Surgery of oral tumours: anything new?

ORAL TUMOURS ARE REGULARLY ENCOUNTERED in dogs and cats and our ability to treat them has increased over the last few decades. Although many oropharyngeal tumours are best treated with a multi-modal approach, including various combinations of surgery, radiotherapy, chemotherapy and immunotherapy, surgery remains the mainstay of their treatment.

Tumour biology

Like for other cancers, tumour biology is the main determinant of prognosis. Only a few tumour types constitute the vast majority of tumours encountered.

In dogs, the most frequently encountered malignant tumours of the oral cavity are malignant melanomas (MM; 31 to 42% of cases), squamous cell carcinomas (SCC; 17 to 25% of cases), fibrosarcomas (FSA; 7.5 to 25% of cases) and osteosarcomas (OSA; 6 to 18% of cases).

In cats, the most common oropharyngeal tumours are SCC (75% of cases) and FSA (13 to 17% of cases).

Very schematically, all malignant tumours in dogs tend to be locally-invasive and require wide resection. In one study, 37 out of 120 (31%) malignant oral tumours recurred after surgical resection, with recurrence being most common with FSA (54% of cases) and least common with SCC (17% of cases).

Malignant melanomas recurred in 27% of cases, but had the highest metastatic rate (30%). Even higher metastatic rates (50-80%) for MM have been reported previously.

In one recent study, nine of 13 dogs (69%) with MM had metastasis to locoregional lymph nodes. Fibrosarcomas, OSA and SCCs had metastatic rates of 21, 22% and 3%, respectively. One- and two-year survival rates were respectively 50% and 50% for SCC, 29% and 12% for FSA, 9% and 0% for OSA and 5% and 0% for MM.

Prognostic factors for outcome with malignant oral tumours treated by curative-intent surgery include tumour type, completeness of resection, tumour size and patient age. Local recurrence is a major negative prognostic factor, influenced by tumour type, size and location, as well as by completeness of surgical excision. Wide resections, including portions of the underlying bone(s), are therefore indicated for treatment of malignant oral tumours. How wide is wide enough depends on the tumour type and size.

Tumour staging

Tumour staging is a crucial step in the management of oral tumours. It involves advanced imaging to determine the location, extension and invasion of the primary tumour (T staging), imaging, mapping and biopsy of the locoregional lymph nodes (N staging) and imaging to assess the presence of distant metastasis (M staging).

Over the last few years, it has appeared that the route of lymphatic drainage of the oral cavity is complex and hardly predictable. One study of 31 dogs with oral tumours which had mandibular lymph node metastasis indicated that 26% of metastatic tumours would spread contralaterally.

The aspect of lymph nodes cannot reliably be used to determine the usefulness of taking biopsies from them: a study evaluating 100 dogs with oral malignant melanoma showed that lymph node palpation and size are not reliable indicators (40% of normal-sized lymph nodes were positive for metastasis) of lymph node metastasis and that cytology or histology was required for accurate staging.

In another study involving 37 dogs and seven cats, clinical examination of the lymph node also appeared poorly correlated with their metastatic status.

This evidences the importance of sampling the first lymph node (“sentinel” lymph node) on the lymphatic route of drainage of the tumour. The determination of the location of this sentinel lymph node is the objective of lymph node mapping techniques (Figure 1), increasingly used in veterinary oncology.

Once identified, the sentinel lymph node is best examined after excisional biopsy (typically performed at the time of surgery), although in one study, cytological examination of lymph nodes for tumour invasion appeared 100% sensitive and 94% specific, showing that fine-needle aspiration is an accurate diagnostic tool for lymph node metastasis evaluation.

Surgery

As discussed previously, wide surgical resection of malignant oral tumours remains the mainstay of their treatment. However, many tumours will be best treated by a multi-modal approach combining surgery with various combinations of neoadjuvant and adjuvant chemotherapy, radiotherapy, and immunotherapy. Only surgery will briefly be discussed here.

Local conditions of the oral cavity (limited availability in loose soft tissues, constant movements, bacterial charge) make wide oral resections and reconstructions often challenging. A few technical specificities, such as avoiding the use of electrocauterity to cut mucosal surfaces and double-layer closures, however, limit the risk of complications. Brisk haemorrhage continued on page 18