

FIGURE 1: Infiltration of the dermis by a homogeneous population of large round cells. The neoplastic cells do not show epitheliotropism.

1

It's a tumour, *but what type?*

Pathologist **Genevieve D'Amours** from SVS Laboratories, zooms in on a tumour case involving a four-year-old dog.

HISTORY

A four-year-old entire female Mastiff presented to a veterinarian for a rapidly growing mass on the left flank. The veterinarian excised the 2cm mass and submitted it for histopathology.

HISTOLOGY FINDINGS

The dermis had a poorly demarcated, non-encapsulated neoplasm. It consisted of rows and sheets of neoplastic round cells that infiltrated between existing dermal collagen and adnexa (Figure 1) and infiltrated the subcutaneous adipose tissue (Figure 2), but did not infiltrate the epidermis. The neoplastic cells had moderate anisocytosis and anisokaryosis characterised by moderate amounts of eosinophilic cytoplasm and variably distinct cytoplasmic borders, and the nuclei were round to indented with clumped chromatin and occasional prominent nucleoli.

There were up to six mitotic figures per high power field (Figure 3). The neoplasm was completely excised with 2mm lateral margins and 7mm-deep margins, which included an intact layer of muscle tissue. A toluidine blue stain did not reveal intracytoplasmic granules and a Fontana-Masson stain did not reveal melanin granules. On this basis a diagnosis of a round cell tumour was made; however, the type of tumour could not be identified based on histology alone. The cell morphology was suggestive of a histiocytic lesion, but other round-cell-tumour types such as lymphoma and plasma cell tumour were also considered.

PROGRESSION

Ten days later, more masses developed and lesions from the toe and the hock were biopsied (Figures 4 and 5). The histology

2

FIGURE 2: The neoplastic cells infiltrate the subcutaneous adipose tissue.

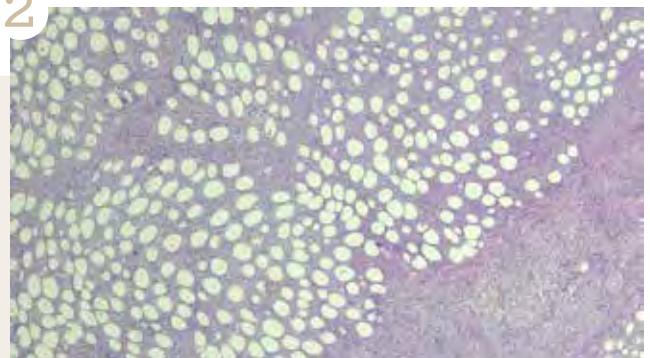
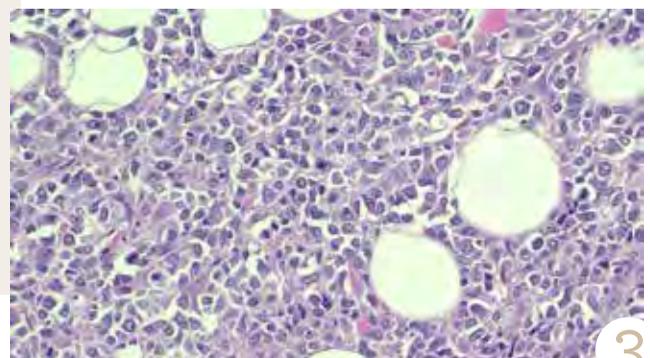


FIGURE 3: The neoplastic cells have abundant eosinophilic cytoplasm and round to indented nuclei with occasional prominent nucleoli. Several mitotic figures are present.



3

was very similar in these two lesions, and cytology and immunohistochemistry were recommended to investigate further.

CYTOLOGY

A fine-needle aspirate from a haired mass on the foot was examined. There was a mixed population of lymphocytes, histiocytes, macrophages and neutrophils (Figure 6). The lymphocytes had variable morphology, with the predominant population consisting of large cells approximately twice the size of a neutrophil, with a crescent of mid-blue cytoplasm, an eccentrically placed nucleus with fine chromatin and a single, medium-sized nucleolus. Occasional mitotic figures were present, as were small mature lymphocytes. Based on the cytology, lymphoma was suspected.

IMMUNOHISTOCHEMISTRY

The neoplastic cells diffusely exhibited positive membranous immunoreactivity for CD3. Approximately 60% of the cells also had positive membranous immunoreactivity for CD20. The cells had no immunoreactivity for E-cadherin. This confirmed a diagnosis of cutaneous non-epitheliotropic T-cell lymphoma with partial CD20 co-expression.

NON-EPITHELIOTROPIC LYMPHOMA

Canine cutaneous lymphoma is uncommon and encompasses a variety of diseases with varied presentations, histological features and outcomes. In dogs, epitheliotropic T-cell lymphoma is the most common entity. The neoplastic cells infiltrate the epidermis and follicular epithelium, causing erythema, scaling, alopecia and ulceration, and can also form nodules and masses. The course of the disease varies from a few months to two years. Prognosis is hard to predict and may depend on disease's stage at presentation.

Non-epitheliotropic cutaneous lymphoma can be a primary cutaneous neoplasm or can occur in conjunction with disseminated disease. It usually presents as solitary or multiple dermal and subcutaneous nodules or plaques.



FIGURE 4: Alopecic mass on the foot 10 days after initial presentation.

FIGURE 5: Haired mass on the foot 10 days after initial presentation.

The disease is most often of T-cell origin, although rare cases of B-cell origin have been reported. Very little prognosis data is available, but disease progression tends to be rapid.

CASE OUTCOME

The dog was treated with lomustine and prednisone, but unfortunately continued to deteriorate in the following four weeks, developing petechia and scleral oedema. Due to her rapid deterioration and the poor prognosis, the owners elected euthanasia. (vs)

Thank you to veterinarian Alistair Denton for providing the case notes for this article.

FURTHER READING:

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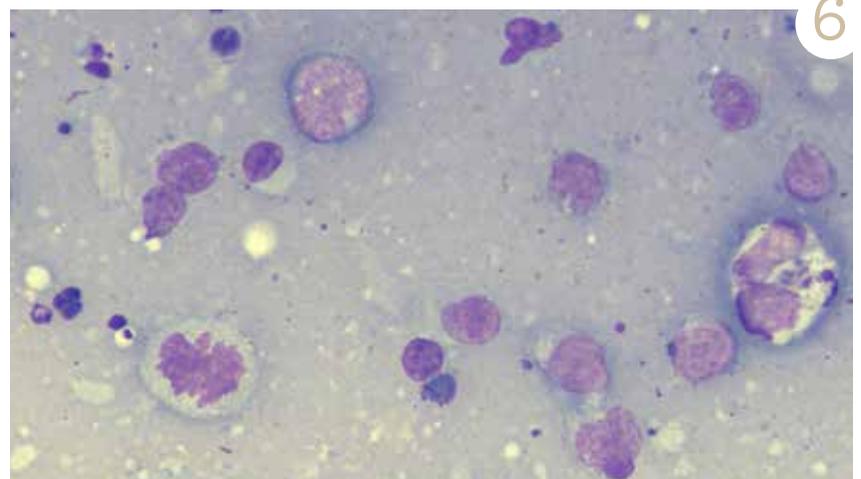


FIGURE 6: Cytology of the foot mass showing mostly large lymphocytes and fewer small lymphocytes, macrophages and neutrophils. Occasional mitotic figures are present.