

Comparison of computed tomographic and surgical findings in feline pyothorax

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Introduction

Pyothorax is defined as accumulation of purulent material within the thoracic cavity.

Commonly identified causes:

- Migrating foreign bodies
- Penetrating thoracic trauma
- Pneumonia
- Haematogenous spread

Diagnostic criteria: Pleural effusion with intracellular bacteria +/- positive culture.

Management of feline pyothorax can be medical and/or surgical.

Medical management alone is often successful and involves:

- Thoracostomy tube placement
- Lavage with physiological saline
- Appropriate antibiotic coverage

Indications for surgical management:

- Pulmonary or mediastinal abscess
- Extensively loculated effusions
- Failure of medical management

A study in canine pyothorax showed good agreement between CT and surgical findings but there is no similar study for feline pyothorax.

Objective

To retrospectively compare computed tomographic (CT) and surgical findings in feline pyothorax.



Cat undergoing thoracocentesis for pyothorax management

Materials and Methods

Electronic clinical records from a single referral centre between March 2006 and January 2021 were searched for cases of feline pyothorax.

Cats who had pyothorax confirmed by cytology and/or culture and had a CT were included.

Original CT and surgical reports were compared.

Results

44 cats had pyothorax confirmed.
36 of those cats had a CT and so were included in the study.

Majority of cats were male (29/36).
Most common breeds were Domestic Short Hairs and Maine Coons.
22/36 cats came from multi-cat households.
24/36 cats had outdoor access.

Pasteurella multocida was the most cultured microorganism.
Amoxicillin/clavulanic acid was the most used antibiotic.

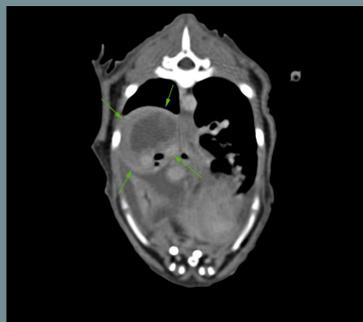
Overall survival was 67%.
Median length of hospitalisation was 6 days (range 1-14 days).
Median duration of thoracostomy tube placement was 4.5 days (range 0-12 days).

Medical management:
19/36 cats were treated medically.
Survival rate was 84%.

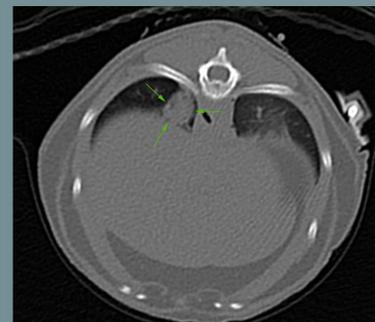
Median length of hospitalisation was 6 days (range 1-14 days).
Median duration of thoracostomy tube placement was 4 days (range 0-9 days).

Surgical management:
17/36 cats underwent surgical management.
Survival rate was 47%.
Median length of hospitalisation was 7 days (range 2-14 days).
Median duration of thoracostomy tube placement was 5 days (range 1-12 days).

Comparison:
No statistically significant difference in survival rate between groups ($p = .065$)
No statistically significant difference in length of hospitalisation ($p = .667$)
No statistically significant difference in duration of thoracostomy tube placement ($p = .342$)



Right caudal lung lobe abscess identified on CT which was also identified in the surgical report



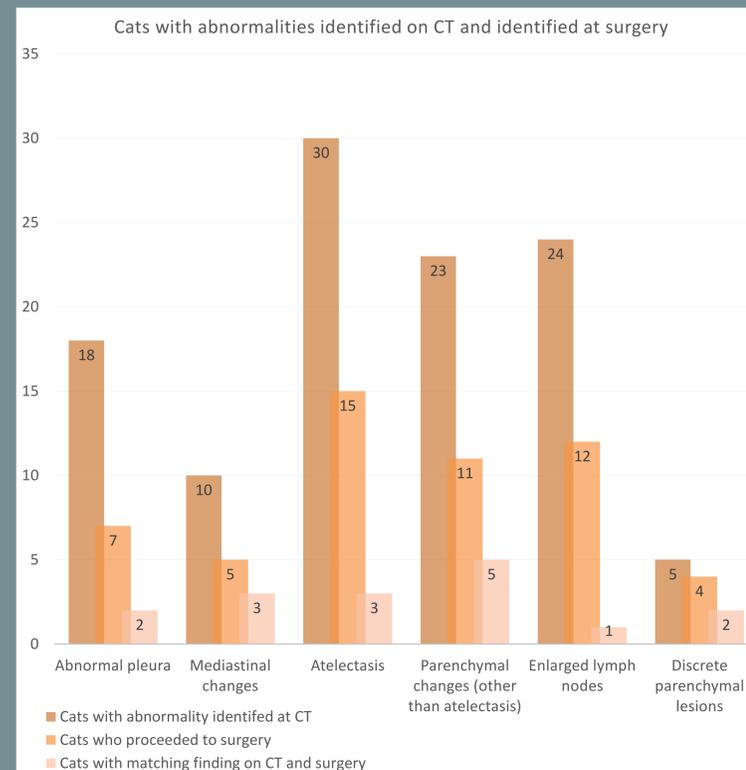
1.1cm x 1.3 cm soft tissue attenuating nodule in the accessory lobe identified on CT but not identified in the surgical report

Reasons for proceeding to surgery:

- Failed medical management (7/17)
- A lesion identified on CT that was considered surgical (7/17)
- Unsuccessful drainage via thoracostomy tube (2/17)
- Continuous pneumothorax secondary to thoracostomy tube placement (1/17)

Median number of days between CT and surgery was 1 day (range 0-6 days).
All cats had thoracostomy tubes placed prior to surgery.

CT identified pneumothorax in 24/36 cats.
All cats had either thoracocentesis or thoracostomy drain placement prior to CT.

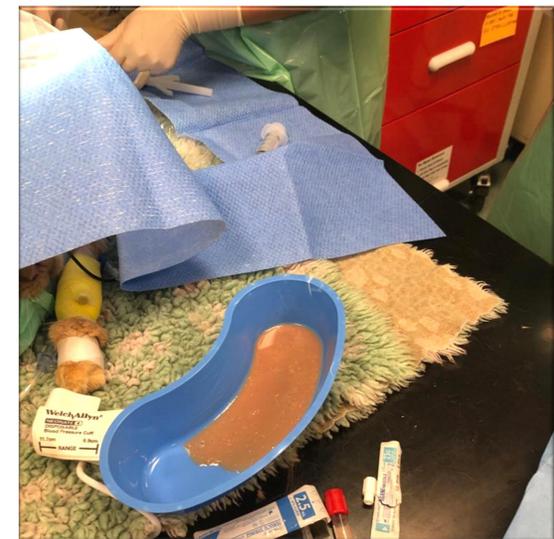


Abnormalities identified at surgery but not on CT:

- Mediastinal changes (9/17)
- Lung puncture wounds (2/17)
- Lung consolidation (2/17)
- Abnormal pleura (2/17)
- An abscess between the left caudal lung lobe and body wall (1/17)
- Discrete parenchymal lesion (1/17)
- Atelectasis (1/17)

Conclusion

CT and surgical findings varied which could be due to a progression of the disease that could have occurred between CT and surgery, interventions carried out between CT and surgery or missing information in surgical reports.



Purulent material removed during thoracostomy tube placement

Discussion

Retrospective study:

- Treatment choice up to the primary clinician's discretion rather than protocolised
- No definition for failing medical management
- Unable to obtain illness severity scoring

Referral population:

- Population may represent sicker cats or cats that have already failed medical management in primary practice

Higher surgical rates than in previous studies

Non-standardised surgical reports used:

- May have led to omission of findings considered insignificant

Original imaging reports used:

- Imager not blinded to case
- Non-standardised reports may have led to omission of findings considered insignificant

Variable interval between CT and surgery and so findings could have changed due to disease progression or interventions