Ultrasonographic Features of Pyonephrosis in Dogs

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Purpose: Pyonephrosis is relatively rare urinary disease, but a reliable diagnostic criterion should be established because this is a life threatening disease. Ultrasonography has been used as a traditional diagnostic modality in human, but to our knowledge there were only 4 dogs reported in veterinary medicine. This study was performed to investigate the ultrasonographic features of pyonephrosis in dogs.

Materials and Methods: Ultrasonographic features of pyonephrosis confirmed with laparotomy or percutaneous aspiration of renal pelvis were categorized on the basis of echoes in renal collecting system in 18 dogs. Ten dogs with simple hydronephrosis were selected randomly and reviewed the ultrasonographic features to compare with pyonephrosis.

Results: In pyonephrosis, hyperechoic sediments filled the renal collecting system completely in 8 dogs and a fluid-debris level was observed in 8 dogs. Weak dispersed echoes were found in 2 dogs. Pyonephrosis showed perirenal lesions including mesenteric swelling and ascites which represented peritonitis. Simple hydronephrosis showed absence of echoes within the urine-filled collecting system and no inflammation of perirenal region. Clinical signs and percutaneous aspiration of renal pelvis under ultrasonography also provided essential information for diagnsosis of pyonephrosis.

Conclusion: Ultrasonography is quite valuable in detecting pyonephrosis because most kidneys with pyonephrosis are rarely opacified at excretory urography. We speculate that in dogs with clinical and laboratory evidence of renal inflammation, ultrasonography plays an important role in distinguishing pyonephrosis from simple hydnonephrosis on the basis of echoes in renal collecting system, peritonitis and ascites with a high degree of accuracy.

Key words: dog, fluid-debris level, hydronephrosis, pyonephrosis, ultrasonography.

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