SUBCUTANEOUS B-CELL LYMPHOMA IN THE CAT: A REPORT OF TWO CASES

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Cutaneous lymphomas are a group of heterogeneous skin neoplasms, rarely described in cats (less of 1% of feline tumours). Non-epitheliotropic and epitheliotropic forms must be distinguished *(Scott et al, 2001; Gross et al, 2005)*.

We reported the clinical, cytological, histopathological and immunohistochemical features of non-epitheliotropic subcutaneous B-cell lymphoma in two cats and the management in one of them with masitinib, an oral tyrosine kinase inhibitor.

CASE 1

A 6-year-old spayed female European shorthaired cat was presented for numerous painless firm subcutaneous nodules (measuring 5 to 20 mm in diameter), which were sometimes alopecic, erosive or ulcerative.

Cutaneous lesions were generalised, spreading from interscapular area and neck to the lateral aspect of the thoracic walls, ventral thorax, inguinal abdomen and right hind limb. They were characterised by several painful firm nodules, ulcerated or not, sometimes coalescent, leading to licking and lameness *(Figs. 1-3)*.

General signs included a moderate weight loss and lethargy, hyperthermia and a decreased appetite.

Cytological examination of nodules (fine needle aspiration) showed small lymphoid malignant cells with basophilic cytoplasm and round to oval nuclei *(Fig. 6)*.

Histopathological lesions from skin biopsy specimens revealed a diffuse dermal and subcutaneous infiltration characterised by atypical independent round cells (basophilic cytoplasm with large centrally round nuclei and few nucleoli *(Figs. 7-8)*). The poorly demarcated sheets of malignant lymphocytes were located around a large extensive central area of adipocytes necrosis. Anisocytosis and anisocaryosis were mild.

Immunohistochemistry (Figs. 9-10) revealed intense staining for CD 79 and BLA 36, as well as a high Ki-67 index (>70%). These results confirmed the B-cell origin of the lymphoma and the high grade of malignity.

Staging by thoracic radiography and abdominal ultrasonography was negative. Blood assessment revealed only a moderate regenerative anemia (no gammopathy or hypercalcemia). *Tests for FeLV and FIV* were negative.

Treatment consisted of oral prednisolone at 1 mg/kg/day associated to masitinib administered orally at 50 mg/cat every other day. A progressive complete remission was reached and maintained during eight months with good quality of life. Numerous nodules clearly regressed and most of them were no longer detected by palpation. No adverse effects were reported (according to repeated blood and urine analyses).

A relapse occurred nine months later, with acute lethargy, painful nodules and sloughing on the right hind limb. The cat was euthanized and necropsy was not allowed. However, thoracic radiography and abdominal ultrasonography showed no abnormality.

CASE 2

A 9-year-old neutered male European shorthaired cat was presented for a non-pruritic firm ulcerated subcutaneous nodule on the neck *(Fig. 4)* and a necrotic area of the right axillar skin (blackish color) *(Fig. 5)*. No systemic involvement was found.

Cytological, histopathological and immunohistochemical features were similar to the first case: infiltration by malignant lymphocytic cells, intense staining for CD 79 and BLA 36, high Ki-67 index (>70%). *Staging (thoracic radiography, abdominal ultrasonography) and FeLV-FIV tests* were also negative Blood assessment showed a moderate regenerative anemia.

Treatment consisted of a single intramuscular injection of L-asparaginase (400 UI/kg) and oral prednisolone (2 mg/kg/day) during two months without any improvement. The cat was euthanized and necropsic examination was not allowed.

DISCUSSION

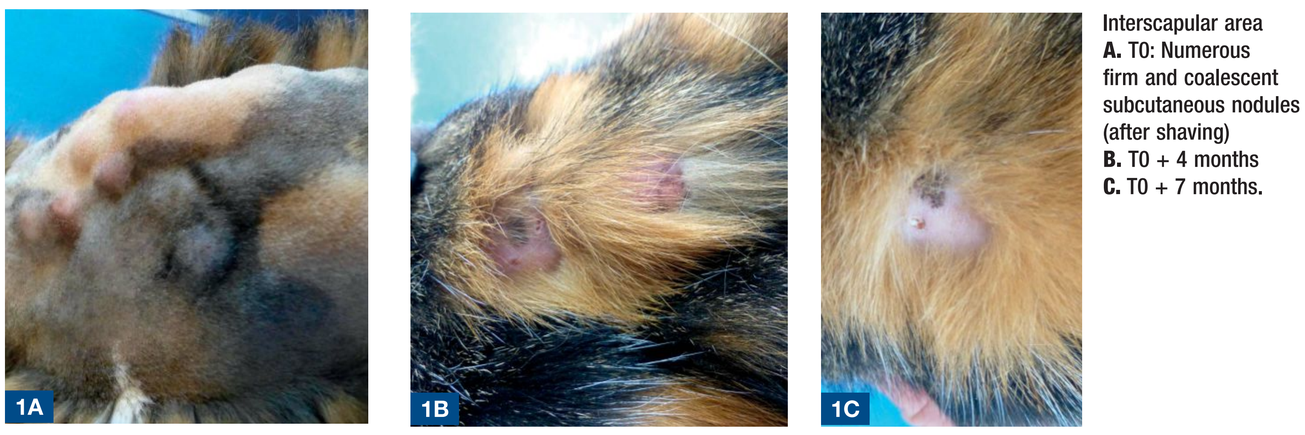
A recent survey considers that feline extensive subcutaneous lymphoma could be the result of a lymphocytic panniculitis, ensuing a longstanding polyclonal inflammation triggered by injection (vaccines) or local trauma *(Meichner et al, 2014)*. This could be suggestive of a host immune response, which progresses in a monoclonal neoplastic population. However, in our both cases, no history of vaccines or long-acting injections at the sites of lesions were reported.

The positive response to masitinib, a tyrosine kinase inhibitor, might be explained by the highly selective inhibition of the platelet-derived growth factor receptor (PDGFR) and the negative action on the angiogenesis of neoplastic cells, with subsequent apoptosis of abnormal cells.

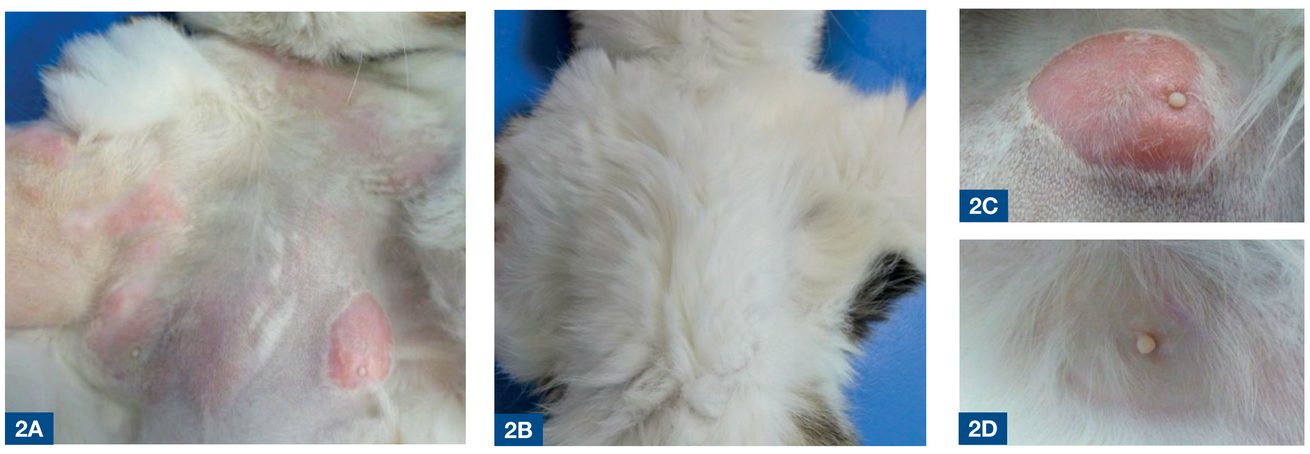
Masitinib might be a new therapeutic approach for non-epitheliotropic lymphoma, but further randomized studies should be required to assess its efficacy.

These two cases confirm that subcutaneous lymphoma may clinically mimic feline injection-site fibrosarcoma, and should be ruled out in differential diagnosis of feline subcutaneous masses.

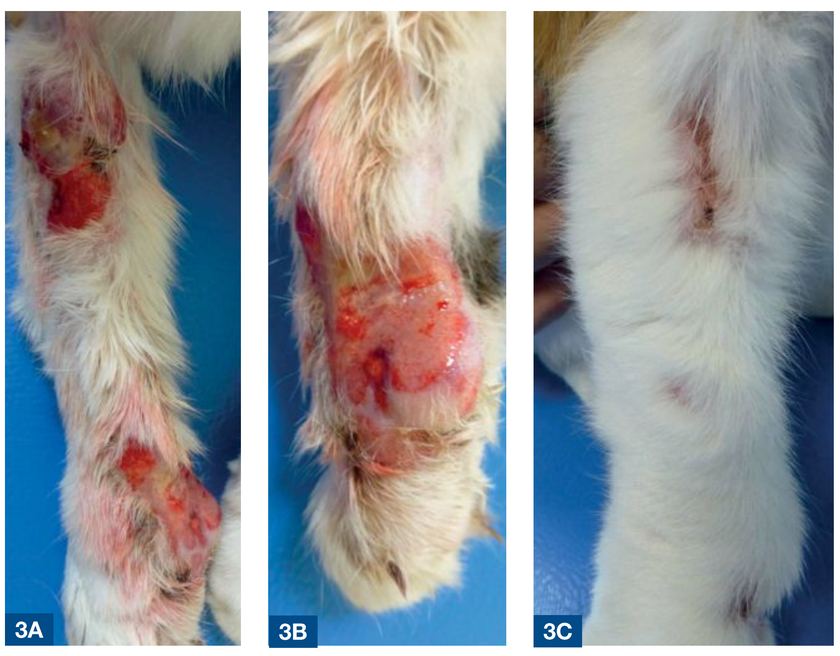
CASE 1



Interscapular area
A. T0: Numerous firm and coalescent subcutaneous nodules (after shaving)
B. T0 + 4 months
C. T0 + 7 months.



Ventral thorax
A. T0: Erythematous nodules (after shaving)
B. T0 + 7 months
C. T0: Erythematous mammary nodule
D. T0 + 4 months: size reduction and non inflammatory aspect of the mammary nodule.

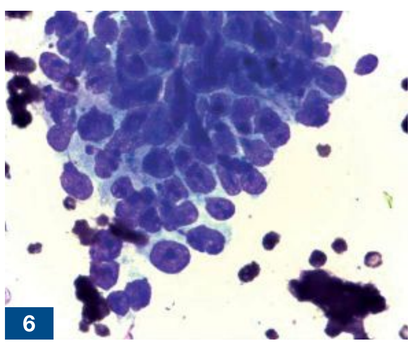


Right hind limb.
A. T0: Ulcerated nodules, sloughing, bleeding
B. T0: Closer view of the feet
C. T0 + 6 months: regression of all the nodules

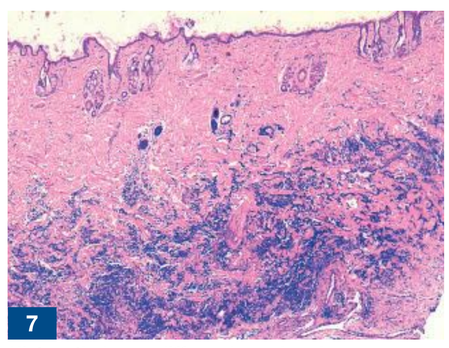
CASE 2

Subcutaneous ulcerated nodule on the neck

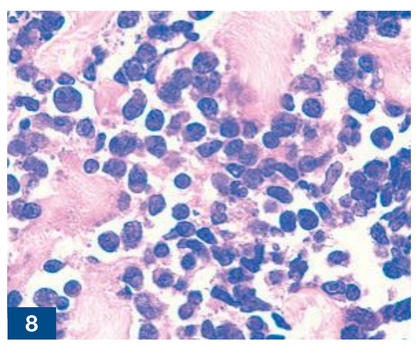
Necrotic area of the right axillar skin.



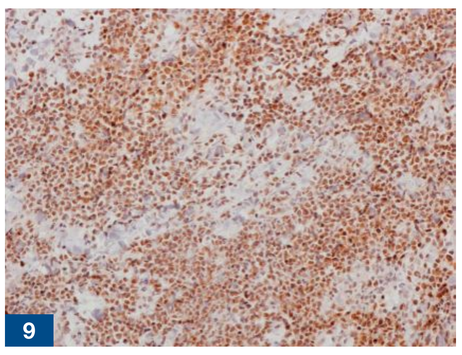
Small lymphoid malignant cells (cytology, fine needle aspiration).



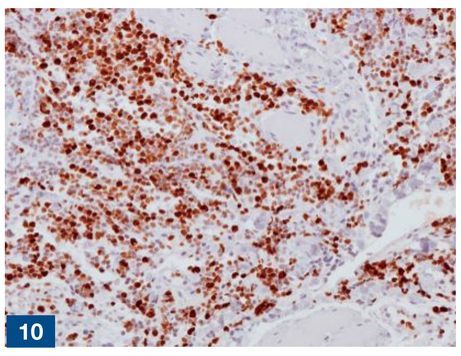
Histopathology ; diffuse dermal and subcutaneous infiltration by atypical independent round cells (HEx40).



Histopathology: dermal infiltrate of malignant lymphocytes (HEx1000).



Immunochemistry: the dermal infiltrate is composed of CD 79 B-cell (CD79 immunostaining x200)



Immunochemistry: intense immunostaining for Ki-67 (Ki-67x200)

Funding : **Self-funded**

REFERENCES

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PRESENTED AT THE 27th ESVD-ECVD Congress / SALZBURG / AUSTRIA - SEPTEMBER 11-13, 2014

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