

# The Thai Journal of Veterinary Medicine

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Volume 36  
Issue 4 December, 2006

Article 7

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12-1-2006

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### Recommended Citation

Tuntivanich, Pranee and Chuthateph, Suwicha (2006) "What is Your Diagnosis?," *The Thai Journal of Veterinary Medicine*: Vol. 36: Iss. 4, Article 7.

Available at: <https://digital.car.chula.ac.th/tjvm/vol36/iss4/7>

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## What is Your Diagnosis

Pranee Tuntivanich\* Suwicha Chuthatep



**Figure 1** Lateral radiographic view.



**Figure 2** Ventrodorsal radiographic view.

### History

A five year old male Thai Ridgeback dog presented for mild dyspnea and a cough after fighting with another dog 4 hours previously. Subcutaneous emphysema could obviously be palpated in the right cervical area but penetration wounds could not be

seen in this area. There was no evidence of nasal haemorrhage or abnormal lung sounds. Lateral and ventrodorsal radiographs including the neck and cranial thorax were taken for investigation for tracheal anomaly.

Give your diagnosis and turn to the next page.

## **Radiographic Diagnosis**

Tracheal rupture

### **Radiographic Findings and Comments**

On the lateral radiograph (Fig.1), a large amount of the subcutaneous gas can be detected surrounding the cervical and thoracic area. Moderate pneumomediastinum can clearly be seen in the cranial mediastinal portion. The ventrodorsal radiograph (Fig.2) shows soft tissue injury especially in the right cervical area beneath the massive subcutaneous emphysema. Small tracheal displacement caused by the injured soft tissue nearby can also be detected. In general, animals with a punctured trachea should have air in the surrounding tissues of the trachea. If the puncture is cranial to the thoracic cavity, air opacity should be found beneath the skin on radiographs. Moreover, pneumomediastinum can be seen especially if there is a puncture in the thoracic trachea. However, in some cases, pneumomediastinum can also be found

with cervical tracheal ruptures if there is a track linking the extrathoracic region and intrathoracic cavity. Endoscopy is the recommended method for detecting tracheal ruptures.

Apart from traumatic causes, over inflation of the endotracheal tubes is also a common cause of tracheal rupture especially in cats. From recent studies, inflation of more than 6 ml of air results in tracheal rupture. For clinically normal cats, the volume of air (mean  $\pm$  -SD) needed to obtain an airtight seal is  $1.6 \pm 0.7$  ml and intracuff pressure should be maintained near 20 cmH<sub>2</sub>O.