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e Corner

by Elisha W. Burr, D.V.M. Óxford, Conn.

Control and Treatment of Internal **Parasites** of Parrots

Many parrot owners do not realize that internal parasites may be harboring in their parrot. Sometimes obscure signs may be developing and an owner does not notice that slight behavioral changes are taking place in their bird. Even birds in good plummage may be harboring parasites. It is recommended that an examination for parasites be conducted every 6 months. Preventive measures also help to insure that a parrot is parasite free. Preventive measures include adequate sanitation and fecal exams. Proper physical care of parrots is not all that is needed to maintain a healthy bird. A clinical examination reveals things previously unsuspected.

Internal parasites are classified as roundworms, tapeworms, and protozoa. They can inhabit any system of the body, i.e., the respiratory, the digestive, the vascular, or a single organ.

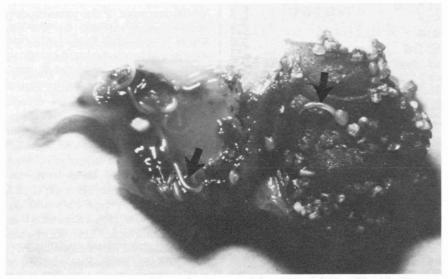
Roundworms (nematodes) are long unsegmented worms and are the most important group of internal parasites in parrots. Numerous species have been isolated from psittacine birds. Tapeworms (cestodes) are flat segmented worms. They inhabit the intestinal tract at various locations according to the species of the worm. Protozoa are microscopic, one-cell parasites. According to species these protozoa inhabit either the digestive or the vascular (blood) system.

With roundworm infestation there is loss of condition, diarrhea, emaciation and weakness. Worms may be seen with

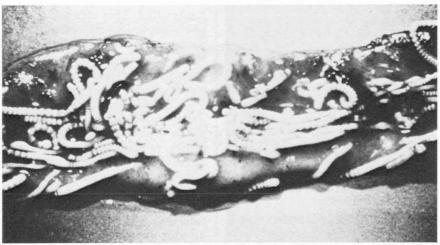
the naked eye if they are passed out in the feces. The most common roundworms encountered in parrots are the ascarids. Ascarids are intestinal parasites that are 30 to 45 mm long which migrate through the lining of the intestinal wall (during migration they may be found in several organs, especially the lung). In heavy infestations fatal intestinal obstruction can occur. Loss of condition is the most common clinical symptom seen. Infected birds also show poor plumage and a general unthrifty appearance. A roundworm of the respiratory system is the gapeworm (Syngamus trachea). The gapeworm is found in the trachea and the bronchi. Usually young birds are affected while older birds remain resistant to infestation. Various insects ingest the eggs of the worm and serve to perpetuate the disease. Parrots infected with gapeworm are literally gasping for air due to partial blockage of the trachea with parasites. Control of invertebrates is important in preventing reinfection of your parrot.

Capillaria (hairworms, threadworms or capillary worms) are roundworms which can cause high mortality in parrots. There are two types of Capillaria worms: those that infect the crop and esophagus and those that infect the small intestine. They are much smaller than the ascarids and therefore often difficult to diagnose. The usual signs of infection with this roundworm is that the parrot goes off feed and gradually becomes emaciated. In the intestinal form diarrhea usually occurs. Light infestations may persist for months and go unnoticed until a fecal exam is done. The only other roundworm of relative importance is proventriculus and gizzard worms of the species Dispharynx and Habronema. Proventriculus and gizzard worms are usually diagnosed in newly imported birds.

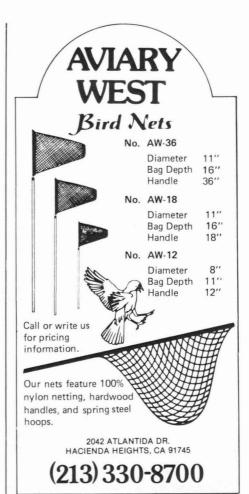
The old standby treatment of roundworms in parrots was piperazine wormer



Dispharynx Nasuta recovered from the mucosa of the proventriculus and gizzard. (Courtesy of Dr. F.W. Huchzermeyer, Faculty of Veterinary Science, University of Pretoria, South Africa).



Tapeworm Segments recovered from the small intestine of a parrot. (Courtesy of Dr. F.W. Huchzermeyer, Faculty of Veterinary Science, University of Pretoria, South Africa).



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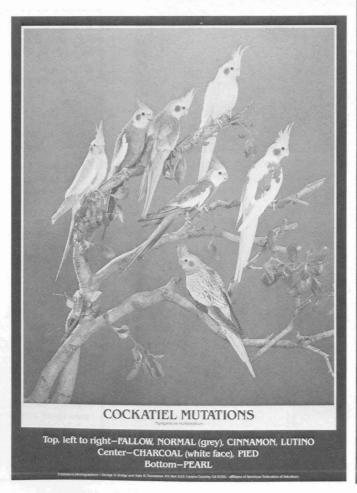
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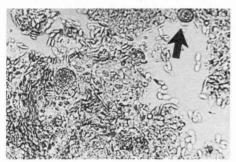
developed for poultry. The dosage is two times that for poultry due to the higher metabolism of parrots. With hairworms (Capillaria) and proventriculus worms (Dispharnx and Habronema) treatment is rarely successful. Mebendazole (multispec) should be used for treatment of all species of roundworms. The dosage is 50 mg/kg. Ten days later a second treatment should be given.

Preventive medicine includes keeping parrots away from infected birds, feces, unhygienic conditions and various invertebrates which harbor these parasites. The control and prevention of roundworms hinges on sanitation, hygiene and good management. If infection occurs in your parrot then disinfection of the cage should be carried out. The frequent removal of droppings and proper disposal of them is a necessity. The placing of grit and food away from perches where contamination with feces could occur also reduces the incidence of roundworms.

Tapeworms use intermediate hosts where one stage of the parasites develop before being ingested by the parrot. These intermediate hosts can be a wide variety of invertebrates such as earthworms, flies, slugs, snails, grasshoppers or other bugs and beetles. Tapeworm control is accomplished by preventing birds from eating invertebrates. Diagnosis of tapeworm infestation is often difficult as eggs and segments of the tapeworms are irregularly passed out in the feces. The tapeworms may be noticed by segments being expelled from the bird or they may be found on the bottom of the cage. Segments can be single or multiple. One client came to me and said she had seen a serrated piece of plastic over a foot long pass out of her parrot. Upon examination I found it not to be a piece of plastic at all but a string of tapeworm segments. Tapeworms fortunately are not a serious problem in parrots and can usually be tolerated by a healthy bird. They are more common in newly imported birds where unhygienic conditions previously existed. Tapeworms can be controlled by keeping the cages clean, dry and placing a wire bottom so droppings are collected in a tray away from contact with the bird. Tapeworms can be treated with mebendazole (multi-spec) at the rate of 25 mg/kg or with Niclosamide (Yomesan) at the rate of 150 mg/kg.

In the digestive system the only protozoa of major importance are *Coccidia* and *Giardia*. In domestic poultry coccidia is a problem in chickens that are fed on the ground. This parasite can be spread on the clothes, hands or boots of people coming from an infected pre-

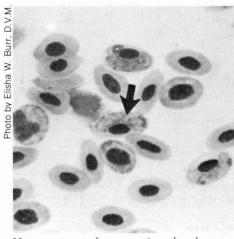
mise. Clinical symptoms are loss of appetite, lethargy, enteritis and general malaise. Green or hemorahagic diarrhea may be seen in advanced stages of the infection. Sanitation and keeping birds off the ground eliminates the incidence of coccidiosis. Coccidia can be treated with sulphamethazine at the rate of 2 tablespoons/gallon of water for 5 days.



Coccidia oocysts recovered from an intestinal scraping (courtesy of Dr. F.W. Huchzermeyer, Faculty of Veterinary Science, University of Pretoria, South Africa).

Giardiasis is caused by a protozoal parasite that affects the digestive system in parrots. Often no clinical symptoms are seen, if any are, the bird may refuse to eat, lose weight and finally die. Giardiasis has been frequently reported in the last few years. Giardiasis can be spread through infected feed and water. Giardia can be treated with Dimetridazole (Emtryl) at the dosage of 1 tsp/gallon of water for 5 days, or with Quinarcrine hydrochloride 250 mg/kg for 5 days. (Quinacrine hydrochloride, like any other drug, should be used only under the supervision of a veterinarian.)

Blood parasites are very similar to each other in appearance and characteristics. Scientists still have yet to decide if they belong to the same genus. Blood parasites commonly found in parrots are Haemoproteus, Leukocytozoon and Plasmodium. All three are frequently



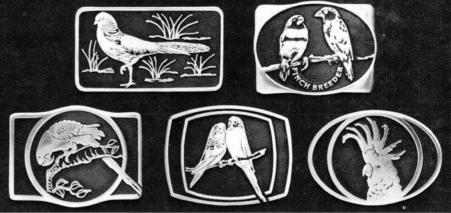
Haemoproteus demonstrating the characteristic halter shape of the organism in the red blood cells.

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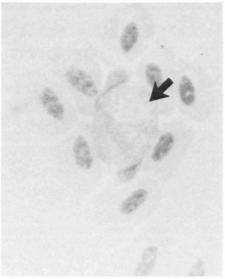




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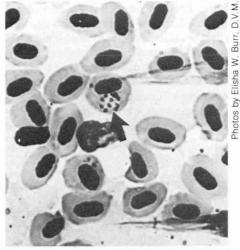
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Leucocytozoon causing extreme enlargement of a white blood cell.

found in parrots newly imported from tropical areas. Haemoproteus is believed to be transmitted to parrots via Hippoboscidae (louse flies). The signs and lesions of the protozoa are not well defined. Fortunately this blood parasite doesn't cause clinical symptoms unless present in heavy concentrations. Leukocytozoon infection occurs due to spread by flies and midges which act as intermediate hosts. Death usually occurs rapidly after first symptoms are noticed so that treatment is seldom warranted. The final blood parasite to be discussed is Plasmodium (Avian malaria). This is



Plasmodium schizonts infecting the red blood cells.

spread by Culex and Aedes mosquitoes. Symptoms of avian malaria are enlarged spleen, enlarged liver, severe anemia and occasionally hemorrhages. Death also occurs soon after the first symptoms appear thus treatment is seldom warranted. Commercially prepared medications for use in human malaria can be used for treatment of blood parasites. Control of insect vectors is believed to be the only means of totally eliminating the incidence of any of the protozoa in tropical areas. Treatment of blood parasites is best accomplished with the use of Quinacrine hydrochloride at the dosage of 250 mg/kg for 5 days. Use this drug under the supervision of your veterinarian.

SUMMARY OF INTERNAL PARASITES

COMMON NAME TYPE Gapeworm Roundworm		SCIENTIFIC NAME	ORGANS HARBORING WORMS	TREATMENT Mebendazole 50 mg/kg* Mebendazole 50 mg/kg* Piperazine 2 x poultry dose	
		Syngamus trachea	trachea & bronchi		
Ascarids	rids Roundworm Ascardia hermaphrodit.		Small & large intestines		
Hairworm Thread worms or Capillary worms	Roundworm	Capillaria spp.	crop & esophagus & small intestines	Mebendazole 50 mg/kg*	
Proventriculus or gizzard worms Roundworm Disparynx Nasuta Habronema Incertum		proventriculus, gizzard and esophagus	Mebendazole 50 mg/kg*		
Tapeworm	oeworm Cestodes Raillietina spp. Hymenolepis spp.		Small intestines	Sanitation; Niclosamide (Yomesan) 2 x mammilian dose—Mebendazole 50 mg/kg*	
Coccidiosis	Protozoa	Eimeria & Isopora ssp. ssp.	Small intestines, caecum, duodenum	Sulphamethazine 2 tblsp/gal H ₂ O for 5 days*	
Haemaproteus	Protozoa	Haemaproteus sp.	Blood vascular system and lungs	Quinacrine hydrochloride 250 mg/kg for 5 days*— Control of insect vectors.	
Leucocytozoon	Protozoa	Leucocytozoon sp.	Blood vascular system	Quinacrine hydrochloride 250 mg/kg for 5 days*— Control of insect vectors.	
Avian malaria	Protozoa	Plasmodium spp.	Blood vascular system	Quinacrine hydrochloride 250 mg./kg. for 5 days*— Control of insect vectors.	
Giardiasis	Protozoa Giardia lamblia		gizzard and intestines	Dimetridazole (Emtryl) 1 tsp/gal H ₂ O—5 days* Quinacrine hydrochloride 250 mg/kg for 5 days	
Flat worm or flutes	Trematodes	Echinostoma spp. Prosthogonimus spp.	Circulatory system, resp. eye, urinary system, genitals, liver, spleen, etc.	Removal of snails Nitrofurazone 4 tsp/gal of H ₂ O for 5 days.	

^{*}Treatment given orally, repeat in 10 days

Analysis per 3.5 grams (approximately one teaspoon)

Α		ě	600 IU
Carotene		*	0.365 mg
Cantha-			
xanthin			1.8 mgs.
			60 IU
D₃ Arginine		÷	32 mgs.
Histidine			13 mgs.
Isoleucine			24 mgs.
Leucine			33 mgs.
Phenylalar	nine		30 mgs.
Tyrosine			33 mgs.
Methionine			12 mgs.
Cystine.			8 mgs.
Threonine			33 mgs.
Tryptopha			9 mgs.
Valine .			40 mgs.
Lysine .			44 mgs.
Alanine			30 mgs.
			50 mgs.
Aspartic A			
Glutamic A			140 mgs
Glycine .	200		36 mgs.



	E				10 IU
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