Dr. Norman Ackerman served the University of Florida, College of Veterinary Medicine with distinction as Professor of Radiology from 1979 to 1994. A concerned teacher of veterinary students and residents of all disciplines, Dr. Ackerman also reached the veterinary scientific community through his writing. His numerous clinically pertinent publications are still today a vital part of the veterinary literature; therefore, it is appropriate this site perpetuates Dr. Ackerman’s dedication to teaching. This site is presented in recognition of Dr. Norman Ackerman and his contributions to the field of veterinary diagnostic imaging.

Sponsorship of the display supports the Dr. Norman Ackerman Memorial Fund, dedicated to the teaching of diagnostic imaging residents at the University of Florida College of Veterinary Medicine.
• 10 year old MC Domestic Longhair

Dr. Norman Ackerman Memorial Radiography Case Challenge
History and case presentation

• The patient presents to your clinic with a history of chronic coughing. The owner reports that cough got worse in the last few weeks but Midnight kept eating, drinking and behaving otherwise normally at home.

• On physical examination, Midnight is bright, alert and responsive. His heart and respiratory rate are 224 bpm and 56 bpm, respectively. His temperature is 101.7 F. Mucous membranes are pink and there is no evidence of nasal or ocular discharge. Femoral pulses are strong and synchronous. Harsh lung sounds and wheezes are heard on auscultation on both left and right. When palpated, lymph nodes and abdomen are within normal limits.

• Your plan includes radiographs of the thorax.
Findings

A well-defined soft tissue opaque mass is seen superimposed over the right caudal lung lobe, at the level of the 9\textsuperscript{th} and 10\textsuperscript{th} intercostal spaces, measuring approximately 2 x 2 x 2.5 cm. In addition the mass contains multifocal gas opaque areas.
Lobular soft tissue opaque structures, causing ventral displacement and compression of the principal bronchi, are noted caudodorsal to the carina.
The right caudal interlobar fissure is mildly widened and the right caudal lung lobe margins are rounded.
The cardiovascular structures are within normal limits.
The midthoracic esophagus contains a moderate amount of gas.
The remainder of the study is within normal limits.
Conclusion

You found a cavitated right caudal lung lobe mass, tracheobronchial lymphadenopathy and mild pleural effusion.

The radiographic findings are suggestive of primary pulmonary neoplasia such as adenocarcinoma. Differential diagnoses such as abscess or granuloma are considered less likely.
... your patient has a primary lung tumor...

Primary pulmonary neoplasia is relatively uncommon in cats and has generally a poor prognosis. Lung tumors may be incidental findings or affected cats may present with clinical signs specific to the respiratory system or non specific, such as lethargy and weight loss.

Lameness associated with digital metastasis has been reported in the feline patient with primary neoplasia, particularly bronchial and bronchioalveolar carcinoma (feline lung-digit syndrome).

Almost all are carcinomas, with adenocarcinoma being the most frequently observed in cats. Other types are far less common. Midnight’s mass diagnosis was consistent with pulmonary adenocarcinoma.

Most tumors are solitary. Metastases spread via lymphatics, thru airways, hematogenously and transpleurally.

Aarsvold, 2015
Goldfinch, 2012
Withrow, 2007
Radiographic appearance of bronchoalveolar carcinoma (BAC), a subtype of adenocarcinoma, can be variable and may be represented by a mixed bronchoalveolar pattern, an ill-defined alveolar mass, or a cavitated mass. Caudal lung lobes are most often affected (+++ right caudal - Aarsvold, 2015).

Associated pleural effusion and tracheobronchial lymph node enlargement may be seen on thoracic radiographs.

Bronchoalveolar carcinoma has a unique pattern of extension spreading along existing airways and alveolar septa, occasionally projecting into alveolar lumina.

If present in the cavitated form, differentiation from an abscess, cyst, bulla or granuloma is challenging.

Presence of pneumothorax, pneumomediastinum, subcutaneous emphysema and bronchiectasis are consistent with the tumor being very aggressive.