Oral tumours in dogs
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Oral tumours are common in dogs and account for up to 7% of all tumours. A variety of benign and malignant tumours may be seen, along with other masses that are not tumours. Most masses may be investigated in a similar fashion, but the options for treatment and the prognosis will depend on the type of tumour that is present.

History and clinical signs

Most dogs with an oral tumour have a mass that is noticed by the owner or the vet. Masses that are at the back of the mouth, or on the upper jaw may be more difficult to see, and therefore may only be detected when they are larger. Other signs such as reluctance to eat, particularly hard food, excessive salivation, bleeding from the mouth, smelly breath or loose teeth may also be seen.
Diagnosis

A diagnosis of cancer is normally made on a tissue biopsy by examining a piece of the tumour under a microscope. Sometimes additional tests (immunohistochemistry) may have to be performed to determine what tumour type is present. Samples are usually also taken from the lymph nodes to look for evidence of tumour spread. At the time of the biopsy, diagnostic imaging (X-rays or a CT scan) of the mouth to assess the size and extent of the tumour to help plan surgery, and imaging of the chest to look for evidence of tumour spread is performed. For further information on the investigation of the patient with cancer please see Cancer in cats and dogs: Assessment of the patient information sheet.

Treatment

**Surgery for oral tumours**

Surgery is used for most oral tumours, as it is the most rapid, efficient and cost-effective way of controlling the tumour in the mouth. For smaller, accessible tumours that have not spread, it offers the potential for complete cure. However, many tumours will invade the underlying bone and therefore successful removal of the tumour may require removal of the underlying bone. Depending on the size and location of the tumour, this may involve removal of a part or all of the lower jaw bone or a segment of the upper jaw. In the majority of dogs, this procedure is well-tolerated, and although there may be some cosmetic change, dogs continue to eat well after the procedure. Surgery may also be used to remove the local lymph nodes for diagnostic purposes to find out if there is tumour spread, or for therapeutic purposes if tumour spread to the lymph node has been diagnosed by a needle biopsy pre-operatively.

Possible complications following surgery include blood loss, wound breakdown, increased salivation, difficulty picking up food or toys. In addition, this surgery may result in a cosmetic change, with shortening of the jaw or a defect in the normal contour of the jaw or drift to one side.

For further information on the role of surgery in the management of cancer please see Cancer in cats and dogs surgical therapy information sheet.

**Radiotherapy for oral tumours**

Radiotherapy may be used as the primary therapy for certain tumours, such as acanthomatous ameloblastoma, squamous cell carcinoma and malignant melanoma, if the tumour is not suitable for surgery. Radiotherapy may also be used as additional therapy after surgery for certain invasive tumours, such as fibrosarcoma, if surgery cannot be used to remove all of the tumour. Willows does not offer radiotherapy on-site, but can arrange referral to the nearest centres which do provide this, which are Southfields Veterinary Centre, Liverpool University and Cambridge University. For further information on the role of radiotherapy in the management of cancer please see Radiotherapy in veterinary patients information sheet.

**Chemotherapy for oral tumours**

Chemotherapy may be used for tumours that have a high potential for tumour spread, such as malignant melanoma and osteosarcoma. This therapy is usually used after surgery, as large masses (i.e. >1cm) do not generally respond well to anti-cancer drug therapy. Chemotherapy treatment typically involves giving a high dose of an anti-cancer drug once every 3 weeks. For further information about chemotherapy for cancer patients please see Chemotherapy and your pet information sheet.

Anti-cancer drug therapy may also be used after surgery to remove an invasive tumour, e.g. fibrosarcoma, to try and prevent or delay recurrence. In this setting, a low dose of the anti-cancer drug is given regularly (e.g. daily or every other day), which minimises any side effects. For further information about continuous low dose (metronomic) chemotherapy please see Metronic chemotherapy - sometimes less is more information sheet.

**Vaccine therapy for oral tumours**

A therapeutic vaccine is available for the treatment of malignant melanoma to delay the development of tumour spread elsewhere in the body. This is used after surgery has been performed to remove the primary tumour, along with the lymph nodes if there is any evidence of tumour spread here. Vaccine therapy is well tolerated, with almost no side effects, but this will not result in a complete cure of a patient with malignant melanoma. The vaccine therapy is not used to prevent the development of tumours in animals that do not have a melanoma. For further information on the therapeutic melanoma vaccine therapy please see Malignant Melanoma in dogs information sheet.
Information about specific tumour types

Benign tumour types and non-cancerous masses

Acanthomatous ameloblastoma

This is a common benign tumour, which has the potential to grow quite large and to invade the underlying bone. However, tumour spread does not occur and complete surgical removal generally results in a cure.

Oral odontogenic fibroma

These are slow growing, often very firm masses that arise from the gum, usually close to the teeth. A relatively minor surgical procedure can generally be performed to remove these tumours, with good prospects for tumour control.

Gingival hyperplasia

This is a benign proliferation of the gum (gingiva), and represents normal tissue that has simply grown to excess. It may be present at multiple sites in the mouth. Trimming this tissue to remove any parts that are causing difficulty when eating or affecting the health of the adjacent teeth is usually all that is needed.

Epulis

Epulis simply means a mass on the gum, and therefore is a general term that may encompass benign and malignant tumours. However, it is generally reserved for benign masses, such as peripheral odontogenic fibroma and gingival hyperplasia.

Malignant tumour types

Malignant melanoma

Malignant melanoma is the most common oral tumour in dogs. Melanomas are often black in colour (due to melanin pigment), but some tumours may be pink (amelanotic melanoma). It may be difficult to tell the difference between this tumour type and fibrosarcoma on examination of a tissue biopsy and sometimes additional tests (e.g. immunohistochemistry) are needed by the pathologist to do this. Melanoma tends to grow rapidly and the surface is often ulcerated, which may lead to bleeding from the mouth and smelly breath (halitosis). Melanoma has a high rate of spread to other organs, usually the lymph nodes and then the lungs, and up to 80% of dogs will develop tumour spread. Surgery to remove the primary mass, and possibly the lymph nodes, followed by administration of the therapeutic vaccine is usually used.

Squamous cell carcinoma

Squamous cell carcinoma is the second most common oral tumour in dogs. This tumour arises from the lining of the mouth (mucosa) and is usually seen as a pink mass that may bleed.
easily. The rate of tumour spread is relatively low (up to 20%), but this may depend on the size and location of the mass, how long it has been present, and the age of the dog. This tumour may invade the bone of the jaw. Surgery to remove the mass and, if necessary, a margin of bone around the tumour is the best treatment. If the entire tumour is removed, then no further therapy is required and many animals can be cured of this tumour.

**Fibrosarcoma**
Fibrosarcoma is the third most common oral tumour in dogs. It arises from fibrous tissue below the lining of the mouth, and has a tendency to invade the surrounding soft tissue and bone. Under the microscope these tumours may appear relatively benign, but in the patient they usually behave in a more malignant fashion with rapid growth, invasion and tumour spread. Surgery to remove the mass and the affected bone is the best therapy. However, removing the entire tumour may be difficult because these tumours may be large or may have extensive invasion into the surrounding soft tissues or bone. If all of the tumour cannot be removed, then additional therapy to kill any remaining cells may be needed, such as radiotherapy or continuous low-dose (metronomic) chemotherapy.

**Osteosarcoma**
Osteosarcoma is the fourth most common oral cancer and develops from the bone of the upper or lower jaw. It has the potential to spread, although this rate is relatively low. Surgical removal of the mass and the affected bone, followed by chemotherapy is the recommended therapy.

**Prognosis**
The prognosis or outlook for the patient depends on the nature of the tumour, its size and its location. Surgery offers the potential to cure most dogs with benign tumours and some dogs with malignant tumours and no evidence of spread, as long as the entire tumour can be removed. However, some dogs with malignant tumours may have no evidence of tumour spread when the investigations are performed, but will still go on to develop tumour spread in the future, which is then associated with a poor outlook. Early investigation, an accurate tissue diagnosis, appropriate diagnostic imaging and prompt therapy are key factors to improve the health and outcome of dogs with oral tumours.

**Why should I bring my pet to Willows for diagnosis and treatment of oral tumours?**
Willows is unique in the UK in having recognised, accredited cancer specialists working in both the medical and surgical aspects of tumour diagnosis and management.

We aim to provide the best possible care and treatment for your pet in our state-of-the-art hospital. Our oncologists work closely with the imaging Specialists who run Willows sophisticated imaging facilities, as well as with expert anaesthesia and analgesia Specialists and 24-hour veterinary and nursing staff, all of whom help to give our patients the very best treatment and care.

*If you have any queries or concerns, please do not hesitate to contact us.*
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