

FELINE LUNG LOBE TORSION

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A seven year old male castrated domestic long hair cat was referred to Animal Specialty and Emergency Center after being diagnosed with chylothorax. The patient had a three to four month history of tachypnea and dyspnea that had recently progressed. A complete blood count and chemistry panel were obtained and showed no significant findings. Thoracic radiographs from the referring veterinarian revealed pleural effusion and suspect bronchopneumonia of the left cranial lung field. Thoracocentesis was performed at the referring clinic, where chylous fluid was retrieved. Upon presentation, the patient was dyspneic with a respiratory rate of 96 breaths per minute, and a grade 2/6 systolic murmur was detected on auscultation. A therapeutic thoracocentesis was performed to remove additional chylous effusion in attempt to alleviate the dyspnea. Repeat thoracic radiographs were obtained and showed pleural effusion along with a severely consolidated left lung field (figure 1).



Figure 1: VD thoracic radiograph showing pleural effusion (arrowheads) and consolidation of the left cranial lung lobe (arrows).

Differential diagnoses included idiopathic chylothorax, or secondary to torsion, neoplasia, or cardiac disease. Additional diagnostics including thoracic and abdominal ultrasound, echocardiogram, and thoracic CT were recommended. Due to financial constraint, only the echocardiogram and thoracic ultrasound were performed. Echocardiogram confirmed mild pleural effusion and diagnosed hypertrophic cardiomyopathy of the left ventricle

without left atrial enlargement. The thoracic ultrasound showed a mild amount of anechoic pleural effusion along with left cranial lung lobe consolidation (figure 2). Based on the initial diagnostics performed, a left cranial lung lobe torsion was suspected and surgery was recommended.

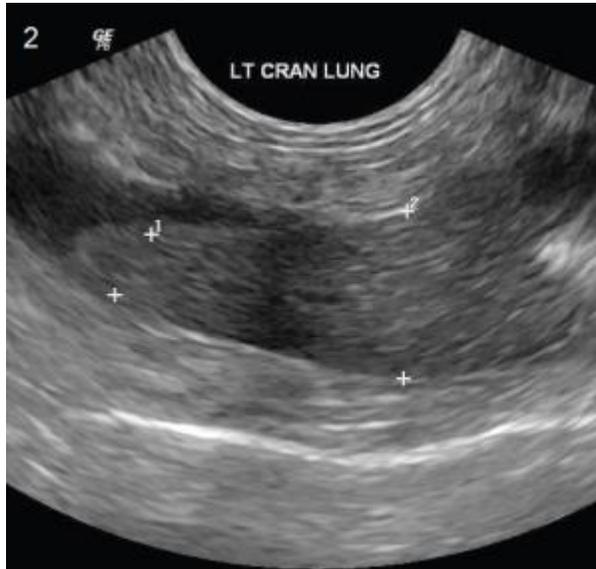


Figure 2: Thoracic ultrasound of left cranial lung lobe (between cursors) showing homogeneously consolidated but normally shaped lung adjacent to anechoic fluid.

A left lateral thoracotomy was made and the left cranial lung lobe was identified. The lobe was firm and consolidated with a “hepatized” appearance, and a 360 degree torsion was confirmed. The pedicle was isolated and a TA 30V autostapler was used to ligate the pedicle. A subtotal pericardectomy was performed ventral to the phrenic nerve. As a preventive measure in case the chylous effusion was the result of a thoracic duct complication and not from the lung lobe torsion alone, an en bloc mediastinal ligation was performed with two circumferential ligatures using 2-0 Prolene. A chest tube was placed and the cat recovered uneventfully. Postoperative management consisted of intravenous crystalloid fluid support, fentanyl CRI, cefazolin, respiratory watch, blood pressure monitoring, and chest tube aspiration and maintenance. The chest tube was removed one day postop, and the cat was discharged two days following surgery. Aerobic and anaerobic culture of the lung parenchyma resulted in no growth of microorganisms. Histopathologic evaluation of the left cranial lung lobe revealed severe locally extensive hemorrhage and necrosis with surrounding severe edema and mildly increased alveolar macrophages; all findings consistent with vascular compromise due to the lung lobe torsion. Lung lobe torsions are considered a rare occurrence in veterinary medicine,

especially within the feline population. Lung lobe torsion is defined as an axial rotation of the lung lobe and the vascular pedicle that results in compression of the venous vasculature and lymphatics, but leaves the thick walled arteries partially patent allowing for continued influx of blood with lack of out-flow leading to lobar congestion, edema, hemorrhage, and necrosis.¹ Various suspected causes for lung lobe torsion include trauma, neoplasia, secondary to pleural effusion, or spontaneous development. The right middle lung lobe is the most commonly affected lobe in cats and deep narrow chested dogs, but torsion of the left cranial lobe has been observed more commonly in small breed dogs.¹ It is presumed that the right middle lobe is most commonly affected because of its long and narrow shape, deep interlobar fissures, and the loose attachment to adjacent structures increasing its mobility.² Clinical signs noted at presentation are not very specific and typically include dyspnea, tachypnea, lethargy, and inappetence. A presumptive diagnosis can be made via thoracic radiographs, thoracic ultrasound, computed tomography, or bronchoscopy; however, definitive diagnosis can only be made by direct visualization of the torsion during thoracotomy, thoracoscopy, or necropsy.³ Thoracic radiographs can reveal pleural effusion, lobar atelectasis or consolidation, pneumothorax, or pneumomediastinum. Repeat radiographs are recommended to monitor for changes in lobar consolidation as well as development or progression of a vesicular gas pattern.² Thoracic ultrasound allows for visualization of the consolidated lung lobe with absence of blood flow on Doppler examination. Computed tomography (CT) is a valued tool to evaluate the structure of the pulmonary parenchyma and the thoracic cavity.⁴ CT provides the ability to evaluate all bronchi to determine if any are blindly ending, indicating a potential torsion. Once the diagnosis of lung lobe torsion has been determined, the only treatment option is to remove the affected lobe. It is important that the affected lobe be removed without attempting to alleviate the torsion in order to prevent reperfusion injury to the patient. Despite the low incidence of feline lung lobe torsions, it should remain a differential when evaluating lung lobe consolidation.

References:

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