Amazon Parrot Medicine and Surgery

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Abstract

Parrots from the genus *Amazona* are popular pets. Seasonal aggressive behavior can make them seem less desirable than other popular species. The Amazon has served as a research subject for many clinical studies. Parastism is uncommon. Amazons are susceptible to many of the same etiologic agents affecting other common parrots. Obesity and malnutrition combine as a common clinical problem that can affect longevity.

Species Commonly Kept at Pets

- Yellow-crowned Amazon- *Amazona ochrocephala*- yellow crown, black beak with red on side. From Northern South America
- Blue-fronted Amazon - *Amazona aestiva* blue on lore, yellow on crown and cheeks, red on wings. From Brazil and Argentina
- Orange-winged Amazon - *Amazona amazonica*- cheek and crown yellow; lore violet blue, Venezuela area and contiguous countries.
- Lilac-crowned Amazon - *Amazona finschi*-back of crown, sides of neck and nape pale blue, front of crown and lores reddish brown. From Central Western Mexico.
- Mexican Red-headed /Green-cheeked Amazon - *Amazona viridigenalis*forehead, crown and lores red; sides of nape pale violet-blue. From Northeastern Mexico
- Red-lored Amazon - *Amazona autumnalis*, forehead and lores red; crown and nape green, each feather edged bluish-lilac; upper cheeks and ear-coverts yellow. From Caribbean Mexico to Northern Nicaragua.
- Yellow-naped Amazon - *Amazona auropalliata* Variable yellow band on nape. From Pacific coast from northwest Costa Rica north to eastern Oaxaca, southern Mexico
- White-fronted/Spectacled Amazon - *Amazona albifrons* forehead and forecrown white; eye area, lores, alula and primary-coverts red; crown dull blue with blackish edging to feathers; primaries and outer webs of secondaries blue. From central-western Mexico; southwest Guatemala.

Rare and Rarer Species

Partial list includes:

- Mealy and Blue Crowned Amazons - *Amazona farinose*,
- Festive Amazon - *Amazona festiva*,
- Red-spectacled Amazon - *Amazona pretrei*,
- Tucum‡n Amazon - *Amazona tucumana*,
- Cuban Amazon - *Amazona leucocephala*,
- Red-necked Amazon - *Amazona arausiaca*,
- Yellow-faced Amazon - *Amazona xanthops*,
- Hispanionlan Amazon - *Amazona ventralis*,

- Yellow -shouldered Amazon - *Amazona barbadensis*,
- Blue-cheeked Amazon - *Amazona dufresniana*
- St. Lucia Amazon -*Amazona versicolor* Puerto Rico-Amazon *Amazona vittata*

Longevitiy, Gender and Sexual Maturity

The Amazona Society anecdotally reports a Blue-fronted Amazon who lived until age 102. Generally we shoot for over fifty. It is not uncommon to see Amazon parrots in the 3rd or 4th generation of a family. Malnutrition and obesity can drop the longevity to 10-15 years.All Amazon species are monomorphic (i.e. no visual differences between the) sexes) with two exceptions: In the Spectacled Amazon (*A. albifrons*), the male has red markings on the small upper wing coverts and the edge of the carpus; the female is usually green in this area but may have a limited amount of red. The female Yellow-Lored Amazon (*A. xantholora*) lacks the white on the head and the red markings of the male. It is also generally more drab appearing than the male. Gender determination in other Amazon species can be ascertained with a DNA test on the peripheral blood or by endoscopic examination of the gonads - preferred for breeding stock. With the onset of sexual maturity- seasonal hormonal aggression may be seen (December-March). This aggression can be managed with behavioral training.Unwanted egg production in the single, bonded pet female Amazon most commonly occurs after 10 years of age. One of the author's pet Yellow-Naped Amazons laid her first egg at 27 years of age.

Nutrition and Malnutrition

Amazon parrots are typically subject to all the negative effects of the classically bad seed and fruit diet, including marked oral squamous metaplasia, mineral deficiencies, dermatopathies, hepatopathies, inappropriate female physiology/pathology, atherosclerosis and bone pathology. The medical condition emerging as most common in the Amazona genus is obesity[1]. House Amazons are lazy by nature and by any rate aren't performing aerobic exercise. Their caloric needs are far exceeded by their love of high fat nuts, seeds and cheeses - all of which should be severely restricted. A diet predominated (80-90% of calories fed) by an extruded formulated food product is preferable with very little or no extra fat from any source.Amazon parrots can become overweight solely on formulated diet leading the clinician to recommend "feeding to weight" not unlike figuring the daily ration of dog chow for a given dog. Dietary conversion of the Amazon is possible at any age. In hospital techniques are offered by some. Others are integrating this into behavior management. The author's fairly successful program can be accomplished by owners who take charge after actually reading and following the guidelines at http://www.birddoctor.net - then click on Bird Health. As part of a nutritional health plus physical and mental health we recommend daily safe (enclosed in safe carrier) outings for unfiltered sunlight and fresh air.

Physical Exam

For the safety of the Amazon parrot, the client should bring the bird in a secure carrier. Once in the exam room the tame, socialized, non-fractious patient can be placed on a sturdy training perch, for distant observation, while collecting the history. Overheating in the excited Amazon can occur quickly (>4°F) and the respiratory rate can double, both in less than four minutes[2]. Quickly view under lighted magnification, smell, touch, and palpate. The author uses a tympanic or electric clocal thermometer to assess overheating in addition to observing the patient's respiratory function. The clinically normal Amazon should return to a normal respiratory rate in 5 minutes. The core temperature may take a bit longer to return to normal.

Behaviour

Behavioral feather picking is uncommon in the Amazon. Periodic seasonal aggression is probably the most common problem, corresponding with breeding season. Bird training,, focusing on positive reinforcement by the flock leader (the owner), can greatly reduce or ameliorate this aggression.

Blood Sampling

The right and sometimes left jugular vein is easily accessed in the Amazon parrot. The author typically uses no anesthesia for restraint and does not heparinize the syringe. For the Amazon a 25 gauge needle with 3ml syringe is attached. A videoclip of two-person venipuncture and blood preparation will be shown(or can be viewed at): http://www.californiaavianlaboratory.com/images/bloodcoll.mov The author routinely performs right or left jugular venipuncture unassisted and without sedation or anesthesia. Jugular venipuncture can be challenging in the obese bird.

Blood Testing

Blood panel reference ranges for selected Amazon species have been reported by Rosskopf (1984), Joyner (1990), Tell and Citino (1992) and Fudge (2000). Data sources included free-living birds, captive bird controlled studies, and field data from veterinary patients. The Amazon genus serves for a good "generic" avian blood reference range. Exceptions are that plasma bile acids tend to run higher and that some normal Amazons may show higher absolute lymphocyte counts compared to other large psittacines. The Hispaniolan Amazon (colony) has been used in university studies for heavy metal reference ranges[3] and prothrombin times[4]. Acetylcholinesterase concentrations have been determined in the normal Hispaniolan Amazon parrot[5]. Serum corticosterone levels have been measured in the same species in response to clinical procedure stress. Mean corticosterone levels in restrained birds were considerably higher than baseline[6]. Amazon parrots can mount a marked leukocytic response (>100,000) in response to fungal granulomas, mycobacteriosis, or chlamydophilosis. Lymphoid leukemia appears to be the most common hematopoetic neoplasm. Hypocalcemia is clinically uncommon but can occur in the older chronically malnourished Amazon. Physiologic/artifactual hypercalcemia can occur due to female physiology. True hypercalcemia has been documented in two cases of Amazon parrots with malignant lymphoma[7].

Parasites

Ectoparasites appear to be quite uncommon in the Amazon parrot. *Knemidocoptes* is rare and probably associated with immunosuppression as the author has observed this disorder in cases of concurrent tuberculosis or hepatic carcinoma. Endoparasites are also clinically uncommon. Nonetheless, Brazilian reports document a variety of endoparasites in free-living species. In addition there are isolated North American reports of trichmoniasis[8] and helminths in the Amazon[9]. Anecdotally, the author has observed a single Amazon infected with *Giardia* over a 26 year interval. Sarcosporidiosis does present as on ongoing problem in Florida aviaries (and sometimes households) containing New World and Old World parrots. The opossum is the apparent intermediate, while the cockroach is the paratenic host than can infect housebound Amazon parrots. North American Amazon parrots would undoubtedly be equally susceptible as the wide variety of reported psittacines to cerebral nematodiasis, contracted by ingesting raccoon faeces.

Chlamydophilosis

Historically this disease was quite common in the post-quarantine and smuggled wild caught Amazon parrot. A crisis presentation would include somnolence, anorexia, diarrhoea, green or yellow urates, variable respiratory signs. The hemogram would often indicate a non-regenerative anemia, a leukocytosis and variable degrees of monocytosis and basophilia. Biochemical changes were inconsistent but might include enzyme elevation. While *Chlamydophila* infection rates have stabilized, the agent hasnÕt gone away. What has changed is the nature of the product to some extent. Better nutrition, production management and reduced shipping stresses has led to less cases of severe illness.Many different testing regimens (PCR, Direct FA, EBA, CF, ELISA) exist and are not equal. However the most common time to find an infected Amazon parrot is when it is young, recently purchased and recently exposed. For the latest in diagnosis and management of avian chlamydophilosis, visit http://www.avma.org/pubhlth/psittacosis.asp. The Compendium of Measures to Control *Chlamydophila psittaci* (formerly *Chlamydia psittaci*) Infection Among Humans (psittacosis) and Pet birds, 2005, was published there on Feb. 15, 2005.

Bacterial Disease

Amazon parrots aren't uniquely affected by specific bacterial agents, when compared to other common pet psittacine birds. *Pseudomonas*, members of the Tribe Enterobacteracae, *Yersinia pseudotuberculosi*s, occasionally *Listeria*, *Clostridium*, *Aeromonas hydrophila* complex can all provide opportunistic diseases in the Amazon. *Staphylococcus* can be involved with some dermatologic and upper respiratory disorders.*Helicobacter*, the spiral oral bacteria of cockatiels, does not seem to occur in *Amazona*. *Mycobacterium* has been a notable problem in Amazona. While many of the cases have originated in wild caught birds, the human form can transmit to Amazons. In addition *Mycobacterium* can spread among a collection of birds.*Mycobacterium avium* and *M. genavense* are the species most commonly recovered from Amazons[10]. *Mycobacterum tuberculosis* has also been reported[11]. While a marked leukocytosis and monocytosis may characterize an active infection, clinical signs and definite diagnoses have been difficult. Endoscopic biopsy or cytology has been the most successful. Recently, commercially available DNA PCR probes of lesions or faeces (avian TB is a GI predominant-disorder) allow rapid accurate and species-specific diagnosis. Therapy of avian TB usually comprises a combo of several drugs compounded into an oral or food-based concoction. The regimens are borrowed from human medicine as *M. avium* and *M. genavese* commonly infect human HIV patients.

Fungal Disease

Yeast infections of the alimentary tract or integument are not particularly common in Amazons. Avian gastric yeast (*Macrorhabdus ornithogaster*) has been anecdotally reported in the Amazon but appears much more commonly in smaller psittacine species.*Aspergillus fumigatus* and other related molds are simply environmental contaminants waiting for an opportunity. The classic case presentation is acute respiratory signs with variable leukocytosis and variable radiographic changes in an Amazon with a history of chronic malnutrition, living over a bed of cage litter like walnut shell or corncob. Poorly ventilated living spaces with decaying other vegetable matter can also set this up. While fungal serodiagnostics are inherently unreliable in parrots and the only controlled study showed very poor sensitivity and specificity, a new DNA PCR probe (non-immunologic) shows great promise. The author has seen this new diagnostic pick up the infection in the peripheral blood.Pharmacokinetic studies of itraconazole with Blue-fronted Amazons led to the recommendation of 5 mg/kg orally every 24 hours[12].

Viral Disease

While clinical cases of psittacine circovirus (PBFD) have been reported in the Amazon, overall this virus tends to prefer Old World parrots. Routine screens for PBFD in the Amazon make little sense, particularly in the household pet setting. Polyoma virus can affect the Amazon. While some aviaries are vaccinating others are improving biosecurity It is best not to move the Amazon into the sales channel until after weaning age. The immune system is more mature and hence the bird is less susceptible to exposure.Psittacine herpesvirus (Pacheco's Parrot Disease) occasionally rears itÕs head in a collection, characterized by sudden death and specific histologic changes (eosinophilic intranuclear hepatic and splenic inclusions). While serologic screening(antibody testing) hasnÕt proven a useful tool in the past, new DNA PCR probes may be helpful to identify persistent carriers. Pre-outbreak vaccination with the killed herpes virus vaccine is practiced in some high-risk facilities.Other viruses reported in the Amazon include adenovirus, paramyxovirus type 3, paramyxovirus type 1 (Exotic Newcastle disease) and West Nile Virus (WNV). Overall psittacines are not highly susceptible to WNV and vaccination (with an equine-labeled product) is not routinely done in endemic areas.Poxvirus infections were a significant problem in recently imported wild-caught Amazon parrots[13] but is a rare condition today.

Toxicities

The most important diagnostic for heavy metal toxicosis is history.Amazons used to be number one in incidence for lead toxicosis, probably now supplanted by the cockatoo. Free-roaming house birds are at greatest risk ingesting art, curtain weights, sporting goods and other items they shouldn't ingest. The Amazon almost uniquely can show a hemoglobinuria with lead toxicosis, in addition to variable neurological signs. Most cases will show erythrocytic changes in the form of ballooning but not stippling.Zinc toxicity can be associated with marked polyuria, regurgitation and variable anemia, without reliable erythrocytic morphology changes. A clinically normal Amazon with no exposure history and a plasma Zinc of 2-3 ppm should not be treated. Typically, true Zn toxicosis cases will have exposure history, radiographic support and a Zn level at multiples of normal. Chronic exposures, however are hard to document from peripheral blood.The authorÕs treatment of choice for heavy metal toxicosis remains parenteral EDTA at 35-50 mg/kg BID, while following the hemogram. In spite of repeated mention of renal function concerns this has not ever been documented as a problem.

Reproductive Tract Disease

Unwanted egg-laying in pet Amazon parrots often begins after ten years of age and can be a surprise for client who thought that their Blue-Fronted was named Bill. Dystocias are more common in the obese and the malnourished, where under-rmineralization of eggs and flabby muscultature can result in retained eggs. The clinician must decide whether conservative methods will be successful in extracting the egg. Palpation, assisted by imaging, may help. The pet Amazon that requires laparotomy for egg removal should be salpingectemized at the same time.Techniques for managing unwanted egg-laying are similar that for cockatiels except that theorectically the Amazon "season" is more likely December-March, rather than year-round in the cockatiel.An initital depo-leupramide (Depot-Lupron) injection @ 100-500 micrograms/kg plus a Vitamin D3 injection, should be followed with oral calcium (if inadequate diet) plus diet change. Appropriate behaviorial and environmental changes should be accomplished to lessen the drive to ovaposition.

Dermatopathies

"Amazon mutilation syndrome" hs been mentioned in articles for quite some time. Primarily an inflammation and chewing of the digits, associated with pruritus and pain, tissue necrosis can become quite severe. A variety of theories have been put forth as to the etiology, including viruses, staphylococcal hypersensitivity, hypothyroidism etc. While secondary Staphylococcus or gram-negative infections can be involved leading to partial resolution with appropriate topical and systemic drugs, this author has noted a seasonality to this- most common during breeding season in known females.

Liver Disease

Amazon parrots can suffer from a variety of liver diseases, including inflammatory, degenerative and neoplastic disorders[14]. The enzymes AST and LDH might document hepatocellular damage and leakage at only one point in time. Elevations in bile acids might suggest decrease in actual function, while elevations in GGT may be helpful in hepatic carcinomas. Endoscopically-targeted biopsies provide the most useful and specific information.

Anaesthesia

Hispaniolan amazons have been studied as a model for propofol usage. Persistent apnea with the agent in Amazons and other birds has relegated this drug to non-use[15].

Imaging

The Amazon parrot has served as a model for studies in dynamic fluoroscopic barium studies[16], normal radiographic anatomy[17] and ultrasound guided liver aspirations[18]. Magnetic resonance imaging has proven useful for targeting surgical approaches to upper respiratory infections[19].

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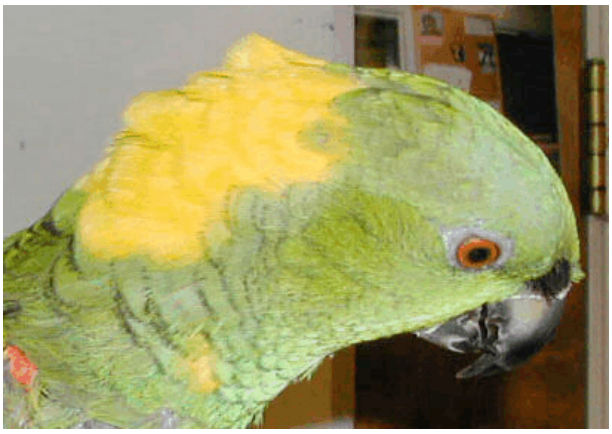
Blue-fronted Amazon

Double yellow-headed Amazon

Green-cheeked Amazon (Mexican red-head)

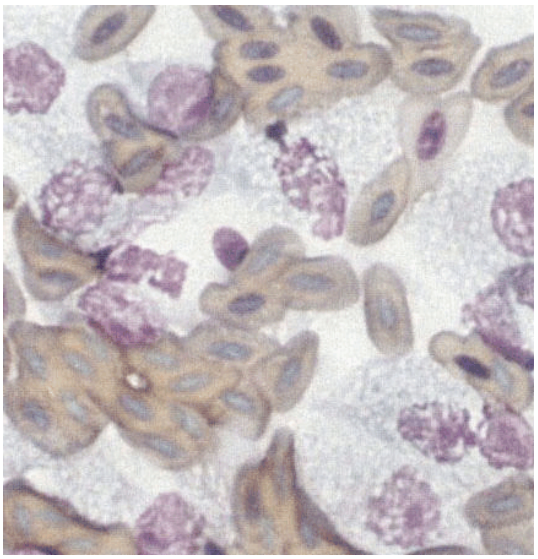


Yellow-naped Amazon

Lilac-crowned Amazon

Oral squamous metaplasia

Ruptured cervicocephalic airsac



Wright's stain, TB, Amazon