

Principles and Applications of Surgical Oncology in Exotic Animals



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KEYWORDS

- Cancer • Oncology • Surgery • Surgical oncology • Interventional oncology
- Veterinary

KEY POINTS

- Optimal outcomes in the surgical removal of cancer are attained by a holistic approach to the disease, including knowledge of the biologic behavior of the tumor and appropriate staging.
- Treatment goals, whether curative intent or palliative intent, should be identified before surgery.
- Curative intent treatment plans may involve surgery alone, or multimodal therapies.
- Margin marking techniques are simple, inexpensive, and very useful for improved communication of information about microscopic disease.

INTRODUCTION

Treatment of cancer in exotic species is becoming increasingly prevalent, although formal research in this area remains sparse. A retrospective report on the prevalence of neoplasia in reptiles demonstrated that cancer was identified in 10% of the biopsy or necropsy submissions for reptile species, with individual groupings as follows: snakes (15%), lizards (8.5%), chelonians (2.7%), and crocodylians.¹ A recent online literature search by the author of the past 10 years of the *Journal of Avian Medicine and Surgery* and the *Journal of Zoo and Wildlife Medicine* revealed a total of 38 case reports of neoplasia; most of these reports occurred between 2011 and 2015, suggesting that treatment of cancer in exotic species is increasing in frequency. This is an exciting time for the exotic species practitioner, with shifting paradigms in client perceptions of cancer and increasing availability of advanced therapies. Although a number of therapeutic options exist for the treatment of neoplasia, surgical excision remains an important mainstay in the treatment of solid tumors. Aggressive

The author has nothing to disclose.

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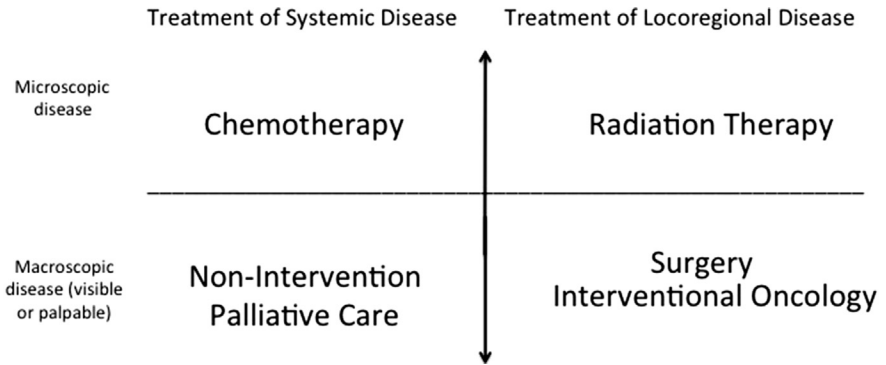


Fig. 1. Generalized schematic of the application of treatment modalities for cancer.

and well-planned surgical removal of localized solid neoplasms cures more veterinary patients than any other form of treatment.^{2,3}

Surgical oncology is not just the physical act of cutting out a mass lesion, it emphasizes oncologic knowledge and a state of mind, with a goal to create the most effective treatment plan tailored to the disease, the patient comorbidities and quality of life, and the overarching goals of the client. To practice good surgical oncology, more than just surgical skills are needed, including an understanding of tumor biology and pathophysiology, an understanding of how other oncologic treatment options interact and complement each other (Fig. 1), and an understanding how preoperative, intraoperative, and postoperative decision making can impact patient outcome. Approaching the problem holistically, with the idea that the whole is more than the sum of its parts, generally improves patient outcomes and client satisfaction.

Surgical approaches to cancer generally work best in cases in which the disease is locoregional, or limited to a specific area (eg, a solitary mass, or a solitary mass and local lymph node metastasis but without systemic metastasis) (Box 1). It can be difficult to know where to start in surgical planning, but a clear differential diagnosis list based on an understanding of the types of tumors common to the species being treated is important. Optimizing a plan incorporates the understood biologic behavior for each of these differential diagnoses, the disease location, the disease extent, patient lifestyle and comorbidities, treatment alternatives, and expected prognosis. Depending on the differential diagnoses identified and their prioritization, workup may start with either imaging or tissue sampling.

Box 1

General principles for treatment of locoregional disease

1. Cancer is confined to an organ or area. If disseminated disease exists, regional therapy may still be indicated if it provides palliative relief for specific clinical signs (eg, cessation of hemorrhage, relief of obstruction), but in this case, veterinarians should be clear in the overall treatment goal.
2. There must be a therapeutic advantage of locoregional therapy over less invasive systemic therapy. There is likely no benefit to locoregional treatments if systemic therapy is efficacious and well tolerated (eg, lymphoma).
3. The proposed treatment should be technically feasible with minimal complications and/or acceptable risks.

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