INTRODUCTION

Luteinizing hormone (LH) and his receptor are responsible for causing ovulation and stimulating the corpus luteum to produce progesterone in the female, whereas it causes testosterone production in the male. Furthermore, recent evidence demonstrates the existence of luteinizing hormone receptor (LHR) expression outside of the reproductive tract. Non-reproductive tissues that have been reported to express LHR include canine skin, bladder and urethra, thyroid gland, and adrenal cortex. Gonadectomy disrupts the negative feedback to the anterior pituitary, resulting in sustained, supraphysiologic circulating concentrations of LHR that are more than twenty times the concentrations found in intact adult females.6 See A — B.

OBJECTIVES

Based on the recent studies that have shown the expression of the LH receptor in several normal and neoplastic tissues, the mitogenic actions of LHR activation,6 the association of LHR expression and neoplastic tissues, the mitogenic actions of LHR activation,8 the association of LHR expression with neoplastic mast cells.8 It is assumed that breed, age, weight and gonadectomy may affect the MCT development.7

MATERIALS AND METHODS

Cutaneous mast cell tumors (MCT) is one of the most common neoplasms in dogs, accounting for 10–21% of all skin tumors in dogs.8 It is assumed that breed, age, weight and gonadectomy may affect the MCT development.9

RESULTS

Using immunohistochemistry, we identified LHR expression in all of the MCT evaluated. Results are summarized in Table 1. Three distinct patterns of LHR immunoeexpression, similar to that of proto-oncogene c-Kit (mast cell growth factor receptor),10 were identified. See Figure 1 — Figure 2 — Figure 3.

Case demographics and results from LHR and c-Kit immunohistochemistry are summarized in Table 2.

DISCUSSION AND CONCLUSIONS

Although several studies previously have demonstrated expression of LHR in neoplastic tissues including canine lymphoma,6 hemangiosarcoma,11 and human thyroid gland adenoma,12 this is the first study to demonstrate the expression of LHR in canine cutaneous MCT. What role LHR plays, if any, in normal and neoplastic non-reproductive tissues is still under investigation. Some overlap between immunolocalization patterns of LHR and c-Kit was observed but it is unknown if the two receptors are functioning synergistically in MCT development or maintenance.

With more research into the long-term health adverse effects associated with gonadectomy in dogs, evidence is becoming available to support other methods for sterilization.13

REFERENCES


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