TWO CASES ILLUSTRATING COMPUTED TOMOGRAPHIC FEATURES DISTINGUISHING AN ACCESSORY LUNG LOBE MASS FROM A CAUDAL MEDIASTINAL ORIGIN.

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Introduction

Accurate identification of the origin of an intrathoracic mass is essential to help narrow differential diagnosis lists, yet it can be challenging to differentiate a mediastinal from a pulmonary mass on thoracic imaging.[1 2] These lesions are frequently challenging to sample, making imaging critical.
Computed tomography is considered superior to radiography for the identification and characterisation of intrathoracic masses, however it is not a perfect test to distinguish intrathoracic mass location, particularly when it comes to those involving the caudal thorax.[1 3]
This report presents two cases with midline, caudodorsal thoracic masses, where CT and radiographic differentiation between caudal mediastinal and pulmonary origin was challenging using accepted criteria. Retrospective review of these cases yielded additional features that the authors propose could help identify the origin of such masses.

Imaging of Case 1

A seven-year-old female Chinchilla cat presented for respiratory difficulties.

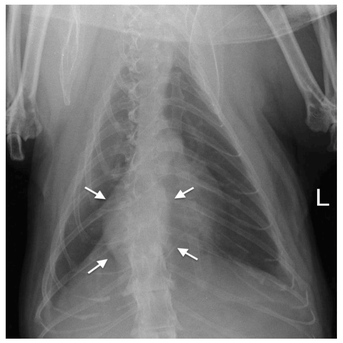

Figure 1: Dorsoventral thoracic radiograph of Case 1. There is a midline mass in the caudodorsal thoracic region (white arrows).

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Imaging of Case 1 continued

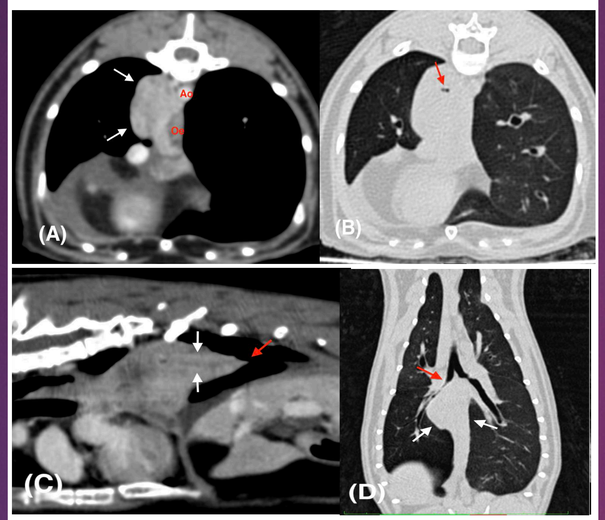

Figure 2A-D: CT images of Case 1. In image (A), the lack of displacement of the mediastinal structures can be appreciated, with the mass (white arrows) lying to the right of the aorta (Ao) and oesophagus (Oe). Image (B) shows the pinpoint gas foci within the mass (red arrow). In image (C), the mass has a triangular caudal aspect (red arrow), and contains a tubular less enhancing structure (white arrows). In image (D), the elongated mass (white arrows) is lying adjacent to the right caudal lobar bronchus (red arrow) at the location where the accessory lobar bronchus would be expected to originate.

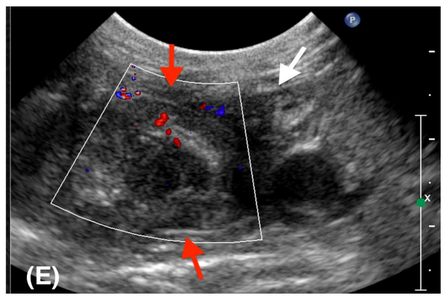

Figure 2E: The single ultrasound image (E) provided mimics the CT sagittal image, with a rounded vascularised mass in the cranial portion of the lung lobe (red arrows), and a more normal yet hepatised lung with a triangular shape caudally (white arrow).

Imaging of Case 2

A 13-year-old male Cocker Spaniel presented for a cough.

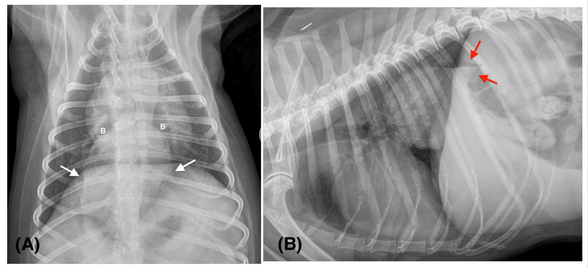

Figure 3: Radiographs of Case 2. On the dorsoventral radiograph (A) there is a midline caudodorsal mass (white arrows) displacing the mainstem bronchi (B) abaxially. On the lateral radiograph (B) the mass has a triangular caudal margin (red arrows), and the aerated portion of the accessory lung lobe is noted ventral to the mass.

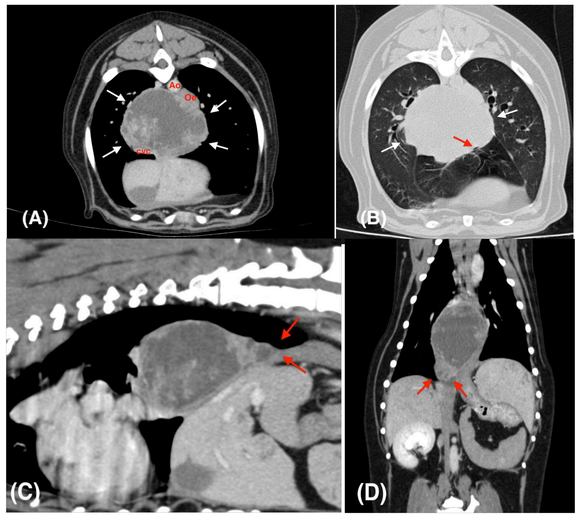

Figure 4: CT images of case 2. In image (A), a large intrathoracic mass (white arrows) with a rim of contrast enhancement is displacing the oesophagus (Oe), and compressing the caudal vena cava (CVC). In image (B) there is a flattened linear gas filled structure at the ventral aspect of the mass (red arrow), which is possibly one of the compressed accessory segmental bronchi. The caudal aspect of the mass has a triangular shape on the sagittal oblique (C) and dorsal (D) reconstructions (red arrows).

Further diagnostic procedures

Thoracic ultrasound and ultrasound-guided fine needle aspirates (Case 1) and surgical excision and histopathology (Case 2) revealed the presence of an accessory lobe pulmonary carcinoma in both cases.

Discussion

Previous radiographic features identified to distinguish mediastinal and pulmonary masses include location of the mass respectively on or away from the midline, and for mediastinal lesions a mass effect on mediastinal structures.[1] In both cases using these criteria on the radiographs the masses would be categorised as mediastinal in origin, yet they arose from the accessory lobe with its midline location. Retrospective review of these cases allowed identification of additional CT features that may be used to distinguish mediastinal and accessory lung lobar masses in future cases, including

- Absence of at least part of the accessory lobe and its lobar bronchus
- Presence of any gas, however small in the lesion
- An angular shape of the lesion mimicking a lung lobe.

It should also be noted that masses located dorsal to the caudal vena cava may still originate from the accessory lung lobe.
The utility of ultrasound in these cases should also be considered, since in case 1, the dynamic nature of ultrasound plus its ability to better discriminate between the mass and the consolidated adjacent lung lobe tip helped to confirm the lung origin.

References

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2. Thrall, D.E. The mediastinum. In: Thrall DE, ed. Textbook of Veterinary Diagnostic Radiology. 6th ed. St.Louis, MO: Elsevier Saunders; 2013:554-565.
3. Prather, A.B., Berry, C.R., Thrall, D.E. Use of radiography in combination with computed tomography for the assessment of noncardiac thoracic disease in the dog and cat. Vet Radiol Ultrasound. 2005; 46(2):114-121.