

## INTRODUCTION

### BILATERAL ACUTE DEPIGMENTATION OF THE IRIS (BADI)

BADI is a recently described, self-limiting, typically symmetrical condition in humans causing depigmentation of the iris with pigment dispersion in the anterior chamber. [1] As the name suggests, the condition is typically bilateral. However, unilateral cases of BADI have been reported. [2] The condition is distinct from other causes of iris depigmentation such as herpetic iridocyclitis, Fuchs' uveitis syndrome, sympathetic denervation (Horner's syndrome), Vogt-Koyanagi-Harada disease and pigment dispersion syndrome. [1] The underlying aetiology has not yet been identified and patients are routinely treated symptomatically with topical corticosteroids. [3] Pre-existing upper respiratory viral infections are commonly reported in cases of BADI, but no viral aetiology has been identified on PCR testing of aqueous humour samples to date. Re-pigmentation of the iris has been reported in some cases. [2,3]

### PURPOSE:

To report two cases of canine acute depigmentation of the iris, with similarities to BADI in humans.

### CONFLICT OF INTEREST:

There are no conflicts of interest to declare.

## CLINICAL FINDINGS

### CASE 1:

- An 8-month-old female Staffordshire Bull Terrier

### CASE 2:

- A 3-year-old male neutered crossbreed

### PRESENTING SIGNS:

- Owners reported ocular redness and acute unilateral diffuse iris colour change
- No reported underlying general health conditions or other signs associated with systemic disease

### OCULAR EXAMINATION FINDINGS:

- Unilateral anterior uveitis with pigmented aqueous humour flare and ocular hypotony (intraocular pressure <10mmHg)
- Unilateral diffuse iris stromal depigmentation
- Pigmented keratic precipitates were present in Case 1
- No ocular abnormalities were reported in the contralateral eye at presentation in either case
- The contralateral (left) iris subsequently de-pigmented in Case 2

## CASE 1

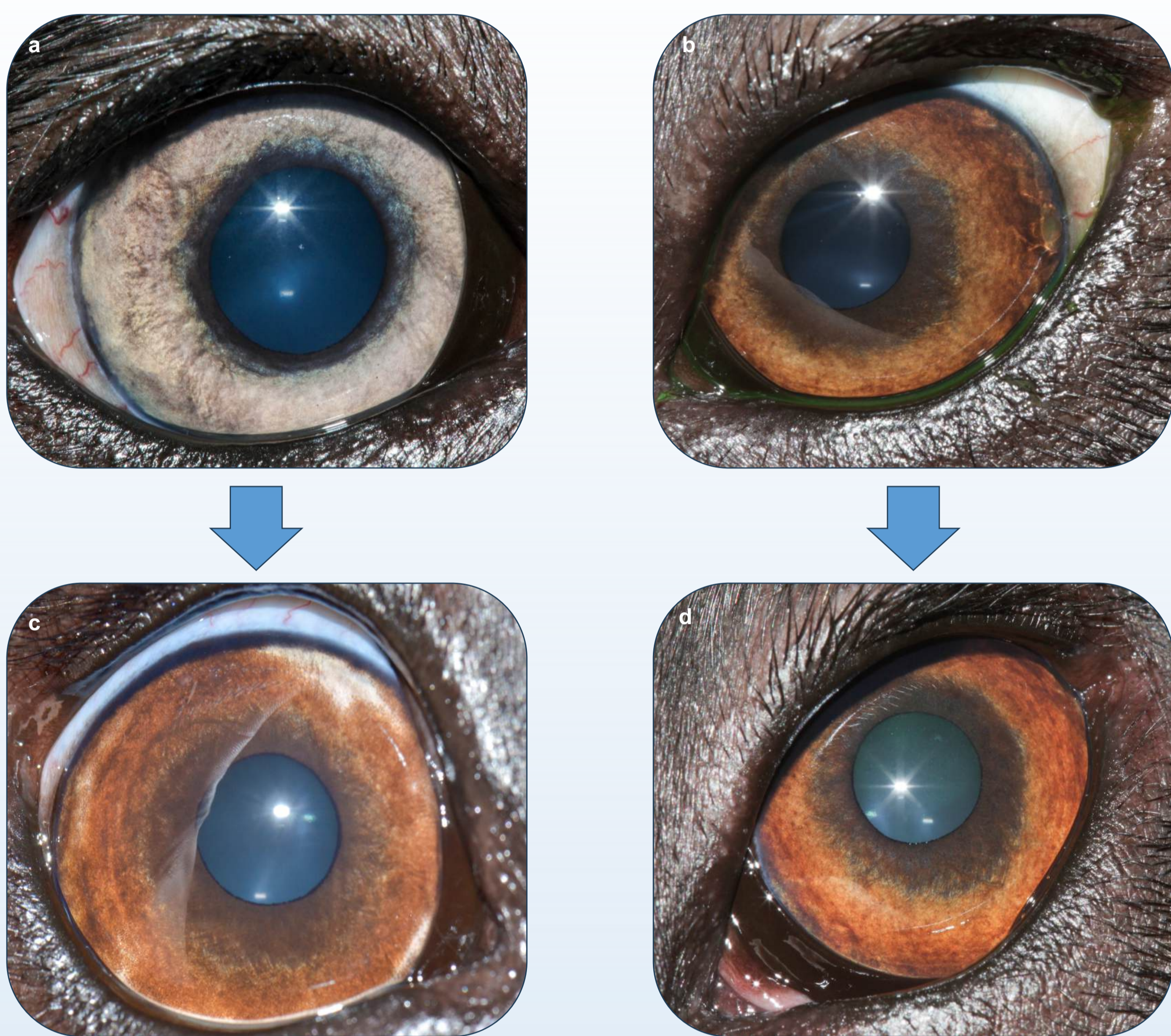


Figure 1. Photographs of the right and left eye of case 1 at presentation (a,b) and 13 months after presentation (c,d). The right iris (a) was diffusely depigmented at presentation, with a low intraocular pressure (6mmHg), trace aqueous flare and pigmented keratic precipitates. The right iris had nearly completely re-pigmented at the time of the last follow-up appointment (c), with no signs of anterior uveitis. No significant abnormalities were detected in the left eye at presentation (b) or by the time of the last follow-up appointment (d).

## CASE 2

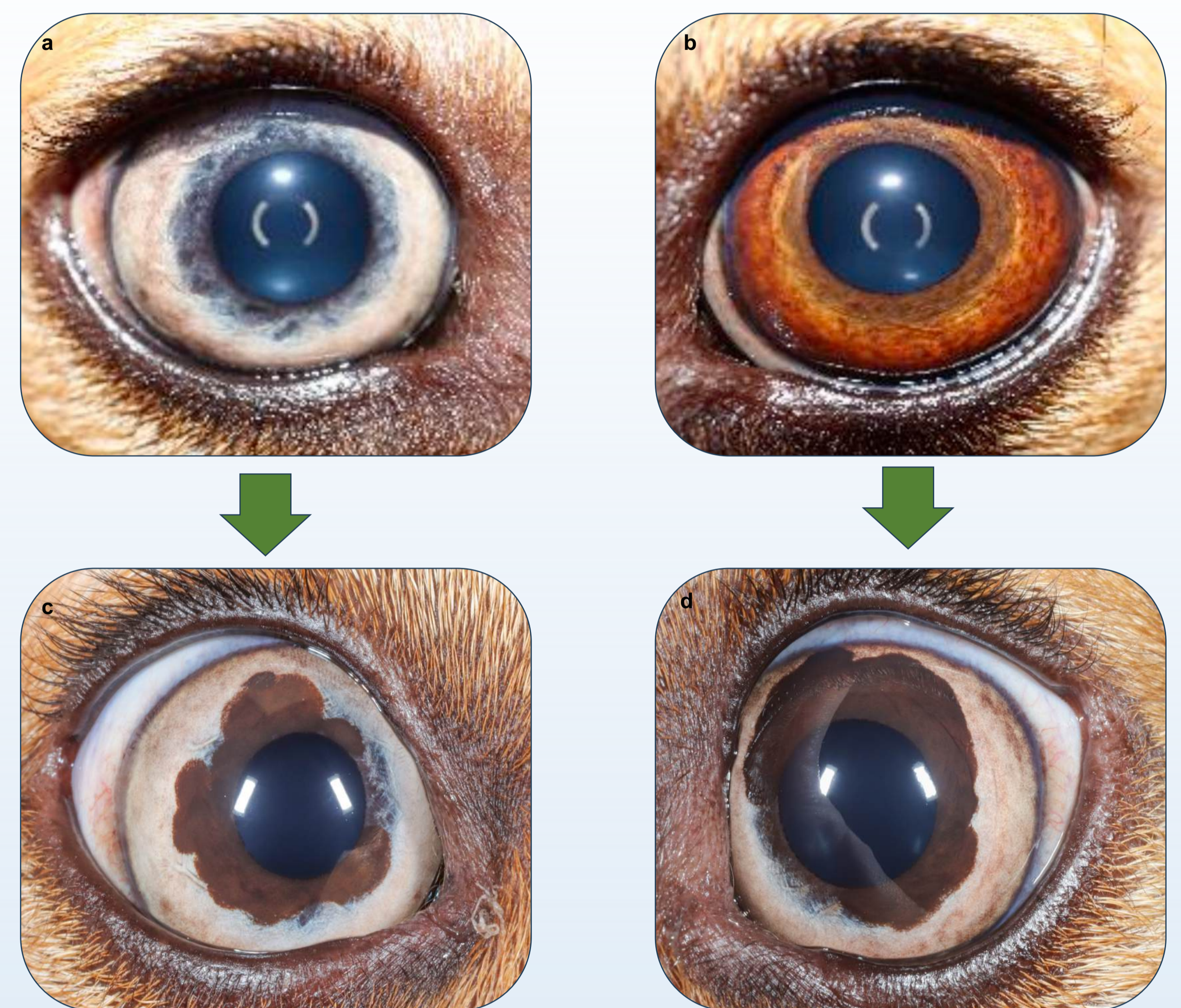


Figure 2. Photographs of the right and left eye of case 2 at presentation (a,b) and 9 months after presentation (c,d). The right iris (a) was diffusely depigmented at presentation, with a low intraocular pressure (8mmHg) and 1+ aqueous humour flare. The left eye (b) was normal at the time of presentation but subsequently depigmented over the following months. The peripupillary iris became hyperpigmented in both eyes (c,d).

## DIAGNOSTIC TECHNIQUES

### HAEMATOLOGY AND COMPREHENSIVE BIOCHEMISTRY:

- Reticulocyte count  $90.4 \times 10^9/l$  (reference: 0-60  $\times 10^9/l$ )

**Interpretation:** mild reticulocytosis in the absence of anaemia is likely due to splenic contraction

### INFECTIOUS DISEASE TESTING WAS NEGATIVE FOR THE FOLLOWING:

- *Neospora caninum* (antibody titres <100 by IFA)
- *Toxoplasma gondii* (antibody titres IgG<50, IgM <20 by IFA)

### THORACIC RADIOGRAPHS:

- No significant abnormalities

### ABDOMINAL ULTRASOUND:

- Mild jejunal and ileocolic lymphadenopathy

### CYTOLOGY OF JEJUNAL LYMPH NODES

- Mild lymphoid reactivity

### AQUEOUS HUMOUR CYTOLOGY (RIGHT EYE):

- Heterogeneous population of lymphocytes (91% of cells)
- A few (9%) large mononuclear cells, often containing round, irregular melanin granules
- **Interpretation:** lymphocytic inflammation with melanophages

## TREATMENT

### TOPICALLY:

- Prednisolone acetate 10mg/ml (Pred Forte<sup>®</sup>) six times daily
- Bromfenac 0.9mg/ml (Yellow<sup>®</sup>) six times daily

### ORALLY:

- Meloxicam (Loxicom<sup>®</sup>) 0.1mg/kg once daily

## FOLLOW-UP

- Signs of uveitis in the right eye had resolved 6 weeks after presentation (no aqueous flare, normal intraocular pressure)
- No recurrence of uveitis following gradual dose reduction and cessation of oral and topical anti-inflammatory regime over a 6-month period
- Gradual re-pigmentation of the right iris over a period of 13 months
- Last follow-up 13 months after presentation with no signs of anterior uveitis

## DIAGNOSTIC TECHNIQUES

### HAEMATOLOGY AND COMPREHENSIVE BIOCHEMISTRY:

- No significant abnormalities were identified

### INFECTIOUS DISEASE TESTING WAS NEGATIVE FOR THE FOLLOWING DISEASES:

- *Toxoplasma gondii* (antibody titres IgG<50, IgM <20 by IFA)
- *Leishmania spp.* (serology)
- *Babesia spp.* (PCR)
- *Hepatozoon Canis* (PCR)
- A SNAP<sup>®</sup>4Dx<sup>®</sup> Plus test (IDEXX Laboratories, Inc) was negative for *Dirfilaria immitis*, *Ehrlichia canis/ewingii*, *Borrelia burgdorferi*, *Anaplasma phagocytophilum/platyis*

## TREATMENT

### TOPICALLY:

- Prednisolone acetate 10mg/ml (Pred Forte<sup>®</sup>) three times daily initially
- Transitioned onto bromfenac 0.9mg/ml (Yellow<sup>®</sup>) twice daily

### ORALLY:

- Meloxicam (Loxicom<sup>®</sup>) 0.1mg/kg once daily

## FOLLOW-UP

- Signs of uveitis in the right eye had resolved 2 weeks after presentation
- Treatment was then discontinued
- Bilateral peripupillary iris hyperpigmentation with mild bilateral anterior uveitis 1 month after presentation
- Topical prednisolone acetate re-started and gradually transitioned onto topical bromfenac
- Owners subsequently stopped all treatment
- Last follow-up 13 months after presentation with no signs of uveitis.

## CONCLUSION

- BADI is a recently described self-limiting condition in humans, the aetiology of which is still to be elucidated.
- Findings in these veterinary cases were similar to BADI.
- Signs of previous upper respiratory tract infections have been reported in people but were absent in these cases.
- Notably, re-pigmentation of the iris has been observed in human BADI cases, which was also the case in these canine patients.
- Awareness of this self-limiting condition in dogs is important to avoid unnecessarily aggressive treatment in other diseases that cause uveitis and pigment dispersion, such as uveodermatologic syndrome (UDS).

## REFERENCES

1. Tugal-Tutkun I, Araz B, Taskapili M, et al. Bilateral acute depigmentation of the iris: report of 26 new cases and four-year follow-up of two patients. *Ophthalmology* 2009;116(8):1552-7, 1557 e1, doi:10.1016/j.ophtha.2009.02.019
2. Kawali A, Mahendradas P, Shetty R. Acute depigmentation of the iris: a retrospective analysis of 22 cases. *Can J Ophthalmol* 2019;54(1):33-39, doi:10.1016/j.jcjo.2018.03.020
3. Amin R, Nabih A, Khater N. Bilateral acute depigmentation of the iris in two siblings simultaneously. *Am J Ophthalmol Case Rep* 2018;10(257-260, doi:10.1016/j.ajoc.2018.03.016