

ABSTRACT

A 5-year-old female neutered cat presented with acute onset hyporexia, lethargy, ascites, hypoalbuminaemia and ventral subcutaneous oedema. Further investigations revealed a bicavitary effusion consistent with a transudate, a collapsed left cranial lung lobe, suspected myocardial injury, hypercholesterolaemia and concurrent marked proteinuria. Nephrotic syndrome (NS) was suspected and renal biopsies were performed. Histopathology and electron microscopy confirmed Minimal Change Disease (MCD). The patient was successfully managed with tapering benazepril, clopidogrel, maropitant and a veterinary prescription renal diet. Follow up at one week documented almost complete resolution of the cardiopulmonary abnormalities. The hypoalbuminaemia and proteinuria, had resolved two months following presentation. The cat was well at the time of writing with no evidence of disease relapse. This case represents the first case of feline MCD reported to resolve spontaneously without glucocorticoids.

INTRODUCTION

Minimal change disease is a common cause of nephrotic syndrome in human patients primarily under the age of 9,¹ but has rarely been described in dogs,²⁻⁴ and only a single feline case report exists in the veterinary literature.⁵ First-line treatment in humans consists of oral glucocorticoids, although relapse occurs in 66% and 80% of adults and children, respectively.⁶⁻⁷

HISTORY & PHYSICAL EXAMINATION

A 5-year-old female neutered domestic semi-longhair cat presented for further investigations of acute onset lethargy, hypoalbuminaemia (17g/L) and ascites. Clinical examination revealed tachypnoea, harsh bronchovesicular sounds bilaterally and a grade II/VI parasternal systolic heart murmur on auscultation. Ventral abdominal subcutaneous oedema was also evident.

Spontaneous Resolution of Minimal Change Disease and Nephrotic Syndrome in a Cat Without Glucocorticoid Therapy.

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PERTINENT DIAGNOSTIC INVESTIGATIONS

CLINICAL PATHOLOGY: *Figure 1*

NEGATIVE INFECTIOUS DISEASE TESTING:

- FCoV serology, FCoV RT-PCR pleural fluid
- Bartonella henselae PCR and serology
- Toxoplasma gondii anti-IgM and IgG serology (1:20 and 1:50 respectively)
- SNAP FeLV antigen and FIV antibody

ECHOCARDIOGRAPHY:

- Hypokinetic, hypertrophied interventricular septum – HCM phenocopy (infiltrative disease/inflammatory process). *Figure 2*

THORACIC RADIOGRAPHS:

- Collapsed left cranial lung lobe and an otherwise mild bronchial pattern (consistent with a bronchial plug and feline lower airway disease).
- Ventral fluid opacity and pleural fissure lines (pleural effusion).

ULTRASONOGRAPHY: (*Thoracic and Abdominal*)

- Small volume of anechoic peritoneal and bilateral pleural fluid.
- Both kidneys were of normal size and shape with no renal pelvis distension.

RENAL BIOPSIES: (*Light microscopy, Immunofluorescence and Electron microscopy*)

- Electron microscopy: severe widespread effacement of podocyte foot processes, consistent with minimal change disease.
- Histologically normal glomeruli, light microscopy and immunofluorescence unremarkable. *Figure 3*

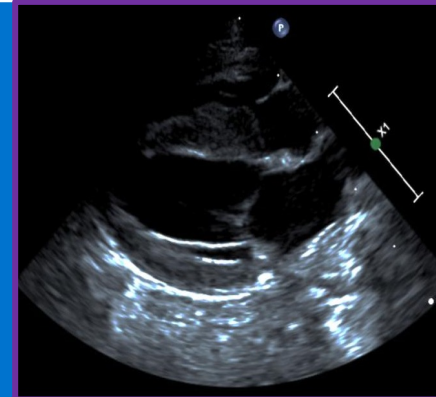


Figure 2: Hypertrophic interventricular septum.

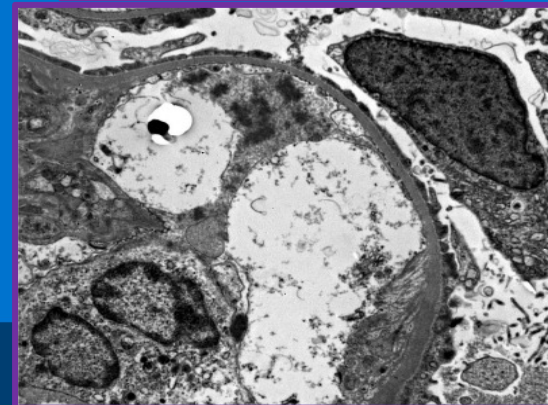


Figure 3: Electron microscopy; severe widespread effacement of podocyte foot processes.

DISCUSSION AND CONCLUSIONS

- Feline MCD has been described once in the veterinary literature, presumed secondary to imatinib mesylate (Gleevec; Novartis Pharmaceuticals). Glucocorticoids led to resolution of clinical signs and improved proteinuria.⁵
- In people, oral glucocorticoids have been used as first-line therapy for MCD since the 1970's.⁸ Prednisolone being prescribed (1-2mg/kg/day for 8-16 weeks), followed by tapering upon remission.⁹
- Spontaneous remission has been infrequently reported in humans, although often requires a longer duration of time to achieve this end-point compared with the use of glucocorticoids.^{8,10,11}
- To the authors knowledge, this is the first case of feline MCD reported to resolve spontaneously without glucocorticoids.
- Medical management with an ACE inhibitor and dietary protein restriction was adequate to resolve the proteinuria in this case.
- Serial improvement in the echocardiographic changes and cardiac troponin I indicated myocarditis, of either an infectious, inflammatory or immune-mediated cause. This could not be excluded as a potential trigger of MCD.

Test	Parameter	Day 1	1 Week	1 - 2 months	Reference Interval
Biochemistry	Albumin (g/L)	17	22	31	25-43
	Cholesterol (mmol/L)	8.1	5.2	5.4	1.7-4.9
	Serum Amyloid A (ug/L)	65.2	<0.3	<0.3	0-0.5
	Cardiac troponin I (ng/mL)	9.38	-	0.144	0-0.04
Haematology	PCV (%)	22	22	28	26-45
	Reticulocyte count (x10 ⁹ /L)	15	162	20	0-60
Urinalysis cystocentesis	UPC	7.57	3.83	0.13	0-0.2
	USG	1.028	1.027	1.016	>1.035

Figure 1: Pertinent serum biochemistry, haematology and urinalysis results.

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