

Surgical Oncology of the Oral Cavity

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The oral cavity is a common site for both benign and malignant cancers. Oral cancer accounts for about 6% of all canine cancers. The biological behaviour of the cancer must be evaluated prior to preparing a treatment a therapeutic plan. Oral malignancies comprise approximately 50% of all oral cancers.

The most common malignant oral tumour is the melanoma. Regional and distant metastases may be present at the time of initial diagnosis. In addition local recurrence rates after surgery can be high. The overall prognosis is poor for oral melanoma, however, oral mucosal melanomas may have a better prognosis than gingival melanoma. It has also been shown that patients with stage I disease (T1, NO, MO) have a more favourable prognosis after complete surgical resection (median survival time 511 days) than those with stage II disease (median survival time 164 days).

Squamous cell carcinoma has a biological behaviour characterised by local invasion into surrounding tissue. Rostrally located tumours seem to be biologically less aggressive than caudally located tumours. This may, however, be related to the rate at which the masses are recognised. Caudally located masses may present in a more advanced stage of disease.

Fibrosarcoma of the oral cavity is characterised by local invasion into surrounding soft tissue and bone. Local recurrence is a common cause of surgical failure due to their poorly demarcated nature. Fibrosarcomas tend to blend with the surrounding tissue making it difficult to determine completeness of excision. In certain cases tissue submitted for biopsy maybe mis-diagnosed as a benign lesion such as a fibroma, nodular fasciitis, or

granulation tissue. Adjuvant radiation therapy is indicated when suspected microscopic disease is present.

Osteosarcoma can also occur in the oral cavity. In general, local invasion and a high incidence of micro-metastatic spread at diagnosis characterises osteosarcoma. However, osteosarcoma of the mandible may have a lower rate of metastatic disease than other sites and a more favourable long term prognosis with surgery alone. A 70% one year survival rate was quoted in a recent paper with surgery alone.

Diagnosis and Workup

A diagnostic evaluation of the patient with an oral mass is important because of the wide range of masses that can look quite similar and are associated with a varied prognosis. If a malignant cancer is suspected thoracic radiographs should be taken prior to tissue biopsy. When obtaining a biopsy a large sample should be obtained, as oral masses tend to be necrotic. It is important to avoid extending a biopsy into the area of mucosa that maybe necessary to close the defect created by the definitive surgery. Extent of tumour spread should be assessed by carefully examining the mouth under general anaesthesia. Radiographs and CT / MRI are important in determining resection margins. Functional and cosmetic deficits may occur with more radical procedures and should be discussed pre-operatively. It is important in the pre-operative evaluation to assess regional lymph nodes and biopsy them if indicated. A thorough diagnostic evaluation should help the surgeon determine whether the treatment will be curative or palliative and whether adjuvant therapy may be necessary.

Surgical Considerations

The extent of surgical margins around oral masses depends on the biological behaviour of the tumour tissue, together with radiographic, CT and MRI findings. With malignant lesions a 1-2cm cuff of normal tissue should be excised with the mass. Haemorrhage can be extensive, requiring good surgical technique and supportive therapy. Completing the soft-tissue dissection prior to cutting affected bone will help to minimise blood loss from areas that are inaccessible until the mass is removed. Techniques such as carotid artery ligation may be indicated with unilateral, large masses. Closure of the surgical defect usually involves the use of mucosal tissue flaps.

Small benign lesions, or malignancies without bone involvement may be treated with focal mandibulectomy / maxillectomy (e.g. unilateral rostral and segmental, mandibulectomy). Rostral lesions crossing the mandibular symphysis are treated with a bilateral rostral mandibulectomy. Lesions that invade into the medullary cavity of the mandible often require a complete unilateral mandibulectomy, as the cancer tends to spread along the neuro-vascular bundle contained within the medullary canal. In general function and cosmesis with mandibulectomies are good. Some degree of mandibular

drift is expected and well tolerated. Tongue lagging to the side of resection can occur. Radical bilateral rostral mandibulectomies result in varying degrees of oral dysfunction, dependant upon the degree of resection. Most dogs with a bilateral rostral mandibulectomy extending up to PM2 will have excellent oral function. Resections beyond that level can require a period of rehabilitation until functional adaptation occurs. Maxillary tumours can be more difficult to operate depending on their size, location and biological behaviour.

Rostral maxillary tumours confined to the hard palate on one side are treated with a rostral maxillectomy. A pre-maxillectomy is indicated for lesions involving both sides. A partial maxillectomy is indicated for lesions located in the caudal maxilla. Tumours extending beyond the mid-line can be difficult to treat and may require extensive tissue flaps to cover the defect. At times the nasal planum may also be affected by rostral maxillary tumours. This may necessitate a pre-maxillectomy combined with a nasal planum resection. Cosmesis may need to be compromised to achieve a greater chance of local control of the tumour. In general maxillectomy results in good function although cosmetic change may occur, i.e. concavity on the affected side of the face and exposure of teeth.

Questions regarding this or on any other veterinary related matter must be discussed with your veterinary surgeon. The information contained herein is of a general nature only and may not relate to the specific conditions exhibited by your pet. Specifics of each case must be discussed with your veterinary surgeon. For further information, fact-sheets for clients and articles for veterinary surgeons, contact <http://members.aol.com/opvet>