

## What is Your Diagnosis?

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### *Signalment*

A three-kilogram, 6 year-old, female, Pomeranian dog.

### *History*

The patient was presented to the Small Animal Teaching Hospital, Faculty of Veterinary Science, Chulalongkorn University due to the chief complains of depression and postprandial vomiting.

### *Clinical examination*

Based on the general physical examination, all

clinical signs included dehydration status, color of mucous membrane, heart rate and heart sound, respiratory rate and respiratory sound, femoral pulse and body temperature were in normal limit.

### *Radiographic examination*

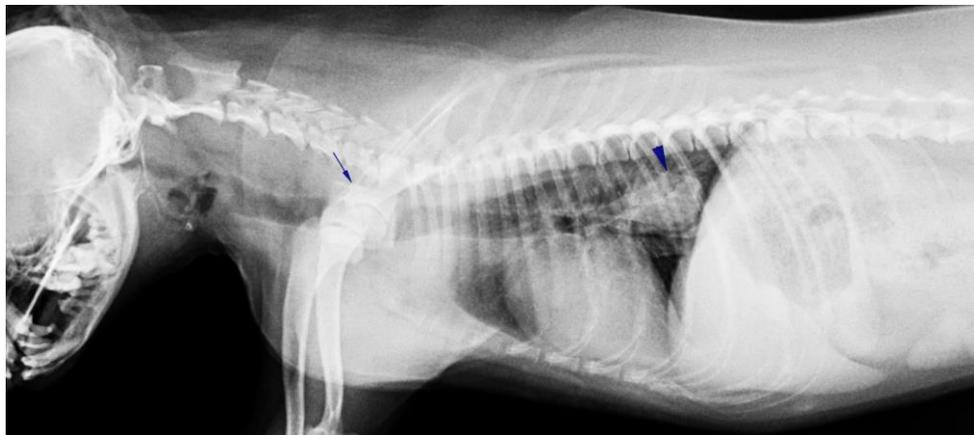
In accordance to the clinical signs of depression and postprandial vomiting, the dog was planned to observe the proximal gastrointestinal tract, especially the cervical and thoracic esophagus including the stomach. Therefore, cervical including whole thoracic that extending to the stomach radiographs were performed for basic evaluation.

What is your diagnosis?  
Please turn to next page for the answer.

### Radiographic findings

The thoracic plain radiography especially on the right lateral radiograph (Figure 1) revealed two pieces of rectangle shape, radiopaque foreign body at the mid esophagus, which were at the thoracic inlet area (arrow) and at the caudal thoracic esophagus, cranially to the esophageal hiatus (arrow head). In according to the cranial piece was at the thoracic inlet that the actual measurement might be in error of evaluation due to the superimposition by adjacent bony structure and other areas of esophagus could not be observed on plain

radiograph, upper gastrointestinal tract (UGI) using barium contrast medium was performed. Immediately after barium swallowing, lateral thoracic radiography revealed distinctive dilatation of whole esophagus with some amount of barium can pass through the first foreign body that foreign body became radiolucent (1.8 x 1.7 cm, arrow) compared to the surround contrast medium and distended the diameter of mid thoracic esophagus was found until the area of the caudal foreign body (1.6 x 1.5 cm, arrow head, Figure 2).



**Figure 1** The right lateral, plain thoracic radiograph of the dog, two pieces of rectangle radiopaque material were found at the thoracic inlet area (arrow) and at the mid caudal thoracic cavity (arrow head).



**Figure 2** The right lateral radiography with upper gastrointestinal tract study immediately after the barium study showed that the well-defined radiolucent rectangle foreign body (1.7 x 1.8 cm) at the thoracic inlet (arrow) and the rectangular radiopaque foreign body at the caudal esophagus (1.5 x 1.6 cm, arrow head). The caudal cervical and mid thoracic esophagus were distended with radiopaque barium contrast medium.

### Radiographic diagnosis

Esophageal foreign body (pig bones)

### Discussion

Esophageal foreign bodies are common found in dogs than in cat especially in terrier dog breed (Houlton et al., 1985). Foreign body could be varies; for example: plastic ball, chopstick, meatball or bones such as chicken or pig. In companion dogs, they are usually showed up with the history of large piece of food or substance ingestion. Therefore, the differential

diagnosis from other diseases that showed similar clinical signs such as persistent right aortic arch often easier. To detect foreign bodies on plain radiograph, it will be varied to the X-ray absorptivity. Plastic ball will be radiolucency that definitive diagnosis needs further examination using contrast study. On the other hands, soft tissue materials such as meatball will be much more distinct, however, other esophageal diseases such as esophageal neoplasia, esophageal abscess, paraesophageal hernia, or pulmonary and mediastinal mass must be differential diagnosis. Although distinctively detected, more radiopaque esophageal foreign bodies such as bones or metal, shape of foreign

body should be warranted. A large and irregular shape including sharp surface of foreign body may induce esophageal laceration. Therefore, for further examination in latter cases, proper contrast study should be carefully selected. In the cases of suspected esophageal laceration, non-ionic, iodinated contrast medium must be selected (Thrall, 2013).

### **Reference**

- Houlton JEF, Herttage ME, Taylor PM et al. 1985. Thoracic esophageal foreign bodies in the dogs: a review of ninety-cases. *J Small Anim Prac.* 26: 521 - 536.
- Thrall DE 2013. Principles of radiographic interpretation of the thorax. In: *Textbook of Veterinary Diagnostic Radiology.* 6<sup>th</sup> ed. DE Thrall (ed). Elsevier, Missouri. 474 - 488.