

What is Your Diagnosis?

Nan Choisunirachon

Signalment

A 10 year-old, castrated male, Pug.

History

The patient was presented to the Diagnostic Imaging Unit of the Small Animal Teaching Hospital, Chulalongkorn University for the request of the abdominal radiographic screening for hepatic volume due to the long-term treatment of steroid drug for skin diseases and increase of serum liver function test.

Clinical examination

On the physical examination, except for the skin lesions such as papule, erythema and

lichenification, the dog revealed almost normal as the following information; pink mucus membrane, normal heart and lung sound, mild degree of serous nasal discharge, slightly abdominal enlargement without cramping and body condition score of 4/5. The hematology and serum biochemistry showed mild degree of leukocytosis and slightly increase of serum alanine aminotransferase.

Radiographic examination

To observe in intra-abdominal abnormalities, especially the hepatic volume, two orthogonal radiographs, which were right lateral and ventrodorsal views of abdomen, were obtained.

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

Radiographic findings

On both radiographic views which were the right lateral and ventrodorsal abdominal radiographs showed that the gastric axis that was applied to determine the hepatic size on both views was parallel to the rib on lateral projection or perpendicular to the caudal thoracic spine on the ventrodorsal projection, respectively. Besides, the liver margin was sharp both at the cranioventral border on the lateral radiograph

and at the right and left latero-caudal on the ventrodorsal view. However, there was evidence of a round to oval shape, ring liked, fainted mineralization at the right cranioventral abdomen ($3.8 \times 3.8 \times 5.2$ cm, Fig. 1 and 2, arrowhead). Besides, there was evidence of a moderate amount of radiopaque sand calculi in the urinary bladder, of which the largest diameter was 5.8 mm (Fig. 1 and 2, arrow).



Figure 1 The right lateral abdominal radiograph showed that the gastric axis was parallel to the rib bone, the liver margin was sharp but the cranioventral abdomen which was beneath the gastric pylorus showed a ring shape, fainted mineralization (3.8×3.8 cm, arrow head). Besides, there was a moderate amount of radiopaque sand calculi in the bladder (the largest diameter was 4.8 mm; arrow).



Figure 2 The ventrodorsal abdominal view of the abdominal radiograph showed that the gastric axis was perpendicular to the spine at the 12nd thoracic vertebrae. The hepatic edges at the right and left latero-caudal showed the sharp margin. There was evidence of an oval-ring shape, faint mineralization (4.4 x 5.2 cm, arrow head). Moreover, at the mid-caudal abdomen revealed a moderate amount of radiopaque sand calculi in urinary bladder, which the largest diameter was 0.58 cm (arrow).

Radiographic diagnosis

Porcelain gallbladder.

Discussion

Mineralized gall bladder wall or porcelain gall bladder was defined as a transmural calcification that resulting in a bluish, fragile-brittle consistency gall bladder wall (Gomez-Lopez et al., 2014). The evidence of porcelain gallbladder in literature was rare in veterinary medicine, which the first report was publicized in the 1998 that the patient was affected with porcelain gallbladder associated with primary biliary adenocarcinoma (Bromel et al., 1998). In human medicine, porcelain gall bladder is common in the elder women than men that the chronic inflammation or end stage cholecystitis could be the risk factor (Gomez-Lopez et al., 2014, Geller and de Campos, 2015). Besides, the porcelain gallbladder could be associated to the separation of the opening of pancreatic duct that called pancreas divisum (Takeda et al., 2006). To differentiate the primary cause of the porcelain gallbladder, other imaging modalities such as ultrasonography or computed tomography must be additionally applied (Patel et al., 2016).

Reference

Bromel C, Smeak DD and Leveille R 1998. Porcelain gallbladder associated with pulmonary biliary

adenocarcinoma in a dog J Am Vet Med Assoc. 213: 1137 - 1139.

Geller SA and de Campos FPF 2015. Porcelain gallbladder. AutopsyCaseRep. 5: 5 - 7.

Gomez-Lopez J, Andres-Asenjo BD and Ortega-Loubon C 2014. A porcelain gall bladder and a rapid tumor dissemination. Ann Med Surg. 3: 119 - 122.

Patel NJ, Caserta MP and DiSantis DJ 2016. Porcelain gallbladder. Abdom Radiol. DOI: 10.1007/s00261-016-0844-2.

Takeda K, Sekido H, Sugita M, Tanaka K, Endo I, Togo S and Shimada H 2006. Porcelain gallbladder complicated with pancreas divisum. J Hepatobiliary Pancreat Surg. DOI: 10.1007/s00534-006-1116-2.