

## **Case Report : Holistic Management of a Yorkshire Terrier with an Oral Soft Tissue Sarcoma**

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### **Abstract:**

This paper describes the treatment of an oral soft tissue sarcoma in a Yorkshire Terrier with an oral herbal medicine formula, nutritional supplements, acupuncture, and chiropractic adjustments. The herbal medicine was well tolerated and the patient's tumor is resolving after two months of treatment.

### **Signalment:**

Coco is a six-year-old spayed female Yorkshire Terrier that weighs 6.5 pounds.

### **History:**

Coco has been in the family for ten months. She was diagnosed 45 days prior to presentation with a soft tissue sarcoma involving the right lower canine tooth. Her right front paw has been missing since birth, and she had a strangulation lesion to the right Achille's tendon which has caused a shortening of the tendon. This occurred prior to adoption.

Her diet is a commercial prescription diet for dogs with digestive issues as well as a variety of other canned foods. She takes 0.3 mg of Meloxicam once daily, which was started after her diagnosis.

The oral mass has been growing slowly since it was discovered. It was diagnosed by the Primary Care Veterinarian via fine needle aspirate and read out as an unclassified soft tissue sarcoma, possibly an amelanotic melanoma.

**Physical exam:**

She is in overall good health. Her tongue was pale, her pulses were weak, and she had a friendly disposition. On the day of examination, she had some stiffness in her lumbar spine and the mass surrounded the right lower canine tooth. The mass was 5 mm in diameter at her consultation appointment. She had numerous Chiropractic subluxations throughout her spine.

Signs of Imbalance: The pale tongue, weak pulses indicate Deficiency. The mass indicates Stagnation. Her Vitality was low.

Predisposing/Perpetuating Causes: None.

**Lab tests:**

A complete blood count and biochemical profile were within normal limits. Fine needle aspirate of the mass was read out as a soft tissue sarcoma, with amelanotic melanoma a possibility. Further staining was not done to make a definitive diagnosis. FNA of lymph nodes showed no spread to them. A Computerized Tomography (CT) study showed that the lesion was confined to the bone around the right lower canine tooth. Radiographs of her chest did not reveal any visible metastatic lesions.

**Western diagnosis:**

Soft tissue sarcoma around the right lower canine tooth. Chiropractic subluxations.

**Western treatment options (*Forrest et al., 2000*):**

The most accepted treatment regimen for oral soft tissue sarcomas in dogs is surgical resection (partial to full mandibulectomy) coupled with post-op radiation, as these tumors tend to not be chemotherapy responsive. Coco's owners elected to not pursue surgery and radiation for her.

**Western herbal medicine considerations:**

Short term treatment goals were to increase immunity, increase resilience, provide anti-tumor activity, improve digestion, improve elimination, protect liver and kidney function, and provide comfort.

The herbal actions needed for the short-term goals were adaptogen, alterative, bitters, anti-inflammatory, immune enhancement, analgesic, inhibitors of local invasion, metastasis, and angiogenesis.

The herbal formula selected for Coco was as follows:

Ashwagandha (*Withania somnifera*): 1:2, 7 mLs

Astragalus (*Astragalus membranaceus*) 1:2, 7 mLs

Marshmallow (*Althea officinalis*) 1:5 Glycetract, 7 mLs

Milk thistle (*Silybum marianum*): 1:1, 7 mLs

Dosed at 0.15 mLs every 12 hours.

There were no Herb-Drug Interaction (HDI) risks for this patient.

Additionally, she received an Acupuncture and Chiropractic treatment at the first visit. Acupuncture can serve to improve comfort, immunity, and appetite, while Chiropractic can serve to improve comfort and optimize immune function by improving neurologic function. She was also given a CBD Product (OneFarm Pet CBD, 3 mg every 12 hours) and a product that contains Maitake, Reishi and Cordyceps mushrooms (Mushroom Defense, Animal Essentials, 0.15 mLs every 12 hours).

Follow up: One month she had more energy, and was taking the herbal medicine and supplements with no issue. Her tongue had more color and her pulses were slightly stronger. The mass size was unchanged. She got a Chiropractic and Acupuncture treatment at that visit as well. The dose of her herbal medicine was increased to 0.3 mLs every 12 hours.

One month later, she was seen by another veterinarian for an Acupuncture treatment, as her caretakers were out of state for the Winter season. The mass has completely resolved. Her blood work was within normal limits and there were no signs of metastasis on thoracic radiographs.

### **Discussion:**

This patient has responded very well to treatment thus far, given the poor prognosis associated with these types of oral masses. The herbal medicine had a broad range of effects. The Ashwagandha is an adaptogen, tonic, anti-cancer, and anti-inflammatory. The Astragalus is immune-enhancing, anti-inflammatory, and alterative. The Marshmallow has demulcent and anti-inflammatory effects. The Milk Thistle is a demulcent, hepatotrophorestorative, and anti-oxidant. The Mushrooms serve to inhibit local tumor invasion, while the CBD has pain relief and immune stimulant activity.

Recent research has examined the anti-cancer action of Astragalus (Wenfang et al., 2020). Astragalus polysaccharide (APS) was shown to induce cell arrest and apoptosis, both in vitro and in vivo. Additionally, APS was shown to up-regulate the expression of Interleuken-2, Tumor Necrosis Factor Gamma, and Interferon in peripheral blood.

A recent paper reviewed the anti-cancer properties of Ashwagandha (Dutta et al., 2019). For melanomas (the tumor type in this patient), Withaferin A induced apoptotic cell death, downregulated Bcl-2, and activated caspase 3 and 9 and induced DNA fragmentation, along with other properties.

A 2020 review paper looked at the benefits of the use of Cannabis for patients with cancer (Lal et al., 2021). The authors described that Cannabis can impact many cancer-related biochemical pathways, including PKB, AMPK, CAMKK- $\beta$ , mTOR, PDHK, HIF-1 $\alpha$ , and PPAR- $\gamma$ . Cannabinoids also serve to stop cell growth, halt progression of the cell cycle, and selectively induce apoptosis in tumor cells. Cannabis can also improve the efficacy of traditional anti-cancer medications.

The study of medicinal mushrooms as part of cancer treatment is experiencing an exponential growth of activity. It has been shown that the glucans in mushrooms as well as specific proteins are the source of the anti-cancer effects of mushrooms (Motta, Gershwin & Selmi, 2021). Some of the proteins involved include lectins, fungal immunomodulatory proteins, ribosome inactivating proteins, ribonucleases, and laccases. Lipids are also responsible for some of the beneficial effects; in cancer patients they serve to act as antioxidants and reducing agents.

The overall prognosis for oral soft tissue sarcomas is poor. Dogs treated with surgery have an average lifespan of 206 days. Combined with radiation, the prognosis may extend to 350 days (Forrest et al., 2000). Coco has done very well so far on her treatment regimen. It would be useful to have follow-up radiographs of her jaw, which were not done at her last recheck. The herbal formula may be altered based on her progress when she can be re-evaluated in person.

## References

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