



ONCOLOGY:

Canine Oral Melanoma and the Merial Canine Oral Melanoma Vaccine

Background	Malignant melanoma is the most common malignant oral tumor in dogs. ¹⁻⁸ Reported breed predilections include cocker spaniels, miniature poodles, Anatolian shepherds, Gordon setters, chow chows and golden retrievers. ⁹ Mean age at presentation is about 11 years and some reports show a male predilection. ⁹ Canine oral malignant melanomas are locally aggressive tumors that have a high metastatic rate to local lymph nodes and the lungs. ¹⁰⁻¹²
Clinical Signs	Most patients present with a mass in the mouth noticed by the owner. Other clinical signs include; hypersalivation, halitosis, oral discharge, dysphagia, pain on opening the mouth, loose teeth, weight loss, facial swelling or possibly submandibular lymphadenopathy.
Diagnosis and Staging	Oral melanomas are frequently inflamed, infected and ulcerated, therefore, cytology or touch impressions are often inadequate diagnostically and an incisional biopsy is required. For large tumors it is important to perform an incisional biopsy and wait for biopsy results prior to definitive therapy. This allows for more accurate definitive treatment planning. Other staging tests include complete bloodwork, 3 view thoracic radiographs, evaluation of regional lymph nodes and computed tomography (CT) for surgical planning. Lymph node aspirates or biopsies should be performed regardless of the size of the nodes. In 100 dogs with oral melanoma, 40% of dogs with normal sized lymph nodes had metastasis and 49% with enlarged lymph nodes did not have metastasis. ¹²
Treatment	Treatment options are broken down into 2 categories, local control and systemic control. Local control options include surgery and radiation therapy. Oral melanomas often have extensive bony involvement so it is important to do a CT scan and include bony margins surgically to maximize the potential for a complete excision. Owner satisfaction with the cosmetic and functional outcomes of aggressive oral surgery is in excess of 85%. ¹³ Oral melanoma is considered a relatively radio-responsive tumor that responds best to coarse fraction therapy (large doses, less often). Published protocols include 3-8 weekly fractions of 6-10 Gy to a total dose of 24-48 Gy. ¹⁴⁻¹⁷ Unfortunately, oral melanoma is chemoresistant and conventional chemotherapy has not shown to be of benefit. The platinum drugs (carboplatin and cisplatin) seem to provide the most promising results. ¹⁸⁻¹⁹
Prognosis with Conventional Therapy	Median survival time for untreated dogs is 65 days. ²⁰ Median survival time with surgery alone varies from 150-318 days ^{9,10,20} Median survival time with radiation therapy varies from 211-363 days ¹⁴⁻¹⁷ and local therapy combined with platinum compound chemotherapy only provides a modest improvement to these numbers. ^{10,21}
Merial Melanoma Vaccine	Through collaborative efforts of the Donaldson-Atwood Cancer Clinic and Flaherty Comparative Oncology Laboratory, the E&M Bobst Hospital of the

Animal Medical Center, New York, NY and Memorial Sloan-Kettering Cancer Center, New York, NY, Meril has received a conditional U.S. Veterinary Biological Product License from the USDA for a therapeutic vaccine against canine oral malignant melanoma. The vaccine consists of xenogeneic (human) DNA, encoding tyrosinase family proteins and inserted into a bacterial expression plasmid with a constitutively active promoter. Tyrosinase is a melanosomal glycoprotein that is essential in melanin synthesis. The xenogeneic tyrosinase is similar enough to be incorporated in the canine genome, but different enough to induce antibody and T-cell responses against melanoma. Preliminary data shows a median survival time of 389 days for dogs receiving the vaccine, even in the face of advanced stage and metastatic disease.²² However, the vaccine seems to be more effective in dogs with good local tumor control. The recommended treatment protocol is a vaccination every 2 weeks for 4 treatments, followed by an every 6 month booster.

Questions?

Our oncologists are available for questions and consultations on medical conditions. They are also on-call for consultation on cases seen through the emergency service 24/7.

Oncology Clinicians:

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MVS offers full-time oncology service at BOTH HOSPITALS; we hope our oncology staff serves as an extension of your practice. Our clinicians have years of specialized training and experience. Please let us know how we can help you and your clients.

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