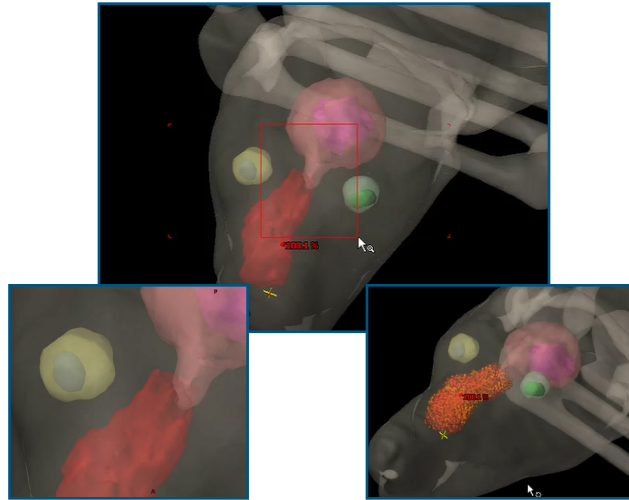
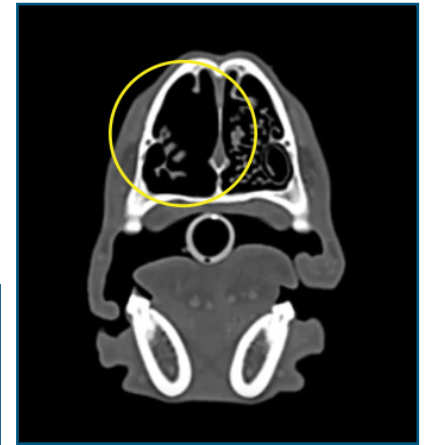


Pre-Treatment CT: 8/6/15



The top picture above displays a 3D reconstruction of Gus's tumor (red), brain (pink), and eyes (green). The lower left picture shows a close-up of the tumor growing into the brain. The lower right picture includes a 95% dose cloud, displaying full coverage of the tumor while avoiding both eyes and most of the brain.



Post-Treatment CT: 2/15/16

PATIENT: Gus, a 9-year-old, male, neutered Golden Retriever mix

ANATOMIC LOCALIZATION: Nose

BACKGROUND: Gus presented with a suspected nasal tumor of unknown histology. Pre-treatment CT confirmed a tumor blocking his right nasal passage. Tumor determined to be moderate in volume but extensive in scope. It was blocking nasal passage, eroding bone, extending behind the right eye, and growing into the brain. 3D reconstruction confirmed tumor to be intimately associated with front part of brain and in close proximity to both eyes. Average survival time for canines treated with stereotactic radiosurgery (SRS) for advanced nasal tumors is in the 14-18 month range with far less toxicity compared to radiation delivered with conventional protocols.

TREATMENT: The pet owner elected SRS, which was delivered in one fraction of 20 Gy on 8/13/15. Treatment plan indicated good dose to tumor and sparing of normal critical structures from excessive dose of radiation. Tumor was encapsulated by 95% dose cloud, eyes were mostly spared and lenses were safe.

OUTCOME: Within two weeks of treatment, nasal congestion, discharge, and "whistling" noise emanating from nasal passage had subsided. Owner reported improved nasal air flow and increase in sniffing. Follow-up CT scan at six months indicated a decrease in tumor volume estimated at 65-75% and mostly clear airways in nasal passage. A small amount of residual soft tissue was seen back towards the eyes with no evidence of invasion or progression. At the time of this case study, Gus is alive and healthy 20 months post-treatment. Minimal change to fur color over treatment site is noted. Both eyes are unaffected and without signs of cataracts. Tumor control and quality of life are both good.

RELEVANCE: Nasal tumors are very common in dogs, accounting for 14% of all tumors treated by PetCure Oncology. They can progress and erode through bone, spreading into or wrapping around normal structures such as the eyes or brain. In such cases, delivering radiation to the tumor while sparing nearby normal structures can be particularly complex. Also noteworthy is that while treatment is completed in 1-3 days, it can take many months for the maximum benefit of radiation therapy to be achieved. Residual evidence of cancer may continue to deteriorate over time as radiation continues to impact the tumor. In some cases, this may take up to nine months. Bone erosion due to tumor can also take many months or even years to remodel.



Gus, 18 months post-treatment