

MAREK'S DISEASE IN FIGHTING BIRD, CASE REPORT

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Abstract: A clinical case of a fighting bird that died and presented signs compatible with Marek's disease is described. The necropsy of the bird was performed and relevant findings were observed that confirm that the bird suffered from said condition. In addition, tests were requested to rule out other diseases. like Newcastle.

Keywords: Marek, lymphoma, fighter bird.

INTRODUCTION

Marek's disease (MD) is one of the main agents that affects domestic and wild birds around the world, causing immunosuppression, neoplasia and seizures. The Mardivirus genus is divided into 3 serotypes. Serotype 1 are oncogenic strains from chickens, serotype 2 are non-oncogenic strains from chickens, and serotype 3 are non-oncogenic strains from turkeys (HVT). Marek strains have also been classified according to their virulence as mildly virulent, virulent strains, very virulent strains and very virulent plus strains. This classification is due to the fact that the MS virus has shown resistance to vaccines, since none induce passive immunity, do not prevent the disease and excrete the live virus, coupled with the changes in production systems from the 1950s to the 1950s. present. MS has 5 presentations depending on the virulence of the strain, which are ocular, nervous, cutaneous, muscular and visceral. The main lesions of the classic form are: iridocyclitis, thickening of the sciatic and brachial nerves.

The acute form is lymphocytic neoplasms in the liver, spleen and heart. The objective of the presentation of this clinical case is to understand how Marek's disease can affect birds found in backyard, ornamental, sporting and organic production.

CLINIC HISTORY

A vaccination schedule against Newcastle is referred to, no date or frequency is indicated. The bird presented low body condition, 20 days before death a change in food was made, it remained prostrate for three days, it presented discomfort, loss of appetite, lack of thirst, followed by diarrhea. Incoordination while walking was also observed for at least two weeks, followed by paralysis.

- Species: *Gallus gallus domesticus*
- Breed: Spanish fighting cock
- Age: 18 months
- Sex: male
- Color: browred
- Weight: 1.2 kilos
- Use: combat bird
- Origin: Río Grande, Zacatecas.

MACROSCOPIC FINDINGS

On external inspection, poor body condition was observed (Fig 1), nasal discharge (Fig 2). Upon inspection of the organs in the body cavity, hemorrhages were observed in the epicardium of the left ventricle in the upper portion (Fig 3). The lungs were pale pink in color with multifocal hemorrhages of generalized distribution that went deeper into the cut (Fig 4).

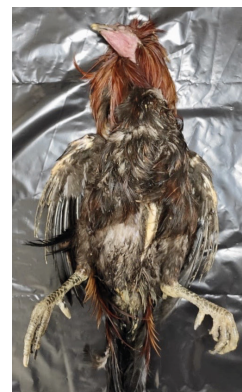


Fig 1. The bird showed poor body condition.



Fig 2. Nasal discharge



Fig 3. Hemorrhages in epicardium.

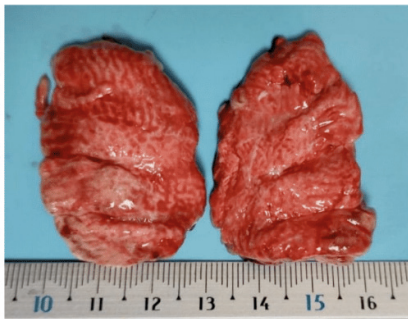


Fig 4. Multifocal hemorrhages of generalized distribution.

In the intestinal serosa of the jejunum and ileum, petechial hemorrhages were observed (Figure 5), as well as catarrhal enteritis associated with the presence of cestodes (*Raillietina spp*) (Figure 6). During the inspection of the body cavity, a pale yellow mass, soft and multilobed in consistency, covered by a thin and well-defined capsule, was found adhered to the spinal column (Figure 7).



Fig 5. Petechial hemorrhages in the serosa of the jejunum and ileum.

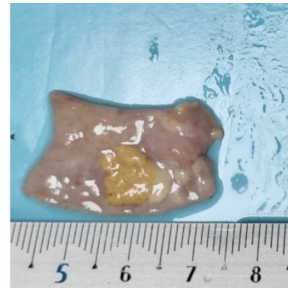


Fig 6. Catarrhal enteritis

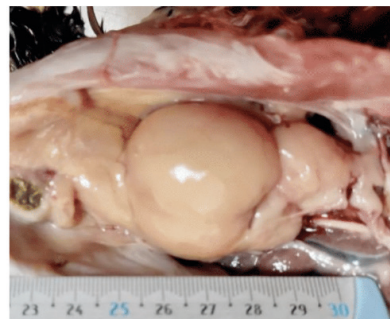


Fig 7. Mass adhered ventrally to the vertebral column, multilobed with a soft consistency.

A review of the sciatic nerves was performed, finding an increase in the thickness of the nerve on the left side (Fig 8). The rest of the organs showed no apparent macroscopic changes.

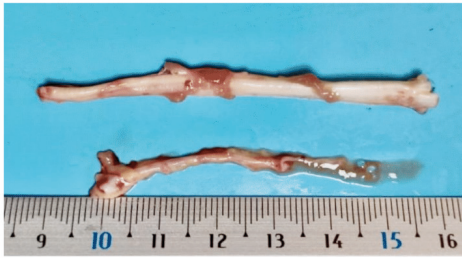


Fig 8. Sciatic nerves, left, enlarged.

MICROSCOPIC FINDINGS

In the brain, perivascular lymphoid infiltrate (Fig 9), gliosis and neuronal degeneration (Fig 10), congestion and perivascular edema (Fig 11) can be seen.

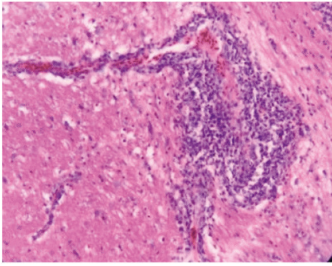


Fig 9. Brain with perivascular lymphocytic infiltrate

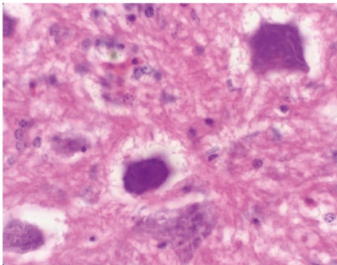


Fig 10. Gliosis and neuronal

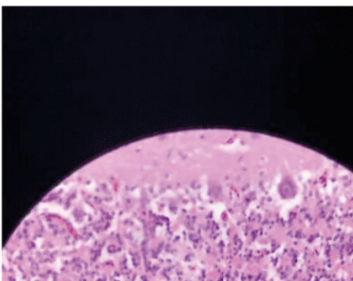


Fig 11. Parivascular edema

In the heart, multiple hemorrhages in the fatty tissue of the epicardium and lymphoid

infiltrate (Fig 12), as well as neoplastic cells (Fig 13) and mitotic figures (Fig 14).

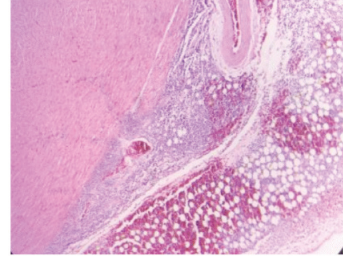


Fig 12. Hemorrhages in the epicardium, lymphoid infiltrate.

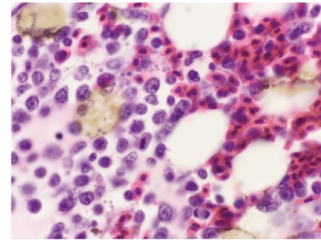


Fig.13. Neoplastic cells.

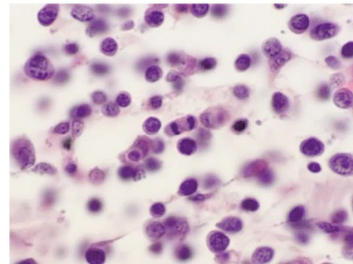


Fig 14. Mitotic figures.

In the lung we could observe severe diffuse hemorrhages and severe diffuse congestion (Fig 15). In the intestine, multiple parasitic structures were observed (Fig 16), multifocal hemorrhages in the mucosa and submucosa, shortening and fusion of the villi (Fig 17).

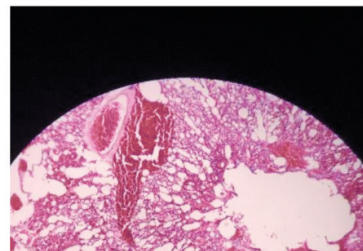


Fig 15. Lung with severe diffuse hemorrhage and severe congestion.

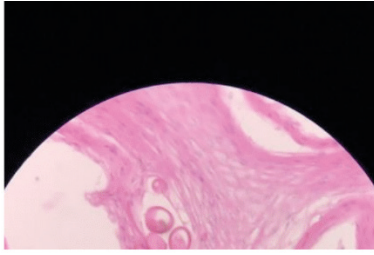


Fig 16. Parasitic structures in the intestine.

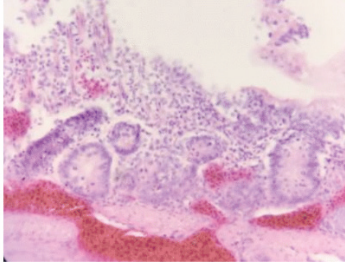


Fig 17. Intestine with multifocal hemorrhages in the mucosa and submucosa, shortening and fusion of the villi

Abundant periportal neoplastic tissue was observed in the liver (Fig 18). The cellularity of the mass found in the body cavity consisted of lymphocytes and plasma cells and little supporting tissue; mitotic figures were also observed (Fig 19). In the sciatic nerve, a moderate multifocal lymphocyte infiltrate was observed, as well as foci of demyelination and vacuolization of the nerve fibers.

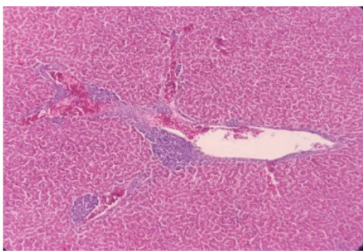


Fig 20. Liver, abundant periportal neoplastic tissue and congestion were observed.

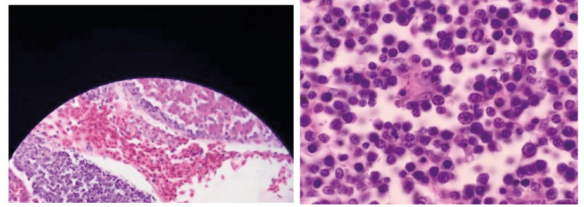


Fig 21. Histology of mass found in the body cavity, lymphocytes, plasma cells, mitotic figures and little supporting tissue are observed.

SUPPLEMENTARY TESTS

The histological review of the sciatic nerves was requested from the poultry department of the FMVZ-UNAM. Confirming the result of the anatomopathological and histopathological review. A serological test for Newcastle disease was also requested, resulting in a titer of 32 with 10 hemagglutinating units.

DIAGNOSTIC CRITERIA

The diagnosis of the case was established based on the clinical history, histopathological and anatomopathological review; The clinical history highlighted incoordination and paralysis with hyperextension of the left pelvic limb; macroscopically the presence of the mass in the body cavity and the increase in thickness of the sciatic nerve; On the other hand, in the microscopic review, they highlighted the cellularity of the mass found in the body cavity consisting of lymphocytes and plasma cells, in addition to the presence of neoplastic cells in different organs such as heart and liver, in addition to the perivascular lymphoid infiltrate in different regions of the brain.

DIFFERENTIAL DIAGNOSES

Avian leukosis, reticuloendotheliosis, neoplasms, peripheral neuropathy, riboflavin deficiency, avian tuberculosis, histomoniasis, Newcastle disease, avian encephalomyelitis and joint lesions, mycoplasmosis, rheovirus

and Guumboro disease.

DISCUSSION AND CONCLUSION

Of the different diseases that affect birds, specifically production, Marek's disease is one of the most important and economically devastating worldwide, which is commonly characterized by the oncogenic transformation of T lymphocytes that infiltrate the lymphoid tissue, peripheral nerves and different organs. This results in the death of the animal. The present case is extremely important since it affects the production of a socioculturally very important species in the country, the fighting or fighting roosters.

The clinical manifestation of this case included the paralysis of pelvic limbs, the presence of neoplasms in the cavity, as well as the histological changes that it presented, which is similar to what has been reported by different authors in production animals

(Abreu, et al, 1016; Stamilla 2022). Different studies have been carried out in which the causal agent of Marek's disease is characterized in order to include it in the classification by the International Committee on Virus Taxonomy (Schat, 2022). In the northern region of the country, fighting birds are an important economic and productive activity that is affected by different diseases that have not been reported or that are not known to be present or not due to the lack of reports. The description of this case contributes to the epidemiological panorama of diseases in fighting birds and is a call to establish health regulations for this species.

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