of Senter (1957).

The effect of low dietary calcium and high phosphorus which resulting (NsH) are well recognized in mammals (Krook; 1969). Arnold *et al.* (1974) found that young parrakeets were feeding commercial bird-seed, resulting in (NsH), which was characterized by parathyroid hypertrophy and hyperplasia. In further study Krook *et al.* (1972), showed a pronounced hypertrophy in parathyroid gland which resulting from feeding diet without calcium in human.

The aim of the present study is to emphasize that overintake of daily red meat causing hyperplasia of thyroid and parathyroid glands.

### MATERIAL AND METHODS

Four littermate domestic house dogs 3.5 month of age were used in Summer, two of them male and female were fed red meat only. The control male and female dogs were fed natural food.

The experimental were terminated after six months the animals were killed by intravenous overdose anesthesia, thyroid and parathyroid glands were removed, fixed and embedded according to (Luna; 1960).

### RESULTS

The histological picture of thyroid gland in section taken from the control animals consist of follicles which were separated from one another by interfollicular connective tissue. The follicles consist of simple cuboidal epithelial cells called follicular cells, with average diameter of (0.4  $\mu$ m). These follicles were filled with colloid. A group of cells placed at the basement of the follicular cells are called c-cells or parafollicular cells which have an oval shape and average diameter of (4.6  $\mu$ m) (Fig.1).

The thyroid gland of test animals showed a pronounced hyperplasia of c-cell which average diameter of (8.5  $\mu$ m). The follicular cells were changed from cuboidal into a circular shape in section and have a diameter of (6.4  $\mu$ m). Shrinkage of colloidal substance was frequently observed (Fig.2)