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## Rare type of grade ii lipid-rich canine mammary carcinoma

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**Abstract**

A Daschund intact bitch had a single spherical, multinodular and greyish white mass, measured about 6.5cm, on the left caudal abdominal mammary gland. Fine needle aspiration biopsy examination revealed the presence of numerous epithelial clusters with malignant characteristic of nucleus and cytoplasm. Histopathological examination revealed that cysts were separated by fibrovascular connective tissue. Round to oval neoplastic cells with distinct cell borders. There were multiple small to large solitary vacuoles in the cytoplasm that pushed the nuclei to the periphery of the cell (Signet ring cell). Based on the cytological and histopathological examination the case was diagnosed as special type of Grade II lipid-rich carcinoma.

**Keywords:** Dog, lipid-rich carcinoma, mammary

**Introduction**

Mammary gland tumour is the mainly common type of tumour affecting dogs and accounting for 25-42% of canine neoplasm. The variety of tumours arising from mammary gland, amongst Lipid rich carcinoma is a rare type of tumour, which is appear in intact female animals. It is chiefly occur as more aggressive, poorly differentiated, lack of estrogen receptors, metastasis to regional lymph node and other organs (Espino *et al.*, 2003)<sup>[1]</sup>. This is extremely a rare variety of infiltrating duct mammary carcinoma in dogs and still pathological features are obscure (Mistrop, 2002)<sup>[4]</sup>. Histopathologically, it is a sub classification of simple carcinoma of mammary gland. The neoplastic cells are glandular origin which is resembling sebaceous gland tumour, has been reported in human (Pen *et al.*, 2003)<sup>[6]</sup>. It is extremely rare in dogs and diagnosis is difficult because of low expression in immunohistochemistry. The present paper describe on the pathology of Grade II lipid-rich carcinoma in a Daschund intact female dog.

**Materials and method**

A five year old intact Daschund bitch was presented to a private veterinary clinic with the history of having a single spherical, multinodular and greyish white mass, measured about 6.5cm on the left caudal abdominal mammary gland. Clinical examination revealed that, the mass was multilobulated and had multiple cystic spaces with central necrohaemorrhagic areas. Those cystic spaces contained viscous yellowish fluid (Fig.1). FNAB was performed from the mass as per the standard procedures. Smear was prepared and stained with Leishman-Giemsa stain as described by (Garbyl *et al.*, 2006)<sup>[2]</sup>. Haemogram and biochemical values were performed by automated cell counter and automated bio chemical analyzer with standard diagnostic kits. The mass had been removed surgically. Representative tissue pieces had been collected in 10% formalin. Paraffin embedded tissue sections were made and stained with haematoxylin and eosin (H&E) stain.

**Results and discussion**

Haematobiochemical examination revealed no significance changes. Cytological smears showed high cellularity and marked anisocytosis. Neoplastic epithelial cells wer arranged in clusters. Cells were densely packed with varying sized fine to large lipid vacuoles in the cytoplasm as reported earlier (Chul kim *et al.*, 2014)<sup>[5]</sup>. The lipid vacuoles present in the cytoplasm of tumour cells might have helped in metastasis to distant organs and clinical

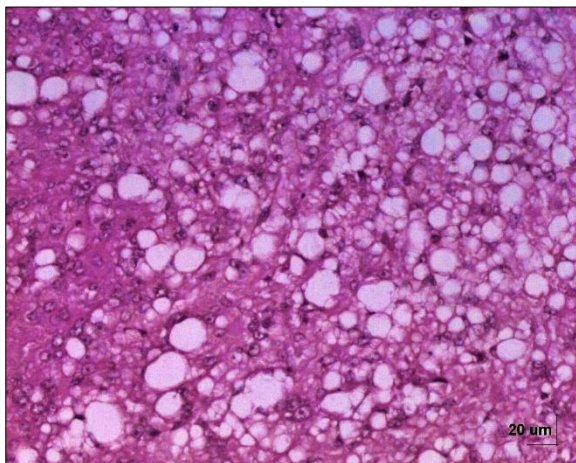
aggressiveness (Le *et al.*, 2005). Histopathological examination revealed that cysts were separated by fibrovascular connective tissue. Round to oval neoplastic cells with distinct cell borders and moderate to abundant cytoplasm were arranged as solid nests and cords separated by a moderate amount of fibrous stroma. Moderate tubule formation, nuclear pleomorphism and mitotic index were observed. There were multiple small or large solitary vacuoles in the cytoplasm (Fig.2) that pushed nuclei to the periphery of the cell (Signet ring cell), Which is in agreement with Persz *et.al.* (2005) [7] who described that the tumour showed tubular formation and cytoplasm contained lipid vacuoles, which allowed the longevity of tumour cells within the blood and promoted the tissue invasion.

### Summary

A case of Grade II lipid rich carcinoma tumour was diagnosed and recorded in a daschund intact female dog and cytological and histopathological changes were studied and reported.



**Fig 1:** Dog-Mammary growth- Cut section- Multinodular grayish yellow, cystic, necrohaemorrhagic - Lipid rich carcinoma



**Fig 2:** Lipid rich carcinoma-Numerous varying sized clear vacuoles in cytoplasm with peripheral nuclei H&E bar=20µm

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