



## **APOCRINE GLAND CARCINOMA OF THE ANAL SAC**

### **What is anal sac carcinoma?**

Anal sac carcinoma is a relatively common malignancy of the perineum in dogs. It arises from the apocrine glands of the anal sac and is considered an aggressive cancer based on its high potential for local invasion and metastases. Any breed can be affected; however, German Shepherds, Golden Retrievers, and Cocker Spaniels appear to have a higher incidence. Affected dogs are typically older with an average age of 10 years. Both males and females are equally affected. The cause of anal gland carcinoma is unknown.

### **What are the symptoms?**

Symptoms of anal sac carcinoma are variable but may include swelling of the perineum, licking or biting at the perineum, scooting, perianal bleeding or blood in the stool, change in size or character of stools, and/or straining to defecate. Approximately 25% of dogs with anal sac carcinoma will have associated hypercalcemia (elevated blood calcium). Patients with hypercalcemia may present for hind limb weakness, lethargy, and increased drinking and urination.

### **How is it diagnosed?**

Examination will often reveal a palpable mass in the anal sac. Fine needle aspiration or biopsy is necessary for definitive diagnosis. Routine blood work, including complete blood cell count and serum biochemistry is important to assess your dog's overall health and evaluate for tumor associated hypercalcemia. Approximately 50% of dogs will have metastases to the sublumbar lymph nodes at the time of diagnosis. Therefore, it is important to evaluate the lymph nodes with abdominal X-rays, abdominal ultrasound or both. Chest X-rays are important to evaluate for any distant metastases to the lungs.

### **How is it treated?**

#### Surgery

Surgical excision of the primary tumor is indicated. Because these tumors are generally locally invasive, wide surgical excision is often not possible if fecal continence is to be preserved. Excision of the enlarged sublumbar lymph nodes may be considered. Removal of the lymph nodes is performed via an abdominal incision. Removal of the lymph nodes may be difficult if they are adhered to surrounding organs. Because of the local invasion and high metastatic potential for anal sac carcinoma, adjunct therapy such as radiation and/or chemotherapy is warranted.



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For patients with hypercalcemia, removal of the primary tumor and/or metastatic lymph nodes will often result in decrease or normalization of the blood calcium. Monitoring of the calcium postoperatively is important in these patients, as return of hypercalcemia usually signals recurrence and/or metastases of tumor.

### Radiation therapy

Radiation therapy is indicated in many patients for control of local tumor and treatment of the regional lymph nodes (sublumbar). Radiation therapy may be used as definitive therapy after surgery for incompletely or narrowly excised tumors or for palliation of large unresectable tumors and/or lymph nodes. General anesthesia is required for treatment. Please see radiation handout for more detailed information.

### Definitive therapy

Definitive radiation therapy is used for patients with incompletely or narrowly excised tumors that have no evidence of lymph node enlargement or for patients whose enlarged lymph nodes have been surgically excised. The lymph node bed is treated in addition to the surgical scar from primary tumor excision. Treatment is performed Monday through Friday daily for 3 weeks. General anesthesia is required. Side effects include radiation skin burns to the perineum, inflammation/irritation of the rectum (proctitis), inflammation of the colon (colitis) resulting in straining to defecate and/or diarrhea. These effects are typically transient and will resolve within 2-8 weeks following completion of therapy. Chemotherapy is often combined with radiation therapy (see below).

### Palliative therapy

Palliative radiation therapy is often used for patients with significantly enlarged sublumbar lymph nodes, with or without removal of the primary tumor. Radiation therapy is performed once daily for 5 consecutive days to the lymph nodes and to the primary tumor or surgical scar. Chemotherapy is often used in combination with palliative radiation therapy (see below).



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### Chemotherapy

Chemotherapy has been beneficial in the treatment of anal sac carcinomas. Effective drugs include carboplatin, cisplatin, mitoxantrone, and doxorubicin. Carboplatin is often used when chemotherapy and radiation therapy are performed concurrently, due to relative ease of administration of carboplatin and minimal side effects. Chemotherapy is often beneficial in improving the effects of radiation (chemosensitization) and delaying distant metastatic disease.

Chemotherapy may be used as an adjuvant to surgery without concurrent radiation therapy. The patients that are the best candidates for use of chemotherapy without radiation are those that have undergone surgical removal of the primary tumor without gross evidence of metastatic disease. We currently recommend an alternating protocol of carboplatin and mitoxantrone every 3 weeks for 6 total treatments.

Palladia, a new tyrosine kinase inhibitor chemotherapy has shown preliminary efficacy in the treatment of nonresectable and/or metastatic anal sac carcinomas. This chemotherapy is an oral medication that is administered every other day at home. Side effects are minimal and patients may experience a durable reduction in the size of their tumors. The efficacy of palladia as an adjunct to surgical excision of anal sac carcinomas has not yet been determined.

Metronomic chemotherapy involves the administration of very low doses of oral chemotherapy on a daily or every other day basis. Preliminary data suggests that the use of metronomic chemotherapy with cyclophosphamide may be beneficial in improving survival time with adverse side effects.

### Chinese herbals

Chinese herbals may be considered as an adjunct to surgery, chemotherapy and/or radiation therapy or as a primary therapy for nonresectable primary or metastatic disease. Chinese herbals administered as an adjunct to conventional therapy help to support immune system function and may help delay or prevent recurrent or metastatic disease.

When Chinese herbals are used as a primary treatment for nonresectable disease the goal is to improve or maintain a good quality of life and slow the progression of the disease for 8-12 months.



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### **What is the prognosis?**

The prognosis of anal sac carcinoma is dependent on many factors, including size of the primary tumor, evidence of sublumbar lymph node metastases, presence of hypercalcemia, and method of treatment.

Dogs that are not treated with surgery as part of the treatment have significantly shorter survival times. Dogs with large tumors exceeding 10 cm<sup>2</sup> have shorter survival time than dogs with tumors less than 10cm<sup>2</sup>. Dogs with elevated blood calcium (hypercalcemia) have shorter survival times than dogs with normal blood calcium.

Most patients with anal sac cancer cannot be “cured”; however, many patients can have improved survival with good quality of life with treatment. The best outcome has been seen in patients receiving multimodality therapy with combination surgery, chemotherapy, and radiation therapy, with average survival times of 2 years. Patients that are treated with chemotherapy and surgery without radiation therapy are likely to have shorter survival times than those patients receiving combination surgery, chemotherapy and radiation therapy; however, survival times have not been evaluated. Patients receiving palliative radiation and chemotherapy for lymph node metastases or unresectable primary anal sac tumors will often have decrease in size of the tumor and improvement in clinical symptoms for as long as 1 year.