‘Is a Snow Leopard just a big rabbit?’
Clinical summary

- 3-year-old-male Snow Leopard
- Born at a zoological park in France
- Transferred to a UK zoo at 1 year of age
- Diet: rabbit & chicken
- 15 months later
  - unsteady when climbing
  - concern of vision problems
- General anaesthetic: eye examination
What happened next....

- Snow leopard was euthanised
- Post-mortem was performed
- Formalin-fixed tissues submitted for histopathology
- Serum samples also kept
Gram stain
Diagnosis

- Bilateral phacoclastic uveitis with intralenticular spores consistent with *Encephalitozoon cuniculi*
Detection of *Encephalitozoon cuniculi* in the feline cataractous lens

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Immunohistochemistry: E. cuniculi

Courtesy Dr. Andrea Baumgartinger Fuchs
Additional diagnostic tests

- **Serology**
  - Positive for *E. cuniculi* antibodies 1:320
  - Seronegative for FeLV/FIV/FCoV

- **PCR**
  - *E. cuniculi* strain III
Post-mortem findings

- Histopathology was performed on:
  - Brain
  - Kidneys
  - Lungs and heart
  - Spleen
  - Liver, small and large intestine

- Moderate lymphoplasmacytic & eosinophilic enteritis
Encephalitozoon cuniculi

- Obligate intracellular, spore-forming microsporidium
- Ocular manifestations:
  - Rabbits
  - Blue foxes
  - Mink
  - Domestic cats
  - Humans
Encephalitozoon cuniculi

- 3 strains
  - Strain I (‘rabbit strain’)
  - Strain II (‘mouse strain’)
  - Strain III (‘dog strain’)

Diagnosis

- Gram-positive 1.5-2.5 µm spores
- Immunohistochemistry
- PCR
- Electron microscopy

Encephalitozoon cuniculi in rabbits

- **CNS**: nonsuppurative granulomatous meningoencephalitis
- **RENAL**: chronic interstitial nephritis
- **OCULAR**: cataract and phacoclastic uveitis

**Transmission**

Ingestion: spores are shed in the urine
Vertical transplacental infection
• Aetiological agent of ‘infectious motor paralysis’ identified in 1922
• Endemic infection complicates animal model-based research (poliomyelitis and human syphilis)

The Veterinary Record 152: 427-31
Encephalitozoon cuniculi and the eye

- Less common presentation (10-15%)
- *E. cuniculi* localised to the lens (in utero infection)
- Replicates within lens fibres
- Phacoclastic uveitis

Courtesy Dr H Featherstone
Focal anterior cortical cataract and anterior uveitis

Seropositive for *E cuniculi* antibodies 1:80-1:10 000

Immunopositive and PCR positive for *E cuniculi*

- *lens material (phacoemulsified)* (18/19)
- *aqueous* (10/19)
Encephalitozoon cuniculi in Blue foxes

- Fulminating disease in neonatal carnivores
- Parents unaffected
- Cataract
- Encephalitis and interstitial nephritis
- Proliferative and necrotising vasculitis (polyarteritis nodosa)

Blue fox
Encephalitozoon cuniculi in humans

- Unlikely to be a natural pathogen in humans (zoonotic)
- Immunocompromised (AIDS)
- Europe: Strain I (‘rabbit strain’)
- America: Strain III (‘dog strain’)
- Similar tissue distribution to rabbits
- Keratoconjunctivitis
“That’s all folks!”