HYPOTHYROIDISM IN BIRDS, LITERATURE REVIEW AND CLINICAL CASES

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Introduction and Objective

Endocrine pathologies of birds have been poorly documented in recent years and they should be included in the differential diagnosis of many clinical signs.

The aim of this study is to do a brief review about the endocrine system and the thyroid gland of birds in order to give a detailed description about the hypothyroidism with the help of four real clinical cases.

The Endocrine System of Birds

Many anatomic structures are part of the endocrine system of birds, such as the thyroid glands. These glands are the main thyrotropin (TSH) producers, and they both influence and are influenced by a wide number of physiologic, environmental and nutritional parameters (Oroz 1997).

The diseases that affect the thyroid gland can be caused by an increment of size (goiter) and a decrease (hypothyroidism) or increase (hyperthyroidism) of the normal performance (De Matos 2011).

Case 1: Quaker Parrot with Obesity

Presenting complaint: A 7-year-old unknown gender Quaker parrot (Pyrrhura molinae) is presented with obesity.

History: The bird lives indoor with another Quaker parrot. Its feeding is based on an exclusion seeds diet.

Physical examination findings:
- On physical examination the bird appears to be overweight (100 g).
- The heart is hyperkinetic and the bird shows signs of tachycardia.
- The abdomen is distended.

Medical procedures:
- 600 mg of Gemfibrozil diluted in 10 ml of water PO BD, 150 mg of Simvastatin diluted in 1 ml of cortisone PO BD and Levothyroxine PO 1 time a week in a 1:30 dilution.

Clinical progress:
- Shock and death after recheck. Necropsy shows obesity, thyroid glands size decreased, parr and frailty of the liver with intrapleural vacuolization of the parenchymas.

Case 2: Amazona with Chronic Liver Disease and Obesity

Presenting complaint: A 4-year-old male Amazon (Amazona aestiva) is presented for a recheck of liver chronic disease.

History: The bird lives indoor. Its feeding is based on seeds, feed and fruits. It is under treatment for a liver disease since years ago.

Physical examination findings:
- On physical examination the bird appears to be overweight (900 g).

Medical procedures:
- High quality feed and seeds prohibition. The bird keeps on treatment for the liver and Levothyroxine 25 µg/kg PO q48h is added.

Clinical progress:
- The patient is not losing weight. Biochemistry parameters are improving. The treatment is being successful.

Case 3: Yacco with Chronic Liver Disease and Obesity

Presenting complaint: An 11-year-old female Yacco (Ptilocichus excisus) is presented for a recheck of liver chronic disease.

History: The bird lives in a restaurant. Its feeding is based on seeds, feed and fruits. It is under treatment for a liver disease since years ago.

Physical examination findings:
- On physical examination the bird appears to be overweight (900 g).

Medical procedures:
- High quality feed and seeds prohibition. The bird keeps on treatment for the liver and Levothyroxine 20 mg/kg PO q48h is a 1:30 dilution is added.

Clinical progress:
- The patient is not losing weight. Biochemistry parameters are improving. The treatment is being successful.

Conclusions

- The hypothyroidism is an endocrine disease with many different clinical presentations and it should be included in the differential diagnosis of FBD, obesity and chronic liver disease.
- The most commonly altered biochemical results are hypercholesterolemia, hypertriglyceridemia, hyperglycemia and bile acids increase.
- Radiographs and blood tests are not specific enough to diagnose hypothyroidism and histopathology or TSH stimulation test will be always needed in order to ensure the proper performance of the thyroid gland.
- The main problem of TSH measurement techniques, such as RIA, is the high price and the large volume of blood needed.
- Levothyroxine a 20 µg/kg PO q48h after TSH stimulation test seems to be showing successful results.
- Both the low reliability and specificity of baseline T4 levels and the fact that they are influenced by stress, temperature, infections, food intake, drugs and handling, complicate the proper diagnosis of hypothyroidism and make it questionable in many reported cases.

LITERATURE


