

## MAMMARY SQUAMOUS CELL CARCINOMA OF A DOG

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### SUMMARY

Biopsy examination of pedunculated growth in the right mammary gland of a five year old bitch revealed squamous cell carcinoma. It was characterized primarily by a number of sheets of stratified squamous epithelium showing anaplastic changes in cells viz., large, round hyperchromatic nuclei with prominent nucleoli and mitotic figures. Keratinized layers of cells in form of cell nests/pearls were noticed in the centre of these sheets surrounded by connective tissue having blood vessels.

**Key words:** Dog, mammary gland, squamous cell carcinoma

Mammary tumors are the second most common group of neoplasms in dogs, following skin tumors. They are the most common tumors in bitches, comprising 30-50% of all neoplasms (Kumar *et al.*, 1992). Singh *et al.* (1991) reported adenocarcinoma to be the most frequent (14.6%) among canine mammary tumors. Squamous cell carcinoma of the mammary gland is rare in both veterinary and human medicine (Sassi *et al.*, 2008). In this manuscript, a rare case of mammary gland tumor in a bitch is described.

A five year old bitch was presented to the Teaching Veterinary Clinical Complex, CCS Haryana Agricultural University, Hisar with a history of pedunculated growth in the right mammary gland since two months. After the growth was excised surgically, the representative piece of tissue was collected in 10% buffered neutral formalin and sent to the Department of Veterinary Pathology for histopathological examination. The tissue was processed by routine histopathological technique and 4-5  $\mu$  thick sections were cut and stained with routine Hematoxylin and Eosin (H & E) method (Culling, 1995).

Histological examination of the growth revealed squamous cell carcinoma of mammary gland. The nuclei of individual neoplastic spinosum cells ranged from small and pyknotic to large and round with prominent nucleoli which were large round or angular.

The nuclear to cytoplasm (N:C) ratio was increased and was variable. The cytoplasm appeared moderate to deep blue and had a smooth texture with occasional vacuoles. These changes were associated with keratinization giving the appearance of typical pearls/cell nests surrounded by connective tissue having blood vessels (Figs. 1 and 2). Binucleated and multinucleated tumor cells showing anaplastic changes were observed occasionally (Fig. 3).

The etiology of the spontaneous mammary tumors in canines is still unknown. Primary squamous cell carcinomas of the mammary gland are rare, since they occur in less than 1% of all primary invasive mammary gland carcinomas. Causative pathogenesis of primary squamous cell carcinoma of the mammary gland is not clear (Krech *et al.*, 1998). However, endocrine stimulation and chronic inflammation may play an inductive role. During the age of 4 to 10 years, the bitches of most of the breeds are reproductively active and the mammary gland epithelium is already primed for proliferative activity under the influence of various hormones. So, hormonal disturbance concomitant with carcinogenic exposure make the mammary epithelium to respond to develop tumors (Srivastava *et al.*, 2009). Squamous cell carcinoma has a similar appearance to similar neoplasms that arise in the skin and other sites of the body. In this case, tumor growth was only on the mammary gland.

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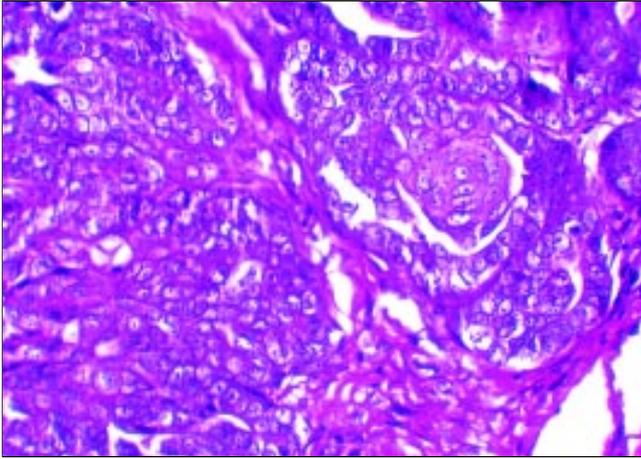


Fig 1. Mammary gland showing cells forming cell nests/pearls with pyknotic to large round nuclei and prominent nucleoli. (H. & E. x 400)

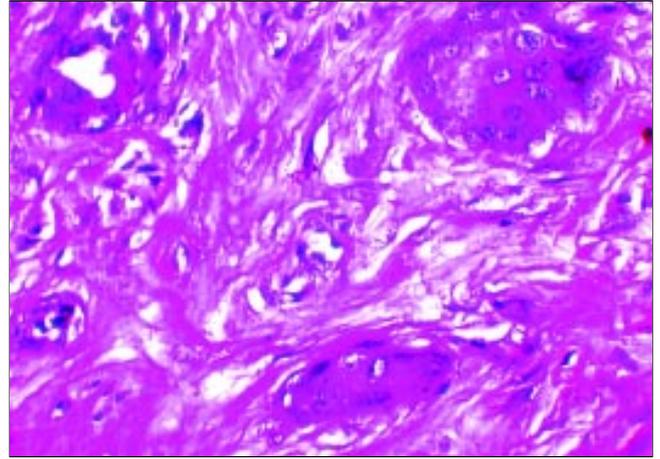


Fig 3. Squamous cell carcinoma in mammary gland: Binucleated and multinucleated tumor cells showing anaplastic changes. (H. & E. x 400)

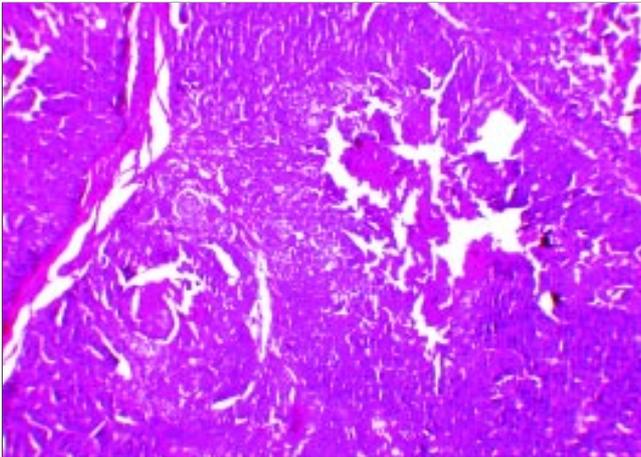


Fig 2. Mammary gland showing neoplastic spinosum cells forming cell nests/pearls in initial stages. (H. & E. x 100)

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