



Clinical Report

Malignant Fibrous Histiocytoma in a Pigeon

Amin Derakhshanfar^{1*}, PhD
Mohammad Mehdi Oloumi², DVSc

¹Department of Pathobiology and ²Department of Clinical Sciences, Faculty of Veterinary Medicine, Shahid Bahonar University of Kerman, Kerman, Iran.

Abstract

Case Description- A pigeon with an abnormal mass on right wing was referred to the Veterinary Clinic of Shahid Bahonar University of Kerman.

Treatment and Outcome- The mass was removed surgically and histopathologic examination was done. Microscopic findings revealed a storiform pattern of atypical and pleomorphic spindle-shape tumor cells with histiocytes and too many thick wall capillaries. Some bizarre cells, giant cells and lymphocytes along with collagenous stroma were seen. According to characteristic histopathologic features malignant fibrous histiocytoma(MFH) was diagnosed.

Clinical Relevance- MFH originates from a primitive mesenchymal stem cell is most frequently seen in the dog. This is the first report of MFH in birds.

Key Words- Malignant Fibrous Histiocytoma, Pigeon.

* **Corresponding author:**

Amin Derakhshanfar, PhD

Department of Pathobiology, Faculty of Veterinary Medicine, Shahid Bahonar University of Kerman, Kerman, Iran.

E-mail: damin@mail.uk.ac.ir

Case Description

A pigeon with a large (3×4 cm) fleshy mass on right, medial side of the ulna and radius was referred to the Veterinary Clinic of Shahid Bahonar University of Kerman. On cut surface, a white, soft tissue was observed. The cavity in the center of the mass was occupied with serosanguineous fluid. The non-encapsulated but circumscribed mass was covered with skin. Because of good body condition of the bird, radical resection of the mass was selected.

Treatment and Outcome

The bird was anesthetized with a mixture of halothane-oxygen, administered via a head chamber. The fluffs and withers of the area were removed and the region was surgically prepared. The mass was excised by an electro - surgical unit. The bleeders were stopped by electro - coagulation or ligation. Since there was a large skin loss, the wound was left open and a dressing was applied over the area. The dressing was changed every day for 7 days, when the wound was left uncovered. The bird was discharged on day 14, when the wound was acceptably diminished in size. For histopathological evaluation, some parts of the resected mass were transferred to 10% buffered formalin. After fixation, tissue slides were prepared via routine procedures and examined under light microscope.

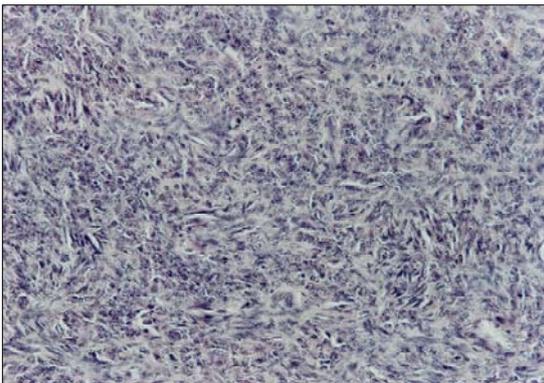


Figure 1: MFH. Stori-form pattern of densely packed elongated, spindle-shaped tumor cells. H&E ×100.

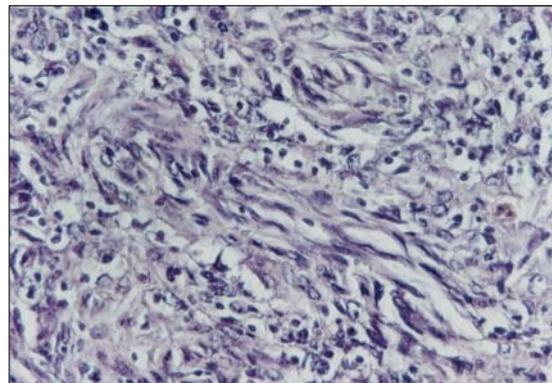


Figure 2: MFH. Fibrous element as fine collagenous stroma is originated from fibrocytes. H&E, ×400.

Microscopic examination showed a stori-form pattern of elongated, spindle-shaped tumor cells. Many of the tumor cells were pleomorphic and atypical, but mitotic figures were rare. There were microcystic spaces filled mainly with lymphocytes, heterophils, and RBCs. The tumor was highly vascular. Too many capillaries with thick wall and hyperplastic and hypertrophic endothelial cells were observed. Some of capillaries' lumen were occluded. Some bizarre cells were seen among the densely packed tumor cells with little intercellular substance. Sometimes distinguishable hyalinized ground substance was observed between tumor cells. The anaplastic cells possessed vesicular nucleus with prominent nuclei. Giant cell formation in some parts of the tumor was obvious.

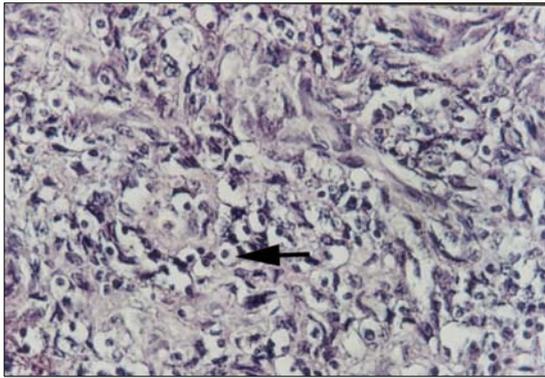


Figure 3: MFH. Histiocytes(arrow) as reactive cells are seen. H&E, × 400.

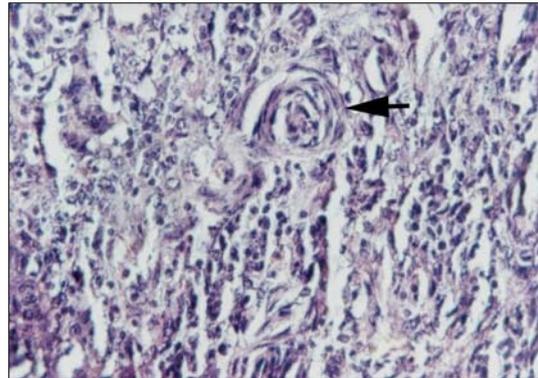


Figure 4: MFH. Thick wall capillaries (arrow) are seen in this highly vascularized tumor. H&E, ×400.

Fibrous element as collagenous stroma along with macrophage-like cells (xanthoma cells or histiocytes) and spherical, ovoid, and spindle-shape fibrocytes have made the principal part of the tumor (fig. 1-5). Based on the aforementioned characteristic histopathological findings, MFH was diagnosed.

Discussion

Malignant fibrous histiocytoma (MFH) originates from a primitive mesenchymal stem cell, fibroblastoid cell and fibroblasts. Histiocytes are, according to the literature in a small amount constituents of MFH and are reactive cells, without any meaning. Histiocytes are not a neoplastic component. MFH represents a primitive phenotype or pleomorphic sarcoma which may differentiate in one or more directions.¹ In human over 15% of malignant tumors of the soft tissue are malignant fibrous histiocytomata.² This tumor is most frequently seen in the dog, but rarely in cow and cat.^{3,4,5} Based on the author's knowledge, MFH was not reported in birds previously. Human MFH has been divided into subtypes based on the pattern and predominance of the cell types: storiform-pleomorphic, giant cell, inflammatory, and myxoid. Only the first three types have been found with consistency in domestic animals.³ In this case, the mixture of storiform-pleomorphic and inflammatory subtypes of MFH in a pigeon was confirmed.

Trauma and chronic inflammation may be predisposing factors for development of this neoplasia in cattle.⁶ Some authors believe that giant cell variant of MFH could be seen only in cats.⁷ Ultrastructural studies revealed the tumor cells in MFH to be characteristic fibroblasts with or without cytoplasmic filaments consistent with actin.³

However, many of these sarcomas seem to have a significant myofibroblast component and a mild or moderate T cell infiltration but the precise cell

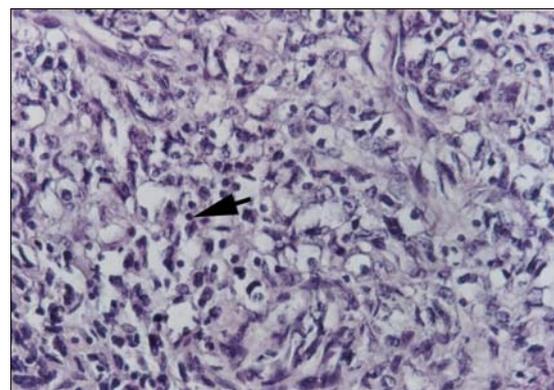


Figure 5: MFH. Microcystic spaces are filled with lymphocytes(arrow) as the main inflammatory cells. H&E, ×400.

lineage is still uncertain.⁸ Complete excision can be curative for solitary dermal or subcutaneous masses. There is no recognized successful treatment for multicentric MFH.³

Acknowledgment

Authors would like to thank Mr. Bamorrvat and Mr. Hasanzadeh for their technical assistance.

References

1. Schneider P, Bush U, Meister H, et al. Malignant fibrous histiocytoma(MFH). A comparison of MFH in man and animals. A critical review. *Histol Histopathol* 1999; 14: 845-860.
2. Ritchie AC. *Boyd's text book of pathology*. Vol 2, 9th ed. Philadelphia: Lea & Febiger, 1990; 50-52.
3. Meuten DJ. *Tumors in domestic animals*. 4th ed. Ames: Blackwell Professional Publishing, 2002; 89-91.
4. Salvaggio A, Caracappa S, Marino AM, et al. Benign fibrous histiocytoma of the small intestine in a cow. *J Comp Pathol* 2004;130:216-219.
5. Pace LW, Kreeger JM, Miller MA, et al. Immunohistochemical staining of feline malignant fibrous histiocytomas. *Vet Pathol* 1994;31: 168-172.
6. Sartin EA, Hudson JA, Herrera GA, et al. Invasive malignant fibrous histiocytoma in a cow. *J Am Vet Med Assoc* 1996; 208:1709-1710.
7. Gleiser CA, Raulston GL, Jardine JH, et al. Malignant fibrous histiocytoma in dogs and cats. *Vet Pathol* 1979; 16:199-208.
8. Schute Morris JS, McInnes EF, Bostock DE, et al. Immunohistochemical and histopathologic features of 14 malignant fibrous histiocytoma from Flat Coated Retrievers. *Vet Pathol* 2002;39:473-490.

هیستئوسیتومای فیبروزه بدخیم در یک کبوتر

امین درخشانیفر^۱، محمد مهدی علومی^۲

^۱گروه پاتوبیولوژی، ^۲گروه علوم درمانگاهی، دانشکده دامپزشکی، دانشگاه شهید باهنر کرمان، کرمان، ایران.

توصیف بیمار - کبوتری با یک توده غیر طبیعی بروی بال سمت راست به کلینیک دامپزشکی دانشگاه شهید باهنر کرمان ارجاع گشت.

درمان و نتیجه آن - پس از برداشت توده به روش جراحی مطالعات هیستوپاتولوژیک صورت پذیرفت. مشاهدات میکروسکوپییک حضور سلول های توموری دوکی شکل، چند شکلی و غیر تیپیک را در یک الگوی موجی همراه با هیستئوسیت های مشخص و تعداد فراوانی از مویرگ های دارای دیواره ضخیم آشکار ساخت. تعدادی سلول بد شکل و نامعمول، دیو سلول و نیز لمفوسیت در استرومای کلازنی به چشم می خورد. بر اساس یافته های هیستوپاتولوژیک مشخص، MFH تشخیص داده شد.

کاربرد بالینی - هیستئوسیتومای فیبروزه بدخیم (MFH) از یک سلول پایه و تمایز نیافته مزانشیمی منشاء گرفته و عمدتاً در سگ مشاهده می شود. این اولین گزارش از وقوع MFH در پرندگان است.

کلید واژگان - هیستئوسیتومای فیبروزه بدخیم، کبوتر.

