

Computed tomographic features of Transcaval Ureter in one dog and three cats

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Introduction: Congenital malformation of the caudal vena cava (CVC) may have important implication and in-depth knowledge of the anatomy is important to prevent potential surgical complication. Transcaval ureter is a rarely reported human congenital malformation of the pre-renal segment of the inferior vena cava. The aim of this multicenter retrospective study was to describe the computed tomographic (CT) features of transcaval ureter in a case series of dog and cats.

Methods: Patients from multiple institutions were retrospectively included by searching the report database for the keywords 'atypical CVC malformation'. Multiple qualitative features were described for each CVC malformation detected.

Results: Two cats and one dog with transcaval ureter included. Two cats were referred for reasons unrelated to disorders of the urinary system. The canine patient was referred for further investigation due to recurrent vomiting. Contrast enhanced computed tomography showed in all cases a CVC malformation consisting in a pre-renal vascular ring encircling the right ureter at the level of L4-L5. In only one case the malformation was associated with hydroureter and mild pyelectasia.

Discussion: This is the first study describing the CT appearance of transcaval ureter in companion animals. In line with human literature, transcaval ureter was in all cases unilateral and appeared as a vascular ring of the CVC through which the right ureter extends. Computed tomography was a suitable method for the diagnosis of this novel CVC congenital malformation. The clinical relevance of this congenital vascular malformation needs to be further investigated.

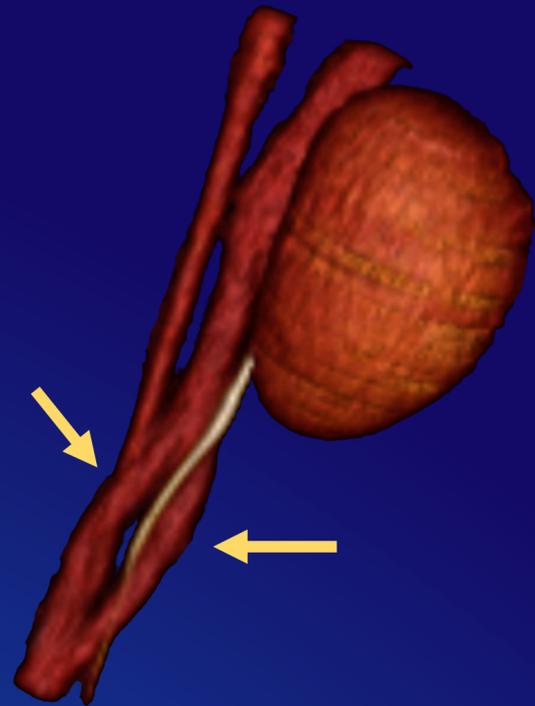


Fig. 1: Volume rendering post-contrast CT reconstruction in right dorsal view showing the CVC venous ring (yellow arrow) with the right ureter passing through it

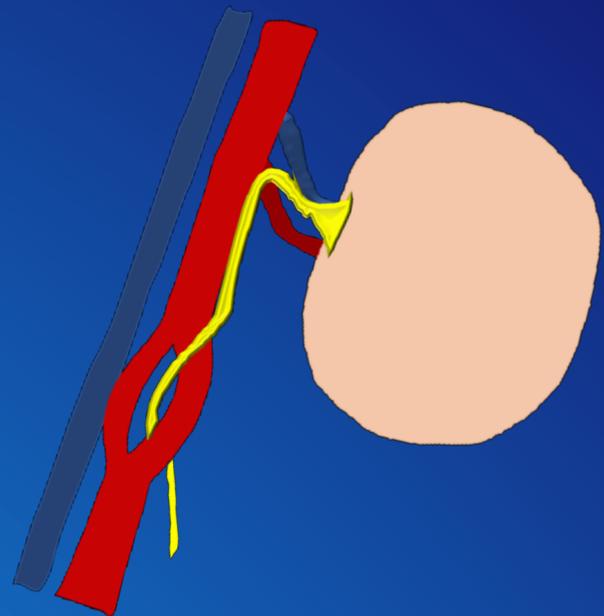


Fig. 2: Schematic representation of the transcaval ureter in right dorsal view showing the CVC venous ring (red) with the right ureter passing through it (yellow)

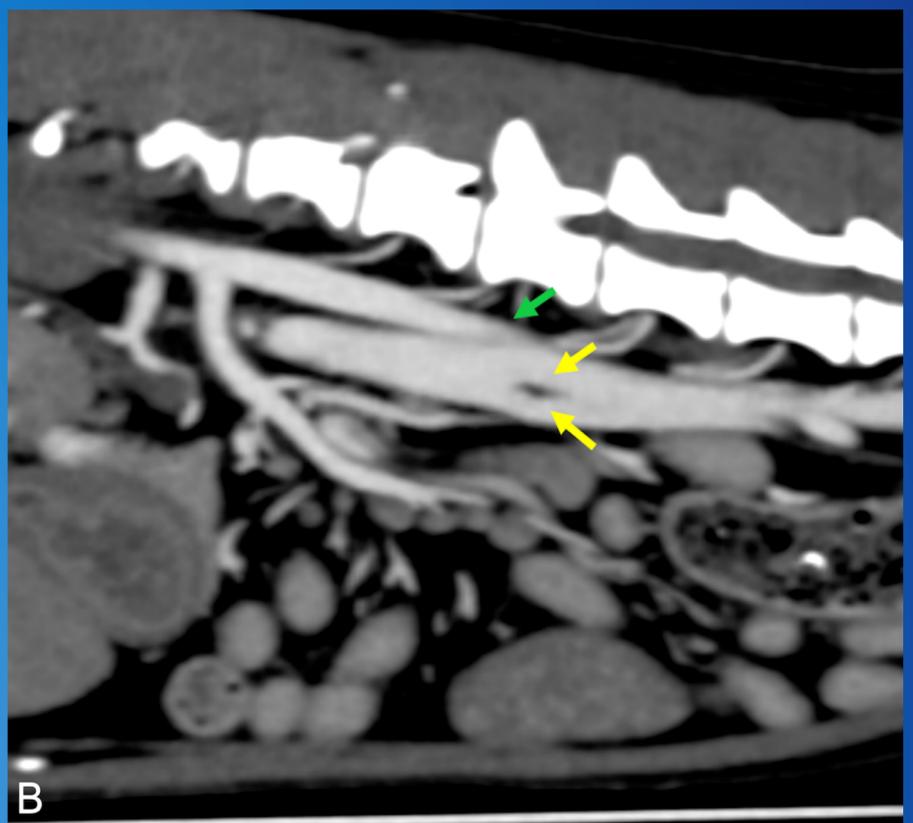
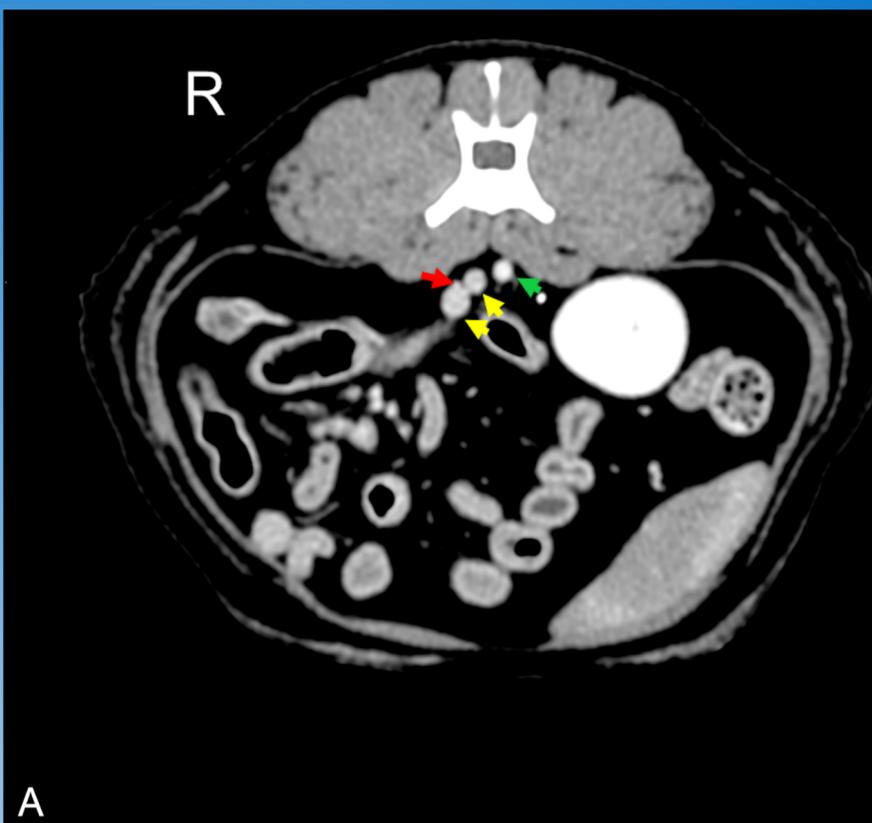


Fig. 3: Post-contrast CT of mid abdomen in transverse (A) and sagittal (B) view showing the CVC venous ring (yellow arrows) described as double barrel gun sign with the right ureter (red arrow) passing through it.