Feline Babesiosis

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Causative Agent

In general..

❖ Different small & large Babesia species
❖ Various feline hosts

Often no clinical disease

Babesia felis (small)

❖ 1929 – Wild Cat in Sudan
❖ 1937 – Domestic cat of RSA
❖ Different species?
❖ 2001 – Babesia leo in lions
❖ 2010 – Babesia lengau in cheetahs

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Large piroplasms:

❖ 1967 - Babesia herpailuri in jaguar
❖ 1972 - Babesia pantherae in leopard
❖ 1980 –Unnamed in domestic cat
2004 – *Babesia canis subsp presentii*

Local?

- PCR analysis on “large” babesia samples:
  - *B. felis* – commonly seen
  - *B. lengau*
  - *B. microti* (zoonosis)
  - *B. divergens* (zoonosis)
  - *B. odocoilei*

- More research needed!

**Prevalence study of *B felis* and *B leo* in various wild and domestic felids**:  

- Parasites occur not only in species from which they were described, but also in other felid species
- Various mixed infections
- *Babesia microti* in various species
- *Babesia rossi* in 1 lion
- Only 54% of 212 reacted

1. A.Bosman, Dept Vet Tropical Diseases, University of Pretoria, 2010

**Epidemiology**

- Sporadic reports from other countries
- Regular occurrence in South Africa
- Endemic & non-endemic areas
- Vector?
**Signalment**

- Sporadic reports from other countries
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- Endemic & non-endemic areas
- Vector?

**Clinical Signs**

- Anorexia
- Listlessness / depression
- Anaemia
- Icterus, weight loss, weakness
- No pyrexia
- Chronic course – can be fatal

**Diagnosis**

- Parasites on stained, thin blood smears
- Various shapes
- Variable parasitaemias
- Central and peripheral parasitaemias correlate

**Haematology**

- Macrocytic, hypochromic anaemia
- Regeneration evident
- Negative correlation between anaemia and parasitaemia
- IMHA
- No characteristic changes in total or differential leukocyte counts
Abnormal leukocyte counts often reflect concurrent diseases
Thrombocyte counts variable, thrombocytopenia NOT consistent

**Clinical Pathology**
- ↑↑ ALT – hepatocellular damage
- ↑↑ total bilirubin
- ALP and GGT mostly normal
- Clinical icterus only with high ALT values

**Chemical Pathology**
- Urea & creatinine - mostly normal
- Variety of electrolyte disturbances
- Albumin & globulin – N or ↑
- Protein electrophoresis polyclonal (α, β and γ globulins)

**Concurrent Infections**
- Pyrexic cats
- Cats with recurrent infections
- Chronic carrier adult cats that become symptomatic
- Cats who don’t respond adequately to treatment

**Treatment**
- Primaquine phosphate (Primaquin, Kyron)
  - 0.5mg tablet
  - 5mg/ml IM inj, 10ml vial
- Dose: 0.5mg/kg PO or IM, thus 1 tablet/kg PO!
Dose 1 to 3 times, at 72 hour intervals

Follow-up with 0.5mg/kg once weekly for 3 weeks

Recrudescence of parasitaemia after 2-3 weeks – repeat dose of 0.5mg/kg Primaquin

Doses of 1mg/kg or higher can be fatal

Primaquin has a good curative effect with reduced parasitaemia & ↑ haematocrit
BUT Primaquin does NOT sterilise the infection

Chronic carrier state can persist for years after Primaquin treatment

Aims: *clinical cure,

*resolution of anaemia &

*reduction of parasitaemia, NOT for complete clearance

Regular monitoring essential

Doxycycline added - 10mg/kg OID x 21 days

Effective against *Mycoplasma haemofelis*

May be effective against *Babesia felis*

Broad antibacterial spectrum

Other antibabesial drugs have limited success

• Improved clinical signs or

• Reduced parasitaemia

Effects are short-lived and extremely variable

Use of these drugs is not recommended

Not recommended for treatment:

Rifampicin, Trimethoprim-sulphas, Buparvaquone, Enrofloxacin, Danofloxacin, Diminazene, Imidocarb, Oxytetracycline, Phenamidine, Euflavine, Chloroquine
Atovaquone & azithromycin:

- Effective against *B. microti* & *B. divergens* (Hu)
- Effective against *B. gibboni* (dogs)
- Unknown efficacy against *B. felis*
- Treatment for *Cytosine felis*:
  - Atovaquone: 15mg/kg PO TID (10 days) “Wellvone”
  - Azithromycin: 10mg/kg PO OID (10 days) “Zithromax”

**Supportive treatment**

- Blood transfusion
- Nutritional support
- IV fluids and electrolytes
- Corticosteroids
- Rest
- Treat concurrent diseases

**Blood Types in Cats**

- Type A, Type B, (Type AB)
- Type A most common
- All cats have naturally-occurring antibodies
- Strong anti-A antibodies in type B cats
- Frequency differs between breeds and geographical areas

SEE CHART AT END OF NOTES

**Blood Transfusions**

- Type B cat receiving Type A blood – life-threatening acute haemolytic reaction
- Bradycardia, hypotension, vomiting, convulsions, haemolysis, icterus
- Type A cat receiving Type B blood – shortened survival of transfused cells
- Transfusion reactions independent of amount of blood given, thus administration of a small test dose of blood NOT an acceptable procedure for compatibility testing
- Start slowly, then 10ml/kg/hr
- Complete within 4 hours
- Volume of blood (ml) = desired PCV increase (%) x BW (kg) x 2
- Aim for PCV of 20%
- Lifespan of transfused AB-matched RBC is approximately 70 days

**Blood typing**
- Recipient and donor
- Anti-A antiserum for type A and
  - *Tricutum vulgaris* lectin for Type B antigen
- In-house test

**Crossmatching**
- Indicates compatibility between recipient and donor
- Major – tests for antibodies in recipient plasma against donor RBC
- Minor – tests for antibodies in donor plasma against recipient RBC
- Major crossmatch incompatibility predicts life-threatening acute haemolytic reaction

**Blood donors**
- Shorthaired cats
- Large (>5kg), lean
- Young
Healthy

Good temperament

10-12 ml/kg BW

**Nutritional support**

- Prolonged anorexia
- Foods should contain high protein and fat, with essential nutrients
- Energy requirements: 70-90 kcal/kg BW/ day
- Ensure adequate food intake
- If inadequate, consider tube feeding

**Prognosis of Feline Babesiosis**

- Disease can be fatal
- Successful management depends on
  - Early and correct diagnosis
  - Effective therapy
  - Management of concurrent diseases
  - Continuous monitoring of cases
  - Client education and compliance.