Journal of Poultry Sciences and Avian Diseases

Journal homepage: www.jpsad.com

A case report of vascular hamartoma in a rose-ringed parakeet (Psittacula krameri)

Reza Kheirandish[1], Hemad Shafiei[2*], Hamzeh Soltannejad[2], Pouneh Hajipour[2]

[1] Department of Pathobiology, Faculty of Veterinary Medicine, Shahid Bahonar University of Kerman, Kerman, Iran
[2] Department of Clinical Science, Faculty of Veterinary Medicine, Shahid Bahonar University of Kerman, Kerman, Iran

*** Corresponding author email address**: hemad.shafiei@uk.ac.ir

A r t i c l e I n f o

Article type:
Case Report

How to cite this article:
Kheirandish, R., Shafiei, H., Soltannejad, H., & Hajipour, P. (2024). A case report of vascular hamartoma in a rose-ringed parakeet (Psittacula krameri). *Journal of Poultry Sciences and Avian Diseases*, *2*(4), 25-27.
http://dx.doi.org/10.61838/kman.jpsad.2.4.4

A B S T R A C T

Vascular hamartomas, though rare, can manifest in avian species, presenting diagnostic intricacies for clinicians. A 12-year-old male rose-ringed parakeet presented with a mass between the upper and lower mandibular angles on the right side. The mass was surgically removed. Histopathological examination confirmed the diagnosis of a cutaneous vascular hamartoma. The bird recovered uneventfully and 6 months later showed no evidence of recurrence. This report contributes to the understanding of vascular tumors in avian species.

Keywords: *Vascular hamartoma, Rose-ringed parakeet, Histopathology*

1 Introduction

Vascular hamartomas are uncommon focal malformations of any organ characterized by developmental defects. While they have been documented in various mammalian species, reports of vascular hamartomas in avian patients remain scarce. The avian species, including pet birds like the rose-ringed parakeet, are susceptible to many neoplastic and non-neoplastic conditions affecting various organ systems. Vascular lesions pose a diagnostic dilemma due to their diverse histological features and clinical manifestations. Vascular hamartomas, although benign, can mimic malignant vascular tumors, necessitating meticulous diagnostic evaluation and tailored therapeutic interventions (1, 2).

This case report delineates the clinical presentation, histopathological characteristics, and therapeutic considerations in managing a vascular hamartoma identified in a rose-ringed parakeet (*Psittacula krameri*).

Article history:
Received 07 June 2024
Revised 08 August 2024
Accepted 13 August 2024
Published online 01 October 2024

2 Case Description

The Animal Ethics Committee of Shahid Bahonar University of Kerman approved all of the stages of the study. A 12-year-old male rose-ringed parakeet weighing 150 grams with a mass between the upper and lower mandibular angles on the right side was referred to Ashian Veterinary Clinic, Kerman, Iran (Figure 1). The owner reported noticing the mass approximately 1 month before the presentation. The mass had slowly grown in size. In the physical examination, a regular, firm, almost round, bright pink, non-oscillating mass with a diameter of approximately 0.5 cm was detected. No signs of pain or inflammation were evident. It was kept in a standard cage and fed with commercial food. No other physical abnormalities were observed. Surgery was offered as both a diagnostic and treatment option. The owner preferred only surgery to solve the issue, thus he declined all testing (radiography, biochemistry, and haematology).

The bird was induced using a XXS mask with a 1.5 L/min oxygen flow and 2 MAC isoflurane. It was then intubated with a size 2 uncuffed tracheal tube. During surgery, Anesthesia was maintained with 1.5 MAC isoflurane using a closed T-Y Ayres breathing system. The oxygen flowmeter was set to approximately 1 L/min throughout the procedure. After scrubbing the area, the tumor was dissected and its base was isolated. The tumor base was ligated using a LigaSure LF1923 handpiece manufactured by Covidien. Subcutaneous tissue was sutured with a 5-0 PGA thread and the skin was closed with a 4-0 nylon thread in a simple interrupted pattern. The mass was successfully removed with minimal blood loss. After the operation, the bird received Ringer's lactate solution (2 cc subcutaneously) and meloxicam (0.2 mg/kg intramuscularly). The bird recovered without any problems and no recurrence of the mass has been reported at the 6-months follow-up examination.

The fixed tissue was sent to the pathology department of the Shahid Bahonar University of Kerman for histopathological evaluation. The mass was kept for 48 hours in 10% neutral buffered formalin 10%. A gradation of ethanol was used to dehydrate the sample. It was then embedded in paraffin after it was cleared in xylene. The sample was then cut in 5 µm thickness. After hematoxylin and eosin (H&E) staining, the slides were studied by an optical microscope. Histologically, the mass was composed of disorganized overgrowth of normal and mature mixed types of blood vessels including capillaries, arterioles, and vessels. The diagnosis of cutaneous vascular hamartoma was made based on the histopathological features.

3 Discussion

Hamartoma, a developmental anomaly affecting various body parts and organs, is distinguished by the non-cancerous proliferation of tissue with irregular cell distribution and proportions. These lesions typically progress over years without producing clinical symptoms or evolving into malignancies. They may manifest independently or alongside other anomalies, occasionally presenting a distinct clinical profile resembling a congenital defect syndrome. The pathogenesis of hamartomas involves mutations in genes such as PTEN, GLI3, SDH B/D, PIK3CA, and ACT1, leading to the dysfunction of tumor suppressor genes and an increased risk of neoplastic transformations. This places hamartomas in a unique position between developmental irregularities and benign tumors, being more prevalent in humans but notably rare in domestic animals (3, 4).

In the present study, the mass was composed of disorganized overgrowth of normal and mature mixed types of blood vessels including capillaries, arterioles, and vessels. Thus, vascular hamartoma was considered the appropriate diagnosis in these cases. Vascular hamartomas have been documented in a diverse range of anatomical locations across different animal species. These benign lesions of vascular origin have been reported in dogs, cats, cows, horses, and pigs (5-9). Additionally, there are reports of birds with vascular hamartomas in various locations, such as a sun conure and two pigeons with dermal hamartoma, an African gray parrot with a possible myocardial hamartoma, a parrot with a brain hamartoma, and a cockatiel with a respiratory hamartoma (1, 10-12).

Cutaneous vascular hamartoma is rare in birds. The majority of hamartomas are present from birth and are considered congenital anomalies. Steinberg et al. (2005) reported a cutaneous vascular hamartoma in the right shoulder of a 19-month-old sun conure of unknown gender, which was surgically removed similar to our study, and did not grow again (1). In a retrospective survey of natural neoplasms in pigeons of a research colony, this condition was identified in two pigeons. There was no therapeutic intervention on the pigeons, and all of them died or were euthanized due to poor condition. The underlying cause of hamartoma in pigeons was not determined. Similar to our report, one of the pigeons was old (10.5 years) and the age of the other pigeon was unknown. Also, the gender of these

pigeons and the parrot reported in the present study was male, which may indicate that males are more prone to dermal vascular hamartoma. In the present study, the mass may have been present from the beginning, but the owner did not notice it until its size increased. The underlying cause remains unclear, similar to the report in pigeons (12).

The presented case underscores the significance of surgical intervention and tumor resection in achieving both accurate diagnosis and preventing lesion regrowth. In human medicine, the excision of hamartomas is recommended due to minimal morbidity and the critical need to differentiate these benign growths from potentially malignant lesions. While additional diagnostic modalities such as ultrasound to assess the cystic fluid-like nature of the lesions and radiographs to evaluate lesion extent could have been utilized, these procedures, while informative, would not obviate the necessity for surgical intervention to establish a definitive diagnosis and ensure successful treatment outcomes. Histopathology is required for definitive diagnosis to rule out other vascular proliferative disorders (2, 13).

4 Conclusion

To our knowledge, this case is the first report of a possibly congenital dermal vascular hamartoma in a rose-ringed parakeet (*Psittacula krameri*). This case report highlights the importance of considering vascular hamartoma as a differential diagnosis for mass lesions in birds. Surgical excision is an effective treatment option for this condition.

Acknowledgements

The authors would like to express appreciation for the cooperation of the Shahid Bahonar University, and Ashian Veterinary Clinic.

Conflict of Interest

The authors declared no conflicts of interest.

Author Contributions

Hemad Shafiei: conceptualization, methodology, and writing-review & editing, Reza Kheirandish and Hamzeh Soltaninejad: methodology; Pouneh Hajipour: writing-original draft.

Data Availability Statement

The data used to support the findings of this study are available from the corresponding author upon request.

Ethical Considerations

In conducting this study, ethical principles have been fully observed.

Funding

This research did not receive any grant from funding agencies in the public (Universities, Veterinary Service Organizations), commercial, or non-profit sectors.

References

1. Steinberg H, Paré JA, Paul-Murphy J. A dermal vascular hamartoma in a sun conure (Aratinga solstitialis). Journal of Avian Medicine and Surgery. 2006;20(3):161-6.
2. Rosenwax A, Gabor M, Reece R. Respiratory hamartoma in a cockatiel (Nymphicus hollandicus). Australian Veterinary Journal. 2013;91(12):531-3.
3. Bartyzel BJ, Max A, Gruszczynska J, Sobczak-Filipiak M, Mecik-Kronenberg T, Pankowski F. Hamartoma: a rare developmental disorder. Med Weter. 2017;73(4):202-7.
4. Boggiatto PM, Olsen SC, Palmer MV. Pulmonary hamartoma in an elk calf. Journal of Veterinary Diagnostic Investigation. 2023;35(2):193-5.
5. Sakurai M, Morita T, Kondo H, Uemura T, Haruna A, Shimada A. Cerebral vascular hamartoma with thrombosis in a dog. Journal of Veterinary Medical Science. 2011;73(10):1367-9.
6. Ito D, Shiozawa N, Sekiguchi N, Ishikawa C, Jeffery ND, Kitagawa M. Repeated surgical treatment and long-term outcome of a cat with vertebral vascular hamartoma. Journal of Veterinary Medical Science. 2020;82(6):721-5.
7. Martin B, Mason R, Lawrence K, Castillo-Alcala F. Congenital oral vascular hamartoma in a Jersey cross calf. New Zealand Veterinary Journal. 2021;69(2):131-3.
8. Osborne C, Elce Y, Meehan L, Davern A, Lescun T. Neoplasia within the equine foot: A retrospective case series of four horses. Equine Veterinary Education. 2022;34(10):e431-e7.
9. Marr J, Miranda IC, Miller AD, Summers BA. A review of proliferative vascular disorders of the central nervous system of animals. Veterinary Pathology. 2021;58(5):864-80.
10. Ritchie BW, Harrison GJ, Harrison LR. Avian medicine: principles and application1994.
11. Schmidt RE, Struthers JD, Phalen DN. Pathology of pet and aviary birds: John Wiley & Sons; 2024.
12. Shimonohara N, Holland CH, Lin T-L, Wigle WL. Naturally occurring neoplasms in pigeons in a research colony: a retrospective study. Avian Diseases. 2013;57(1):133-9.
13. Crouch J, Keagy B, Starek P, Delany D, Wilcox B. A clinical review of patients undergoing resection for pulmonary hamartoma. The American surgeon. 1988;54(5):297-9.