HISTOMORPHOLICAL STUDY OF THE PARATHYROID GLAND OF ONE-HUMPED CAMEL (CAMELUS DROMEDARIUM)

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SUMMARY

Parathyroid gland of ten adult one-humped camel has been collected from the slaughter house. Glands have been fixed sectioned and stained by several procedures. The gland measured 1.2 cm in length, 0.4 cm in width and 0.25 cm thick. It differs in position from left to right side due to displacement of thyroid gland. The gland consisted of aggregate of cells arranged as solid masses, clusters, cords or strands. The parenchyma of the gland appeared with different cell density. Four cell type has been distinguished, viz., light as well as dark chief cells, oxyphils and syncytial cells.

INTRODUCTION

Gross, light as well as electron microscopic study of parathyroid gland of different animals have been investigated, viz., chick embryos (Narbaitz; 1972); laying hen (Nevalainem, 1969); pigeon (Hoyt et al., 1973); mammals and birds adult rabbits (Rosenquist and Boquist, 1973); dog (Bensley, 1947) and mammals and birds (Stoeckeld and prote, 1971). Moreover, internal
parathyroid of the goat has been described by Ray et al., (1984). Curtis (1930); Halsted and Evans (1907) and Weymouth and Sheridon (1966) have described the parathyroid gland of man and its blood supply.

Little information is known about the parathyroid gland of One-humped camel in the available literature. Therefore, this work has been suggested to describe the gross and light microscopy of the gland.

MATERIALS & METHODS

Ten parathyroid glands with the adjacent connective tissue, were collected from apparently healthy Camels after slaughtering. Glands cut into two to four pieces and placed in 10% formalin solution for 24 hours, the routinely processed for paraffin sectioning. Blocks of paraffin were sectioned at 4-6 um thickness and stained with H.&E., Weigert's elastic and Masson's trichrome stains.

RESULTS AND DISCUSSION

The parathyroid gland was found to be situated at the cranial pole of the thyroid gland on a dorsolateral positions. The gland measured 1.2 cm in length, 0.4 cm in width and 0.25 cm thick. It was situated on the first trachea ring embedded partly in the capsule of the thyroid gland. Sometimes, the gland was found close to the cricoid cartilage of the larynx or partly on the cartilage and partly on the first trachea due to the displacement of the thyroid gland on one side. The parathyroid gland was related dorsally to the recurrent laryngeal nerve and the esophagus and ventrally to the thyroid gland. It was closely related to the dorsal aspect of the distal branch of the cranial thyroid artery from which it took its blood supply.
The gland was divided into two parts, i.e., external and internal. The external part, described grossly above, was surrounded by thin connective tissue capsule, while the internal one usually found embedded in the caudal portion of the thyroid gland and deroid of capsule. Delicate connective tissue septae partially dividing the gland into poorly defined lobules and still finer septae tend to separate the parenchyma into anastomosing cords and cell groups (Fig.1).

Fig.1. External parathyroid of one-humped camel showing different cell arrangements. H. & E. Stain. May.95X
A. cord-like arrangement of cells
B. Connective tissue septae
Embryologically, the external parathyroid gland, which is also called parathyroid four or superior parathyroid, developed from the fourth pharyngeal pouch, while the internal one which is called parathyroid three or interior parathyroid, developed from the third pharyngeal pouch in conjunction with the thymus (Watterson and Sweeney, 1973). In this research, both external and internal parathyroid were present in the camel the internal one, though was found embedded in the cardal portion of the thyroid gland due to the migration of the gland in early life of development.

Principally, the parathyroid gland was composed of chief cells (light and dark) and oxyphil. The chief cells were of constant occurrence throughout the parenchyma, while the oxyphils which predominate at the periphery of the gland. The chief cells were polygonal, oval or elongated with the nucleus slightly oval or round in outline, where the chromatine was peripherally concentrated. The oxyphil cells were larger than the chief and usually have smaller and darker stained nuclear. Their cytoplasm stained well with eosin and contained fine granules (Fig.2).

Generally, no characteristic arrangement of cells were noticed in the gland. Cell aggregates besides from of cotds, islets or clusters between strands of connective tissue were observed. Connective tissue tend to be thick at the cranial pole of the gland and relatively thin at the caudal pole of the thyroid gland.
Fig. 2. Internal parathyroid of one-humped camel showing the same characteristic arrangement of cells as the external one. Masson's trichrome stain. May 87X
A. oxyphil cell
B. chief cell (light)
C. chief cell (dark)

Regressive changes were noticeable with age in several animals as in goat (Roy et al., 1984). No. such changes were deleterious because age of animals were not taken into consideration. When the boundaries between cells disappeared syncytial cells appeared occasionally throughout the gland (Fig. 3).
Fig. 3. External parathyroid. H. & E. Stain. May. 82X
A. syncytial cell

REFERENCES


دراسة شكلية نسجية للغدة جنب الدرقية
في الجمل ذو النام الواحد

د. نعّمان سليمان مشهد السامرائي، د. وائل عبد الحميد خميس،
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الخلاصة

الغدة جنب الدرقية عشرة جمالي يتفرع جمالي من المجزرة.
الغدد ثابتة وقائمة باستخدام عدة طرقات. وجدت الغدة بأنها 3.6 سم
طولها و 2.6 سم عرضا و 2.5 سم سمكا. تختلف الغدة اليسرى عن اليمنى
في موقعها وذلك لاختلاف الغدة الدرقية في الموقع.

الغدة متكونة من مجامع من الخلايا المرئية على شكل كتل ملدة
أو عناقيد أو جبال. متن الغدة ظاهر بأنه متكون من كثافة خلوية
مختلفة. أربعة أنواع من الخلايا تم تمييزها وهي خلية رئيسية
فاتحة ودائنة وخلايا حمضية وأخرى مخالبية.