Feline Multicentric T Cell (CD3+) Lymphoblastic Lymphoma

M. Thangapandiyan¹, R. Nivethitha, C. Balachandran, K. Jeyaraja and R. Sridhar
Department of Veterinary Pathology, Madras Veterinary College, TANUVAS, Chennai-600 007, India.

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Abstract
Clinical, cytological and immunocytochemical characteristics of lymphoma in two female cats were described. Cats were presented with the history of mild fever and peripheral lymphadenopathy. Both the cats showed anaemia, elevated SGPT, BUN and creatinine. The cases showed strong positive signals when stained for CD3. Based on clinical findings, cytology and immunocytochemistry the cases were diagnosed as lymphoblastic T cell lymphoma.

Key words: Lymphoma, cat, cytology, immunocytochemistry

Multicentric lymphoma is less common in cats than in dogs and is rarely associated with peripheral lymphadenopathy. Feline lymphoma accounted for approximately 30% of all diagnosed tumours (Ettinger 2003). Large T cell lymphoma is the most common type involved (Hoover and Mullins 1991). It is estimated that the incidence of feline lymphoma is approximately 200 cases per 100,000 cats, which is higher than in other species (Hayes 2006a).

Materials and Methods
Two domestic short hair breed female cats were presented at the Madras Veterinary College Teaching Veterinary Hospital, Chennai with the history of mild fever and a progressive growing mass near the shoulder region. They were aged three and five years and had weight loss, anorexia, vomiting and lethargy. Physical examination revealed enlargement of the prescapular lymph nodes and popliteal lymph nodes. All other peripheral lymphnodes were normal and the animals were active.

Fine needle aspiration biopsy (FNAB) smears from peripheral enlarged lymph nodes, whole blood and serum were collected for examination. All FNAB smears were air-dried and stained with May-Grunwald-Giemsa stain (MGG) for morphological evaluation of the lymphocytes. Abdominal ultrasonography was also carried out.

For immunocytochemistry (ICC), FNAB smears were made on the slides precoated with Poly L-Lysine (Sigma Pvt. Ltd) and stained with anti CD79a and anti CD3 antibodies to assess the expression. Cytologic specimens for immunocytochemistry were stained by a streptavidin-horseradish peroxidase method according to the manufacturers instruction (Pathnsitu, USA).

Results and Discussion
Cytological examination revealed the presence of high number of medium to large lymphoblasts with irregularly round or slightly convoluted nuclei, finely dispersed dusty chromatin, single to multiple prominent nucleoli with medium mitotic index, and scant to moderate basophilic cytoplasm (Fig.1). Immunocytochemistry revealed moderate to intense cytoplasmic expression of CD3 antibody in more than eighty percent of the cells (Fig.2) and negative for CD79a expression, which confirmed the T cell lymphoblastic lymphoma.

On abdominal ultrasonographic examination, the cat, aged 5yrs, revealed enlargement of the spleen and mesentric and sublumbar lymph nodes. The other cat did not reveal any abnormality. Haematological parameters showed anaemia (Mean Hg 7.2g/dL; PCV 23%; RBC 4.3x10⁶/µL) and serum biochemical analysis showed elevated blood urea nitrogen (44mg/dL), creatinine (3.5mg/dL) and serum alkaline phosphatase values (120IU/L).

¹Corresponding author : Email : sugigold@gmail.com
Multicentric lymphoma is much less common in cats than in dogs and is rarely associated with peripheral lymphadenomegaly. Unlike dogs, cats infrequently show generalised lymphadenopathy and rarely reveal paraneoplastic hypercalcaemia.

Feline lymphomas are most commonly of gastrointestinal form and of B cell origin. Gabor et al. (2008) observed that submandibular lymph node was the most commonly affected node in nodal lymphosarcoma. Infection with retroviruses, FeLV and FIV have long been associated with the development of lymphoma in cats. Forty-seven of 118 (40%) cases had involvement of the peripheral lymph nodes in a study carried out by Gabor et al. (loc.cit). In their study, there was a predisposition for the lymph nodes of the head and neck in the cases with solitary nodal involvement. The mandibular lymph node was most commonly affected (10 cases), followed by the superficial cervical lymph node, axillary lymph node and popliteal lymph node.

Although, cats are often described to have multicentric lymphoma, where multiple organ systems are involved, the generalised lymphadenopathy that is commonly seen in dogs are seldom seen in cats. This category of lymphoma in cats is usually associated with liver, spleen or peripheral/intra-abdominal lymph node involvement (Hayes 2006b). Moore et al. (1986) reported that peripheral lymph node enlargement was an unusual observation in cats.

Based on the clinical signs, cytology and immunocytochemistry the cases were diagnosed as feline multicentric T cell (CD3+) lymphoblastic lymphoma.

References