
CONSIDERATIONS REGARDING GOUT DIAGNOSIS IN CAGE BIRDS

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Abstract

Gout represent a metabolic disease that occurs as complication of nephritis and it is caused by the accumulation of uric acid in various tissues, joints and serous. In cage birds the main causes of gout and nephritis are consisting in excessive nutrition with diets containing increased amount of protein and deficiency in vitamins, especially of A vitamin. The most common cases are seen in older budgerigar and nymphs, as well in those water deprived. The aim of this paper consists in showing suggestive clinical symptoms of this pathology that were identified in cage birds submitted to Faculty of Veterinary Medicine of Iași. Following the physical examination, the main clinical signs were consisting in white-greyish uric acid deposits on leg's skin, which caused deformation of affected joints. The necropsy and histopathology were performed in order to reveal organic lesions and skin and kidney microscopic lesions, respectively. By histopathology was confirmed the occurrence of intracellular acid uric deposits. In kidneys, lesions of total or partial necrosis of urinary tubes were observed. The skin showed areas of hyperkeratosis with a multitude of keratin fibers. Gout treatment is long-lasting, difficult to apply and with low chances of success, mostly depending on lesions severity and on the moment when bird was presented to physician. It is recommended to rebalance the food diet with the introduction of green food, supplementation with A vitamin and specific medication.

Keywords: *Nymphicus hollandicus, gout, uric acid*

Introduction

The main affections that occur in cage birds are usually represented by avitaminosis. The main cause of these avitaminosis is the low intake of vitamins found in the food, their assimilation being in direct relation with the integrity of the digestive tract, the lack of sunlight, the possibility of movement and the zoohygiene conditions in which the birds are maintained.

Avitaminosis, especially the lack of A vitamin, reduce the body's natural resistance and exposes it to various infections whose evolution and severity is dependent on vitamin deficiency.

Gout is a complication of nephritis caused by uric acid deposition in various tissues and especially in joints and internal serous. The main cause of gout in cage birds is the excess feeding with an excendentar content of proteins and low vitamin content. The lack or insufficiency of green fodder in alimentation accentuates the evolution of gout.

Gout in cage birds can evolve with a visceral and articular locations. In the visceral gout, the organs serous appear covered with a white-gray, creamy substance. In severe forms, deposits appear to be clogged, thickening the affected tissue. In the articular gut, the joints are enlarged in volume with isolated or confluent nodules, predominantly with white uric acid deposits in tissues. Usually, prognosis is dependent on the time of treatment initiation and the severity of the lesions.

In this paper we have studied the main diagnostic methods in cage birds gout, highlighting the most important lesions.

Materials and methods

The research was conducted at the Faculty of Veterinary Medicine of Iasi. All the birds cage presented at the consultation were taken into study.

The birds were part of the nymphs and parakeets group (*Nymphicus hollandicus*) with age between 10 and 14 year olds. From the specialty literature, the physiological age of these birds is

around 10-14 years, and the suspected gout pathology is usually reported in old birds with a poor lifestyle.

After a complete anamnesis, the birds were examined and the presence of uric acid deposits was noticed at the articular level, which lead to the deformation of the affected joints.

The necessary treatment was prescribed, according to the symptoms presented. After the necropsy examination, biological samples were collected in order to perform histopathological examination. The organ samples were fixed in 10% formalin, then they were embedded in paraffin and cut at 5 μm thickness and stained with Trichrome Masson (Haematoxilin, Eosin and Blue methyl (HEA).

The examination and microfilming of the histological slides were conducted by using binocular magnifying glass and photon microscope (Leica ICC 50 HD), ocular 10, lenses x10, x20, x40.

Results and discussions

Following the studies performed at the Faculty of Veterinary Medicine of Iași on the cage birds presented at the consultation, after the clinical examination there was noticed a pronounced state of prostration, with support on the jars (Fig. 1), lack of appetite and flight. The parakeet examined presented at the limb joints an yellow deposit covered by a crust (Fig. 2).



Fig. 1 Nymph. Clinical aspect. Support on the tail



Fig. 2 Parakeet. Clinical aspect. Nodular lesion located at the limbs.

Following the careful clinical examination, the feathers from the wings and limbs were dirty with blood, and the skin presented nodular formations, disposed along the phalanges and wings skin (Fig. 3, Fig. 4). **de pr**



Fig. 3 Nymph. Clinical aspect. Wings lesions.



Fig. 4 Nymph, Clinical aspect. Nodular formation at the limbs

The lesions of the birds were toileted with aqueous chlorhexidine solution and sprayed with oximeed spray. It has been recommended to add vitamin A as Ad3E complex in the drinking water.

Due to the severity of the injuries after a few days the bird died. Biological samples from kidneys and skin lesions were collected from both limbs and wings.

Following the histopathological examination, in kidneys, areas of necrosis were seen in urine tubes (Fig. 5) and in limbs accumulation of uric acid in the dermal layer (Fig. 6).

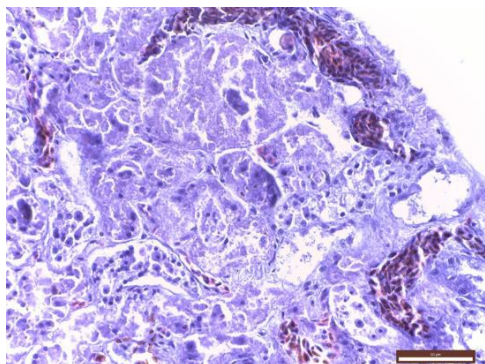


Fig. 5 Parakeet. Kidney – necrosis area in urinary tubes. Masson stain, x40.

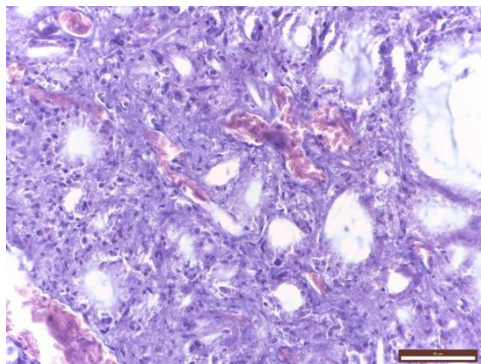


Fig. 6 Parakeet. Limb – uric acid accumulation in dermic layer. Masson stain, x40.

In order to perform the histopathological examination, kidney, limb and wing samples were collected.

In the kidney, several lesions were identified: urinary tube necrosis (Fig. 7), uric acid deposits in the dermal layer of the limbs (Fig. 8) and epithelial proliferation and hyperkeratosis of the wings (Fig. 9).

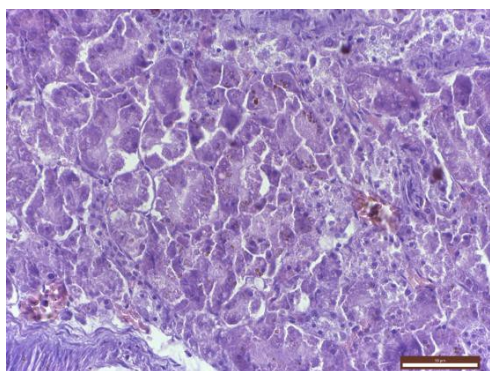


Fig. 7 Nymph. Kidney – urinary tubes necrosis. Masson Stain, x40.

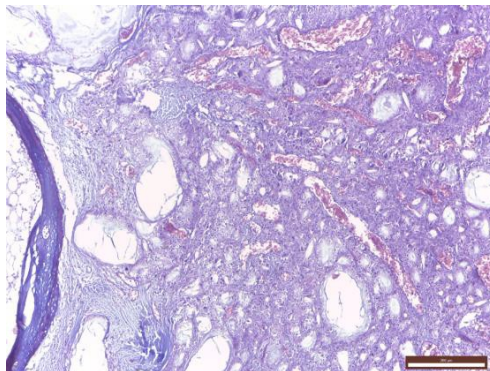


Fig. 8 Nymph. Limb – uric acid in the dermal layer. Masson stain, x 40.

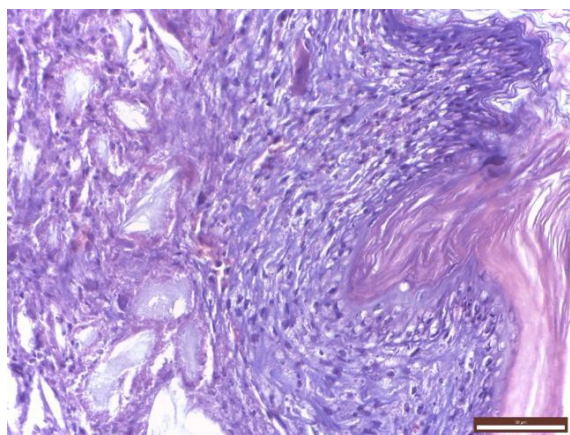


Fig. 9. Nymph- Wing, uric acid deposit in dermal layer, epithelial proliferation and hyperkeratosis. MASSON stain,X40

After corroborating all clinical, histological and histopathological data, the diagnosis of gout was established. The main factors in the occurrence of the disease were hyperproteic diet, water deprivation and avitaminosis, especially the lack of vitamin A.

Conclusions

1. The examined bird presented irreversible lesions, and the supportive treatment was only for improvement of the general condition on short-term and not for the cure of the disease.
2. Bird death occurs due to chronic renal failure.
3. The described lesions have as cause hyperproteic feeding, water deprivation and hipovitaminosis A.

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