

Cataracts in the Russian Blue breed of cat: A clinical study

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Introduction

- Dr Sari Jalomäki reported having observed cases of cataracts in the feline Russian Blue breed in Finland 2010
- Small breed; about 3000 cats in Scandinavia
- The present study was initiated 2014 in collaboration with breed clubs mainly in Sweden, with the purpose to clinically describe the presumed inherited form of cataracts in the breed and to collect DNA samples for future molecular genetic studies



Materials and methods

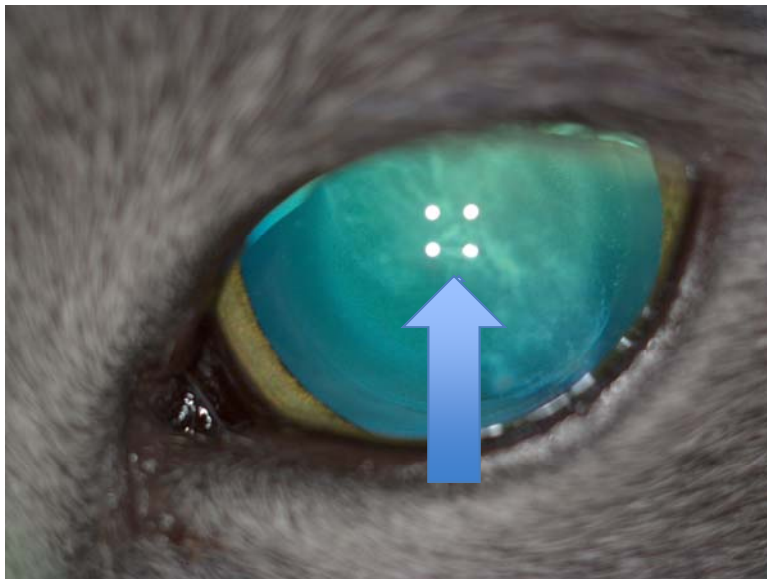
- 66 cats studied (37 female, 29 male)
- Age between 3 month and 14 years
- All cats examined by Dr. Kristina Narfström during a 10-month period
- Evaluation of vision, PLR' s, dazzle- and menace responce → dilatation of the pupils with 0,5% tropicamide, → indirect ophthalmoscopy and slitlamp biomicroscopy
- Buccal swabs, using 4-6 sterile cottonswabs for DNA extraction, were collected from 17 cats affected with cataracts and from 14 non-affected cats > age 7 years



Results

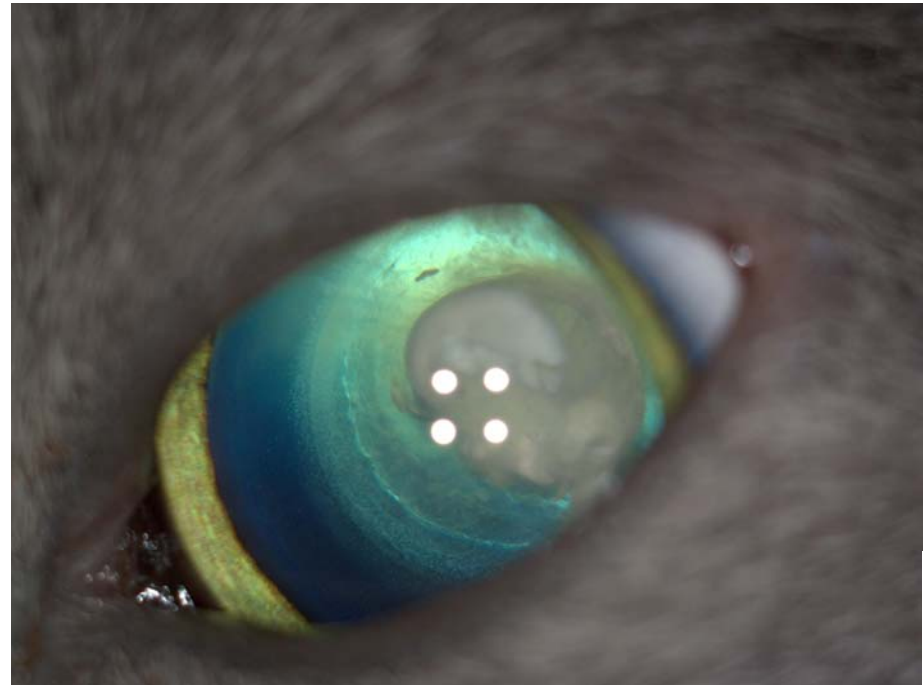
Most common form

- Small triangular opacity at the border of the posterior nucleus and the anterior part of the posterior cortex (arrow)



Less common, extended form

- Involvement of the entire nucleus and parts of, or the entire anterior and posterior cortex



Results

- Out of 66 examined cats 22 were affected with cataracts
 - 16 had the small, typical form
 - 6 had extended forms

- Median age Mean age(year)
 - Normal 4 4.2
 - Cataract 2.5 3.8

- Both genders equally affected

- Other ophthalmic findings
 - 2 cases with retinopathy
 - 1 anterior suture-line cataract
 - 1 anterior cortical cataract
 - 1 vitreous prolaps

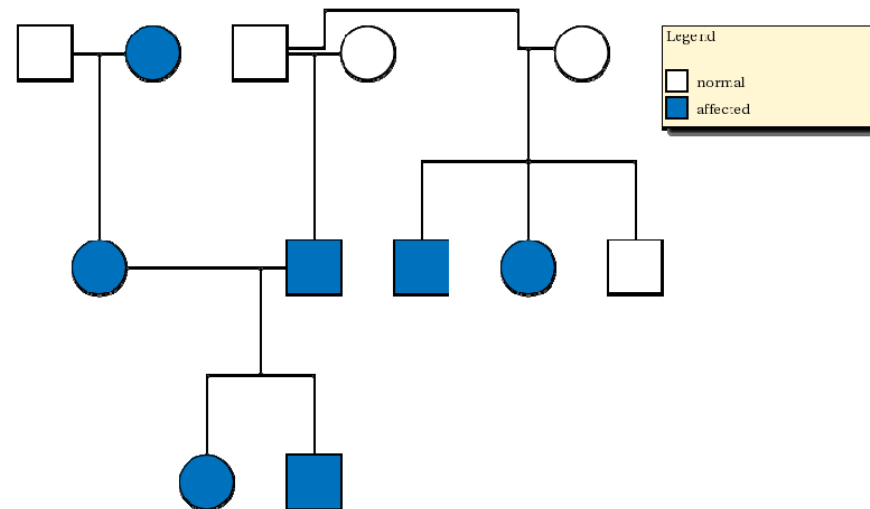
| Age | Normal | Cataract (gender) | Typical form | Extended form | Other findings |
|-----------|--------|-------------------|--------------|---------------|----------------|
| <4month | 9 | | | | |
| 6-12month | 2 | 2 (2M) | 1 | 1 | |
| 1 year | 1 | 2 (1F,1M) | 2 | | |
| 2 year | 4 | 7 (3F, 4M) | 5 | 2 | 1 |
| 3 year | 2 | 2 (2F) | 2 | | 1 |
| 4 year | 4 | 1 (F) | 1 | | 1 |
| 5 year | 2 | 2 (2F) | 2 | | |
| 6 year | 3 | 3 (1F,2M) | 1 | 2 | |
| 7 year | 6 | 1(F) | 1 | | |
| 8 year | 2 | | | | |
| 9 year | 1 | | | | 1 |
| 10 year | 1 | 1(F) | | 1 | |
| 11 year | 1 | 1(F) | 1 | | 1 |
| 14 year | 1 | | | | |
| | 39 | 22 (13F,9M) | 16 | 6 | 5 |

Pedigree analyses

- Mating between two unaffected produce affected offspring in two different matings
- Mating between two affected produce affected offspring
- Both genders affected

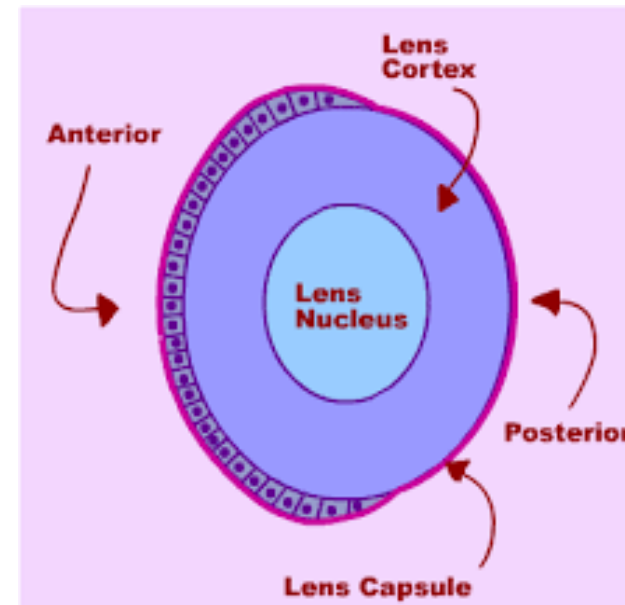
This supports an autosomal recessive mode of inheritance

Cataracts in the Russian Blue breed of cat



Discussion

- Very few and old(1974-1986) publications of cataracts in cats
- The localisation of the cataract in the perinuclear posterior cortex suggests a young age of initiation
- Only 3 cases have been followed for 1-3 years with no notable progression
- Mode of progression needs to be further investigated.
- Relationship between the different forms is uncertain



Conclusions

- The Russian Blue cat breed is affected by a hereditary type of primary cataract
- Pedigree analyses indicates an autosomal recessive mode of inheritance
- The prevalence is high and appears to affect both genders equally
- The cataract appears to be early onset



Further studies

- Further studies are needed in order to clarify the exact time of onset, the mode of progression and if there is a relationship between the different forms of cataract in the breed
- Molecular studies are in progress e.g. GWAS; genome wide analysis study, to find the mutation
- The goal is to develop a genetic test for the mutation



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