

Three-dimensional Computed Tomography Imaging of Extrahepatic Portosystemic Shunt in Dogs

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Purpose: To investigate the characteristics and usefulness of the three-dimensional computed tomography (CT) in evaluating dogs with suspected portosystemic shunt(PSS).

Materials and Methods: PSS suspected 6 dogs underwent CT for assessment of PSS at Seoul National University Hospital for Animals. Each patient underwent an unenhanced CT scan of the abdomen, followed by enhanced scan. And three-dimensional CT reconstruction was performed.

Results: All dogs were small breed and their mean age was about 10 months (range: 0.5 ~ 2.0 years). There were 4 females and 2 males. Clinical abnormalities in these dogs included stunted growth or low body weight, anorexia, neurologic signs, gastrointestinal sign and urologic sign. Laboratory findings in these dogs included anemia, microcytosis, high liver enzyme, low albumin and protein, low BUN, low glucose, high serum ammonia level and high serum bile acid concentration. Radiographic findings showed microhepatica, renal enlargement, renal calculi and cystic calculi. Results of abdominal ultrasonography were suggestive of the existence of extrahepatic PSS. The shunt vessel was identified in all dogs by unenhanced and enhanced CT imaging. Five dogs had portocaval shunt and one dog had portoazygos shunt. By three-dimensional CT reconstruction, the origin and termination of each shunt vessel was accurately identified. Furthermore, the diameters of portal vein and shunt vessels were measured. And three-dimensional CT imaging allowed excellent depiction of vascular morphology and topography.

Conclusions: CT is fast, noninvasive, and accurate method of evaluating dogs with suspected extrahepatic PSS. Three-dimensional CT imaging provides accurate shunt vessel anatomy, relationship of organs adjacent to shunt vessel, and the diameter of portal vein and shunt vessels. Conclusively, the three-dimensional CT imaging could provide useful information of the anatomy of extrahepatic PSS to surgeon.

Key words: three dimensional CT image, extrahepatic PSS, shunt vessel, dog

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