Avian Oncology

Diseases, Diagnostics, and Therapeutics

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KEYWORDS

• Neoplasia • Tumor • Neoplastic • Bird • Psittacine • Cancer

KEY POINTS

- Cytologic examination of fine-needle aspirates of neoplastic lesions should be performed whenever feasible, because it has a potential to provide a rapid diagnosis with low morbidity and costs associated.
- Surgical excision of a neoplastic lesion should only be formed after staging to evaluate extend of disease and optimize the surgical planning.
- Safe and effective chemotherapy dosages and frequency of administration in companion birds are yet to be established and although many published drug protocols seem safe, they are also largely ineffective, likely due to subtherapeutic drug concentrations reached.
- Radiation therapy seems to be well tolerated in birds; however, the need for general anesthesia and lack of established radiation protocols limit its use in companion birds.

INTRODUCTION

Birds kept as companion animals are increasingly living longer due to improved husbandry, nutrition, and veterinary care provided. As a consequence, a growing number of geriatric disease conditions, such as degenerative and neoplastic diseases, are diagnosed and managed by veterinarians. The increasing awareness of bird owners of diagnostic and treatment options for neoplastic diseases in humans and domestic animals has led to an increasing demand to provide advanced diagnostic and treatment modalities for companion birds diagnosed with neoplasia.

Among companion birds, Psittaciformes are most frequently diagnosed with neoplasia, with budgerigars the most commonly affected species (17%–24% overall incidence).[1] Passeriformes have the lowest reported incidence of neoplasia among

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companion birds. Cutaneous neoplasia, followed by urogenital neoplasia, is the most frequently diagnosed in companion birds.

Diagnostic and treatment attempts remain challenging in many companion birds due to the often small patient size, difficulty to gain repeated intravascular access, increased anesthetic risks compared with other domestic animals and lack of information regarding prognosis and efficacy of antineoplastic treatments in companion bird species. Although several reviews of avian neoplasia exist, reported numbers of clinical cases are low, and there is no established standard of care for most neoplasias in companion birds. Collaboration among veterinarians and multi-institutional studies are needed to increase understanding of cancer behavior in the companion birds.

DIAGNOSIS

As in any other species, a definitive diagnosis should always be obtained prior to determining the prognosis and treatment options. A definitive diagnosis can usually be obtained either by cytology or, if the obtained samples are nondiagnostic, by histopathology of a biopsy specimen.

BODY MAP

A body map, which documents the location and size of the neoplastic masses, should be performed anytime a new mass is found in a patient (**Fig. 1**). Calipers should be used to measure the longest diameter of a mass, and this value should be recorded on the body map form, with the visit date. This allows for close monitoring of the changes in mass size. If owners have declined further diagnostics, or if the mass was diagnosed as benign but is growing, repeated discussion with the clients about benefits of therapeutic intervention could be pursued.

BLOOD WORK

Blood work should be performed to assess overall health as well as to look for abnormal blood counts, which could be linked to the presence of neoplasia. A complete blood cell count may reveal cytopenias, which may result from the presence of hematopoietic malignancies in which the neoplastic cells may crowd the bone marrow (myelophthisis). Anemia may occur in patients with cancer for a variety of reasons, including bleeding from a tumor or bone marrow infiltration by hematopoietic tumors. Leukocytosis, consisting of a mature lymphocytosis (chronic lymphocytic leukemia)[2,3] or a population of large immature blasts (acute leukemia), may be seen in patients with leukemia.

An abnormal biochemistry profile may be the sign of organ involvement by the tumor or organ dysfunction related to age or other diseases and may preclude the use of certain therapies. Paraneoplastic syndromes, such as hypercalcemia and hyperglobulinemia, are commonly described in canine patients with hematopoietic malignancies. Hypercalcemia was present in 2 Amazon parrots with malignant lymphoma and believed to be paraneoplastic.[4] Ionized calcium should be determined if hypercalcemia of malignancy is suspected.

Diagnostic Imaging

Many malignant tumors have the propensity to spread to other organs, commonly to lungs but also to coelomic organs or bones.[5–8] Radiographs allow for visualization of bone lesions (**Fig. 2**) and soft tissue masses; however, whole-body CT, preferably contrast enhanced, is becoming the mainstay in diagnostic imaging of avian patients,