A five year old, female neutered domestic long haired cat was presented with a two week history of progressive iritis and dyscoria (abnormal pupil shape). The cat was an indoor cat, fully vaccinated with no history of trauma. Ocular examination revealed normal menace, dazzle and palpebral responses. Both eyes appeared comfortable and there was no blepharospasm. Pupillary light reflex was absent in both eyes. There were keratic precipitates on the ventral corneas of both eyes. There was left corneal oedema and marked thickening of the left iris. There was flare in the right eye and a dilated, non-responsive pupil. Intraocular pressures were 17mmHg in the right eye and 10mmHg in the left eye. Retinal examination was within normal limits. These findings confirmed a bilateral anterior uveitis. The rest of the physical examination including peripheral lymph node size was within normal limits.

1) *What are your differential diagnoses for anterior uveitis?*

2) *How would you evaluate this case further?*

3) *How would you treat and monitor this cat?*
1. **Differential diagnoses for anterior uveitis**
   - Feline leukaemia virus (FeLV)
   - Feline immunodeficiency virus (FIV)
   - Feline infectious peritonitis
   - Feline herpes virus
   - *Toxoplasma gondii*
   - Neoplasia
     - Iris melanoma or melanocytoma
     - Ocular sarcoma (often trauma/ lens – associated)
     - Ocular lymphoma
   - *Bartonella henselae*
   - Idiopathic/ inflammatory
   - Trauma
   - Fungal (less likely in the UK)
     - *Cryptococcus neoformans*
     - *Histoplasma capsulatum*

2. **Initial evaluation**
   Routine haematology and serum biochemistry were within normal limits. Serum antibodies for *Toxoplasma*, feline corona virus and FIV were negative. FeLV antigen ELISA was negative. Aqueocentesis from the left eye revealed a high cellularity with greater than 95% lymphocytes. The majority of lymphocytes were large to intermediate with single round nuclei, fine chromatin and indistinct nucleoli. Around 50% of the lymphocytes contained pink, cytoplasmic granules (Figure 1). This was highly suspicious of large granular ocular lymphoma.

   ![Figure 1. Large granular lymphocyte on cytology from aqueocentesis. X100 magnification. Photo courtesy Alex Civello Cytopath Ltd.](image)

3. **Further evaluation and staging**
   Full body CT scan revealed a markedly thickened left iris (Figure 2) and mild enlargement of the liver and spleen with a few hyperechoic nodules; CT was otherwise within normal limits. Cytology
of ultrasound-guided fine needle aspirates from the liver and spleen were within normal limits. Cytology of bone marrow aspirates was consistent with mild myeloid hypoplasia with no evidence of lymphoma.

4. Treatment and monitoring

The results of aequocentesis were highly consistent with ocular lymphoma. There was no evidence of lymphoma elsewhere in the body on staging investigations and primary ocular lymphoma was suspected. Enucleation was discussed as an option to improve comfort for the cat and provide a histopathological diagnosis. However, given that there were bilateral ocular changes and eventual systemic involvement of the lymphoma was likely, this was not performed. The cat received L-asparaginase, followed by four doses of a CHOP chemotherapy protocol (vincristine, cyclophosphamide, doxorubicin and prednisolone). Repeat ophthalmological examination one month after starting treatment revealed mild improvement with return of pupillary light reflexes in both eyes, reduction in flare and a subjective reduction in thickness of the left iris. However, the left dyscoria and keratic precipitates remained.

After 5 weeks of treatment the cat became quiet and hyporexic. Clinical examination revealed a grade III/VI sternal, systolic heart murmur and jugular venous distension. Heart rate was 180 beats per minute with good pulse quality, blood pressure was 140mmHg. Echocardiography revealed a moderate pericardial effusion with myocardial thickening and hyperechogeneity (Figure 3). The pericardial effusion was not drained as the cat was haemodynamically stable and it was considered to be a high-risk procedure. Abdominal ultrasound at this time revealed enlarged liver with rounded margins, cytology of ultrasound guided fine needle aspirates of the liver revealed a proliferation of medium and large lymphocytes with some atypical features.
Progression of the lymphoma with cardiac and hepatic involvement was suspected. Further chemotherapy with lomustine (CCNU) was discussed at this stage. However, given the poor prognosis and poor quality of life of the cat, she was unfortunately humanely euthanized.

Discussion

Primary ocular lymphoma is uncommon in cats with only very rare reports in the literature. However, ocular manifestations of systemic lymphoma are more common with 48% of cats with extranodal, multicentric, mediastinal or gastrointestinal lymphoma demonstrating ocular involvement in one study. It is, therefore, important to consider lymphoma as a differential diagnosis for anterior uveitis, particularly in those cases that are progressive despite topical anti-inflammatory treatment.

Aqueocentesis can be a useful and relatively safe tool for aiding in diagnosis of ocular lymphoma. Further staging is vital for cats with a suspicion of ocular lymphoma due to the relatively high prevalence of lymphoma at other sites in cats with ocular manifestations of the disease. Dogs and cats with presumed solitary intraocular lymphoma do appear to be at risk of systemic dissemination of the disease and neurological signs presumably due to progression via the optic nerve are reported in dogs, cats and humans.

References


