Surgical Treatment of Caudal Maxillary Tumours in Dogs - a new modification

- by Alex Walker

The most common tumours of the maxilla and rostral skull of the dog are fibrosarcoma (FSA), osteosarcoma (OSA), squamous cell carcinoma (SCC), malignant melanoma (MM) and epulides. The goal of treatment is surgical removal while attaining tumour-free margins. Many of these tumours are locally invasive (FSA, OSA, SCC) and the caudal location often delays recognition by the owner. These two factors make surgical resection of these tumours a challenge. Although many studies state that tumour-free margins are associated with a more favourable prognosis, only one study has correlated outcome with histopathological appearance of the margins of the resected maxillary tissue. Dogs with tumour cells in the margins (dirty margins) were 3.6 times more likely to die than patients with clean margins. Also the study found that dogs with tumours located caudally (caudal to PM3) were 4.3 times more likely to die from the tumour than dogs with tumours rostral to PM3. The standard technique for caudal maxillectomy described in 1985 has been via an intraoral approach. It has been found this approach makes effective resection of caudal tumours difficult. Recently we have used a modified technique in two cases to allow greater chance of "clean" resection. This technique uses a combined dorsolateral and intraoral approach to allow greater exposure and better visualisation of the extent of the tumour when making the dorsal osteotomy for the maxillectomy and for the dorsal and caudomedial osteotomy when combined with a partial orbitectomy. All tumours were caudal to PM3. All patients are "met(astasis) checked" preoperatively with thoracic radiology and FNA of an enlarged regional lymph node if present. All dogs treated for caudal maxillary tumours undergo CT investigation to assess the tumour extent and therefore the extent of resection required. We use 3D reconstruction software technology to get visual images of the tumour to further facilitate surgical planning.

3D CT reconstruction of maxillary fibro sarcoma

The surgical technique involves an intraoral incision in the buccal mucosa 1 cm from the tumour margin. A second incision is made dorsally just lateral to the midline of the dorsal nasal cavity. This incision is extended caudally over the zygomatic arch if partial orbitectomy is required as in both of our cases. The area between the two incisions is dissected clear from the maxilla, creating a large bipedicle flap. The facial vein is ligated during dissection and the osteotomies are made in the cranial and dorsal maxilla. The ventral osteotomy is made in the hard palate, medial to the teeth (the more medial, the more chance of severing the greater palatine artery). The most caudal osteotomy is made through the ventral orbit with an osteotome and the maxillary artery (where it becomes the infraorbital a.) is exposed and ligated. Intraoperative haemorrhage can be brisk and profuse so blood should always be available for transfusion.

Of the 20 dogs studied, tumour-free margins were obtained in 70% of cases with 64% alive at 1 and 2 years post-op. This compares favourably with previous studies. In both our cases we achieved tumour-free margins and found the technique far superior for visualisation and execution of the osteotomies. Cosmetic results have been excellent and patient oral function has been minimally compromised.

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97 Carrington Road Mt Albert Auckland Phone: (09) 845 5455. Fax: (09) 845 5456 Email: office@vsg.co.nz Website: www.vsg.co.nz