Another Unusual Tumor in a Budgerigar

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A 10 year old male budgerigar (*Melopsittacus undulatus*) was presented with an acute swelling of the right periocular area. Initial examination revealed localised swelling resembling cellulitis of the skin tissue only with some dried blood and scabs present. The eye and conjunctiva were unaffected and there was no clinical evidence of sinusitis or nasal discharge. The bird was in good general condition and there were no other significant clinical findings. In-house cytology revealed Gram positive cocci in significant numbers. Initial differential diagnosis included infection either primary or secondary from trauma (including self trauma), insect evenomation, self trauma secondary to middle ear infection, and neoplasia. Treatment was started with amoxycillin/clavulanic acid (Clavulox Drops, Pfizer) 125mg/kg PO BID and meloxicam (Metacam for Cats, Boehroinger Ingelheim) 0.3mg/kg PO BID.

At follow-up the lesion had reduced significantly but not completely resolved. The bird was comfortable and back to normal behaviour, with the exception of persistent rubbing of the face on the cage wire. Only a few scattered Gram positive cocci were present on cytology, and were assumed to be normal flora. Skin biopsy was advised but declined by the owner.

The bird was re-presented 10 days later for not flying. Clinically it had a slightly wider stance than normal and held the right wing drooping lower than the left wing. There were no palpable fractures or other evidence of trauma, although there was a slightly slower reflex response in the right wing. When flight tested the bird did not flap the right wing and would quickly spiral to the ground. Additionally when placed lying on the right side, the bird was unable to right itself and the primary flight feathers of the right wing would get caught in its feet. The facial skin lesions had not changed. Differential diagnosis included a brain lesion or (less likely) otitis media based on the clinical signs and signalment, with secondary infection of the facial skin from self trauma. The owner declined further work-up requesting palliative care only. Meloxicam was continued but antibiotic coverage was changed to azithromycin (Zithromax Pral, Pfizer) 40mg/kg PO q48h to cover secondary skin infection for ease of treatment. An Elizabethan collar was contraindicated due to ataxia.

Over the next two months the skin lesions on the right side of the face became much thicker and more widespread. It was evident that the initial lesion was likely neoplastic and very likely the primary site of the neoplasia, despite the early improvement to antibiotics and anti-inflammatories. The bird also became slowly, but progressively, more ataxic with the right wing and leg and developed a mild head tilt to the right.

Humane euthanasia was recommended once the quality of life had deteriorated. The owner agreed to post-mortem. At the time the lesion was very thickened and widespread over the entire right side of the face and head. The right eye was not visible through the lesion and the right ear canal had also closed from the swelling. There were no gross lesions of the brain evident.

HISTOPATHOLOGY

There was widespread neoplastic invasion of the dermis and deeper structures with an anaplastic cell type with a high nucleus:cytoplasm ratio (1:1) with variable shaped nuclei, mostly oval to flattened and occasionally clefted. There was a high mitotic rate (7-10 per hpf) with occasional bizarre mitoses. In some areas there was swirling and streaming of the cells with occasional spindle- shaped differentiation akin to feather follicle dermal papillae. Trapped feather follicles and other structures were common as was invasion along major nerves with at least some penetration of the cranial cavity. There was minimal invasion of basal laminae and epithelial layers however, in the overlying epidermis there were occasional areas of ulceration and heterophilic rich inflammatory response, likely to be due to regional ischaemia. The diagnosis was a poorly differentiated sarcoma.

Features of the cell type are reminiscent of feather follicle dermal papilla mesenchyme but immunohistochemistry (IHC) would be required to better differentiate the cell type of origin. In some areas it appears more like a round cell neoplasm and anaplastic lymphoma cannot be ruled out on morphology alone.

DISCUSSION

Reports of neoplasia are extant for captive birds, especially in budgerigars, where the overall incidence of neoplasia ranges from 16.8% to 24.2%. (Latimer, 1999) In a veterinary diagnostic laboratory with a diverse avian caseload, budgerigars accounted for 69.7% of all psittacine neoplasms and 41% of all avian neoplasms recorded. The overall incidence of neoplasia approximated 3.8% in all avian submissions. (Reece, 1992).

Neoplasms of the integument system are common and account for 12% to 70% of all avian neoplasms. Of the various neoplasms reported, lipomas and fibrosarcomas are observed most frequently (Latimer, 1999). Sarcomas associated with the cutaneous tissue of birds include fibrosarcoma, liposarcoma, haemangiosarcoma, myxosarcoma and lymphosarcoma. They tend to be locally invasive and often reoccur with conservative surgical excision. Occasionally metastasis is seen. (Reavill and Schmitt, 2000).The exception is cutaneous lymphosarcoma, which in psittacine birds is often in association with generalised or systemic lymphosarcoma (Bauck, 1986).

Whilst the diagnosis of a sarcoma was not unexpected in this budgerigar, the progression of the clinical disease and histopathology was interesting. Clinically the neurological signs had a reasonably early onset before the progression of the cutaneous neoplasm. They were then slower in overall progression. One would expect that the neurological signs were from metastasis to the brain tissue, however is appears from the histopathology that they were instead from local invasion along the major nerves.

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