A 15-year-old female neutered domestic shorthair cat with a month history of fast developing multiple skin nodules. Which of the following is the most likely diagnosis?

*Feline progressive dendritic cell histiocytosis*
*Non-epitheliotropic lymphomas*
*Mast cell tumors*
*Cutaneous lymphocytosis*

**Signalment and history:** A 15-year-old female neutered domestic shorthair cat was referred for the examination of progressively growing multiple skin nodules. The first nodule was noted on the right flank (Figure 1) 4 weeks prior to the referral and it slowly increased in size. Shortly after the cat developed several other nodules on the body, e.g. on the left axilla (Figure 2) and on the left leg (Figure 3). The owner reported pruritus in the areas of the nodules. A complete blood count and serum chemical analysis, performed by the general practitioner revealed mild leukocytosis (14.95 x 10⁹ WBC/L; reference range, 6 to 11 x 10⁹ WBC/L), but was otherwise unremarkable. The treatment plan from the referring veterinarian was orally given robenacoxib and meloxicam as painkiller, and subcutaneously injected cefovecin, to treat a likely secondary bacterial infection. The cat improved only mildly. At the time of referral, the general condition of the cat was good and on general examination the cat showed no abnormalities. On dermatological examination the nodular lesions affected several regions of the body, the trunk and the legs. All nodules were firm, erythematous, alopecic and located in the dermis and subcutis. Their diameter was between 2 and 5 cm. Some of them had also excoriation and crusts, likely self-inflicted. Cytologic examination of the fine needle aspirate from one nodular lesion revealed prolymphocytes and mature lymphocytes. Four 8mm skin biopsy punches were taken from the nodules.

**Histopathologic description:** Histology is similar in all four samples (Figure 4, 5). The dermis and subcutis are expanded by a non-encapsulated densely cellular mass reaching all cut borders of the submitted samples. The mass is composed of sheets of relatively monomorphic neoplastic round cells extending to the epidermis and adnexal structures without a grenz zone. Few neoplastic cells are located in the epidermis and adnexal epithelia. The neoplastic cells have a moderate amount of eosinophilic cytoplasm and round to oval, sometimes bean shaped nuclei. The nuclei have condensed chromatin and one to two nucleoli. Anisocytosis and anisokaryosis is moderate to high. Two mitotic figures are seen per each 400x field.

**Immunohistochemistry (on formalin-fixed tissue):**

- CD3 staining: positive in 100% of the tumor cells (Figure 6)
- CD79a (not attached), CD18 (Figure 7) and PAX5 (Figure 8) staining: negative

**Name of the condition:** Non-epitheliotropic T-cell lymphoma

**Follow up:** The clinical management with chemotherapeutic agents has been discussed but the owner opted for euthanasia.

**Comment:** Non-epitheliotropic lymphoma has been described in older cats and may be primary cutaneous or may involve other organs. In this case the general examination did not reveal any systemic abnormalities, e.g. enlargement of the palpable lymph nodes, and the blood work was normal. However, to exclude disseminated lymphoma other tests like thoracic radiography and abdominal ultrasound, should have been performed. The clinical lesions and the histopathological description reported here are classical of non-epitheliotropic lymphoma and are similar to what has
been reported in the literature. Interestingly in this case there was also minimal epitheliotropism. In the cat most cases of non-epitheliotropic lymphoma are of T-cell origin and B-cell lymphomas are extremely rare. Immunohistochemistry is important to work up round cell tumors in order to confirm the diagnosis of lymphoma. In this case the results permitted us to obtain a diagnosis of T cell lymphoma (CD3 positive, PAX5 and CD79a negative). In this case CD18 staining resulted negative, even if it is pan-leukocyte marker. Even if untypical, CD18-negative non-epitheliotropic lymphomas have been described in human medicine.

The majority of feline non-epitheliotropic lymphomas are progressing as also seen in this case, and it is likely that metastasis develop. Treatment is generally unsuccessful. Reported therapeutic options are surgical excision, radiation, and topical or systemic administration of chemotherapeutic agents. A case report suggested that the use of lomustine may be effective. Unfortunately, because of the rapid progression of the disease and the possible side effects due to clinical management, the owner opted for euthanasia.

References:

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Figure 1.

Figure 2.
Figure 5.

Figure 6.