WHAT IS YOUR DIAGNOSIS?

A one-year old female neutered Siamese was presented to the R(D)SVS Emergency Service for investigation of three day history of increased respiratory effort, lethargy and inappetance. She was an indoor cat, fully vaccinated (including FeLV) and lived with one other cat.

On examination she was quiet but alert. Her mucous membranes were pink and tacky. She was tachypnoeic with a respiratory rate of 60 breaths per minute and had a restrictive breathing pattern. Thoracic auscultation revealed dull cardiac sounds on the right hand side of her thorax. She had reduced thoracic compliance and percussion of her lung fields revealed reduced resonance bilaterally in the region of the cranial thorax. Abdominal palpation was unremarkable. Peripheral lymph nodes were within normal limits. She weighed 2.48 kg with a body condition score of 3/9.

1) What are your differential diagnoses for respiratory signs?

2) How would you evaluate this case further?

3) What are the treatment options for this cat?

1. Differential diagnosis:
The clinical finds of restrictive breathing pattern, reduced thoracic compliance and dull cardiac sounds made the following differential diagnosis most likely:

- A mediastinal mass such as lymphoma or thymoma
- Heart based mass
- Pleural effusion
- Diaphragmatic herniation
- Lung consolidation
- Abscess

2. Evaluation
The patient was initially stabilised with oxygen supplementation. Point of care ultrasound of her thorax and abdomen were carried out. Thoracic ultrasound revealed an ill-defined hyperechoic mass in the region of the mediastinum with a minimal
volume of pleural effusion and the diaphragm appeared intact. The left atrium size was assessed and found to be within normal limits. Once the patient was stable, a blood sample taken for blood gases, lactate, haematology, biochemistry and FeLV/FIV testing.

The results revealed a respiratory alkalosis with metabolic compensation likely due to the chronic hyperventilation. Haematology revealed a mild lymphopenia and blood smear assessment was unremarkable. She was mildly hypokalaemic (likely due to the anorexia). An in-house snap test for FeLV/FIV was negative. All other bloods results were within normal limits.

A CT scan of her head, chest and abdomen was carried out under light sedation. The CT revealed a large (6 x 4 cm) cranial and mid mediastinal mass with associated lymphadenopathy, mild volume of pleural effusion and lung consolidation (see figures 1.1-1.3). A sample of the mass was obtained via fine needle aspirate along with a sample of the pleural effusion. This primary differentials considered at this stage were lymphoma and thymoma.

Figure 1.1 CT sagittal view (blue arrows indicate the mass, red indicate the heart on all images)

Figure 1.2 CT dorsal view

Figure 1.3 CT transverse view
The fine needle aspirate of the mediastinal mass (see figure 2) was found to be highly cellular and comprised approximately 10% small lymphocytes, 20% medium lymphocytes and 70% large lymphocytes in a light background of blood. The medium and large lymphocytes cells were round to slightly oval with a small amount of medium to deep blue cytoplasm, sometimes with fine vacuolation and/or a small perinuclear clear zone, and a round to slightly oval, central to paracentral nucleus with smooth to stippled chromatin and one or multiple, variably-sized and -shaped, paracentral nucleoli. Mitoses were rare. These findings were indicative of mediastinal lymphoma of large cell type and apparently low grade. The pleural effusion was consistent with a modified transudate, and no neoplastic cells were identified in the sample.

3. Treatment and discussion
Lymphoma is the most common feline haematopoietic cancer. Siamese cats appear predisposed to mediastinal lymphoma, being typically young (median age 2 years) and FeLV negative at the time of diagnosis.

Treatment of feline mediastinal lymphoma revolves around the use of chemotherapy. The best outcomes are achieved with multidrug protocols such as CHOP (vincristine, cyclophosphamide, doxorubicin and prednisolone) or COP (cyclophosphamide, vincristine and prednisolone). The aim of chemotherapy is to achieve complete remission, improve long term survival and quality of life. The extent of response (i.e. complete remission, partial remission or progressive disease) and duration of response varies between individuals. Dependent on the study, chemotherapy response rates of around 90% have been reported. Cats that experience complete remission tend to have the best median survival times with some studies reporting median survival of 262-980 days for cats with complete response. This is in contrast to cats which have a partial response with median survival times of 42 days reported.

When deciding on the best course of treatment for any patient, a careful balance needs to be establish between potential benefits, long term outcome and impact on quality of life of the patient. One of most common primary concerns that owners have
when deciding on whether to treat their cat with chemotherapy is how treatment will affect their cat’s quality of life. Various studies have been carried out assessing the quality of life of cats receiving chemotherapy and quality of life questionnaires have been established that evaluate various health related parameters and behaviours during chemotherapy treatment. A key behaviour that owner’s considered important during treatment was found to be maintenance of appetite. A study looking at owner satisfaction when treating their cats with a multi-drug chemotherapy protocol found it to be high with 75% of owners being happy they had treated their cat with chemotherapy.

This patient underwent a CHOP protocol. She experienced excellent quality of life throughout her protocol with an average score of 9.7/10 using our validated quality of life questionnaire. During her treatment she experienced treatment delays and dose reductions of her chemotherapy due to myelosuppression but never required hospitalisation for this. Her appetite was generally good, but when necessary anti-nausea medication (maropitant with or without ondansetron) and an appetite stimulant (mirtazapine) were administered. She achieved complete remission and completed her CHOP protocol.

Sadly, 392 days following diagnosis she developed progressive disease which manifested as pleural effusion (see Figure 3) and thoracic wall masses (an unusual presentation of the disease).

![Figure 3: Thoracic radiographs following progressive disease](image)

Her owners at this stage opted for palliative treatment with prednisolone. Sadly her disease progressed rapidly and she was euthanased one week later.

This is an interesting case which highlights the challenging nature of balancing intensive treatment protocols with patient quality of life. Provided appropriate tools are utilised such as quality of life questionnaires and supportive medications, good quality of life during treatment can be achieved.

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References


