Pathology of the Mast Cell Tumour in a Chippiparai Dog

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Abstract

A nine years old Chippiparai dog was brought to the Teaching Veterinary Clinical Complex with the history of a hard pale swelling on the ventral abdomen. Pale brown coloured mass was noticed on the ventral abdomen. Fine Needle Aspiration Biopsy (FNAB) revealed the presence of neoplastic round cells with cytoplasmic metachromatic granules. Haematological parameters were within the normal range except slight increase in the serum creatinine and phosphorous level. Histological examination revealed neoplastic cells which invaded the dermis and subcutaneous tissue and it was confirmed as a Grade III mast cell tumour.

Key words: Chippiparai dog, pathology, mast cell tumour

The present paper describes the Pathology of an invasive Grade III mast cell tumour in a Chippiparai dog.

Materials and Methods

A nine year old male Chippiparai dog was presented at the Teaching Veterinary Clinical Complex, Veterinary College and Research Institute, Tirunelveli-627 358 with the history of a swelling on the skin of the ventral abdomen. Grossly, a hard pale brown mass about 5 x 3 cm in size was noticed. 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). Haemogram was performed by automated cell counter (3 part celenium junior, Trivitron). Serum biochemical values were measured spectrophotometrically with standard diagnostic kits (Trivitron) by using semi-automated bio chemical analyzer (Lab Mate). The mass was surgically removed and collected in 10 % formalin. Paraffin embedded tissue sections were stained with haematoxylin and eosin (H&E) stain.

Fig 1. Chippiparai dog-Mast cell tumour- Numerous mitotic figures. Scale bar H&E 20 µm.

Fig 2. Chippiparai dog-Mast cell tumour-Purple cytoplasm granules. Scale bar TB 10 µm.

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Results and Discussion

Cytological smears revealed high cellularity of the round neoplastic cells and anisocytosis. The neoplastic cells were densely packed with varying sized fine to large metachromatic granules in the cytoplasm. Grossly, a hard pale brown mass about 5 x 3 cm in size situated in between the 10th and 11th ribs of the lower abdomen on the left side. Haemato biochemical examination revealed significant changes. There was slight increase in the serum creatinine- 2.3 mg/dL (Normal 0.5 - 1.4 mg/dL) and phosphorus- 6.5 mg/dL (Normal 4.0 – 7.0 mg/dL). It might be due to aging factor. Microscopical examination revealed sheets of the neoplastic cells in the dermis which invaded into the subcutaneous tissue and fat. Neoplastic cells were pleomorphic round to spherical and spindle shaped with distinct to indistinct cytoplasm which contained sparse to many metachromatic granules. Single to binucleated cells were also seen. The round to ovoid nuclei were vesicular and had one or two nucleoli with fine to moderate coarse chromatin. Mitotic figures (Fig-1) were numerous (3-7/high power field). There was mononuclear cell infiltration with oedema and necrosis. The stroma was moderate. Goldschmidt and shofer (1998) recorded all the features except mitotic figures. Toludine blue staining of the tissue sections revealed purple coloured granules in the cytoplasm (Fig-2). Donald J. Meuten (2002) described that the grade III mast cell tumours had frequent mitotic figures and low number of cytoplasmic granules. Chippiparai dog is a native breed of the southern districts of Tamil Nadu. After the surgical excision, owner did not bring the animal for review.

References

