

MEDICAL IMAGE

Duplication of inferior vena cava: a rare but clinically significant anatomical variation

Abdel Rahman Lataifeh, Paula Anderson

Clinical—A 64-year-old Caucasian male was admitted with 2 days history of abdominal pain. An abdominal CT scan showed acute pancreatitis and an incidental finding of double inferior vena cava (IVC), with left-sided IVC draining to the left renal vein. See Figures 1 and 2.

Figure 1. Coronal section of abdominal CT showing normal right-sided IVC (blue arrow), abdominal aorta (red arrow), and left-sided IVC (yellow arrow)

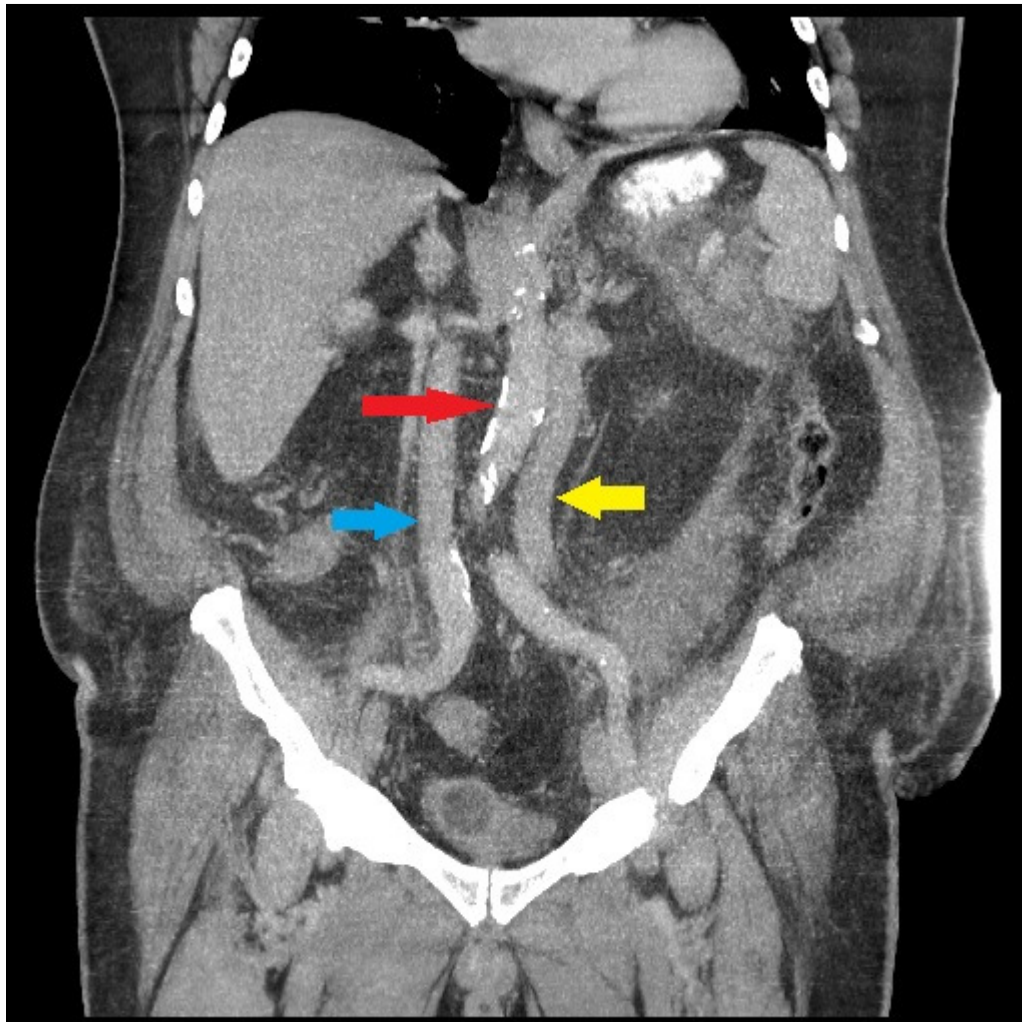
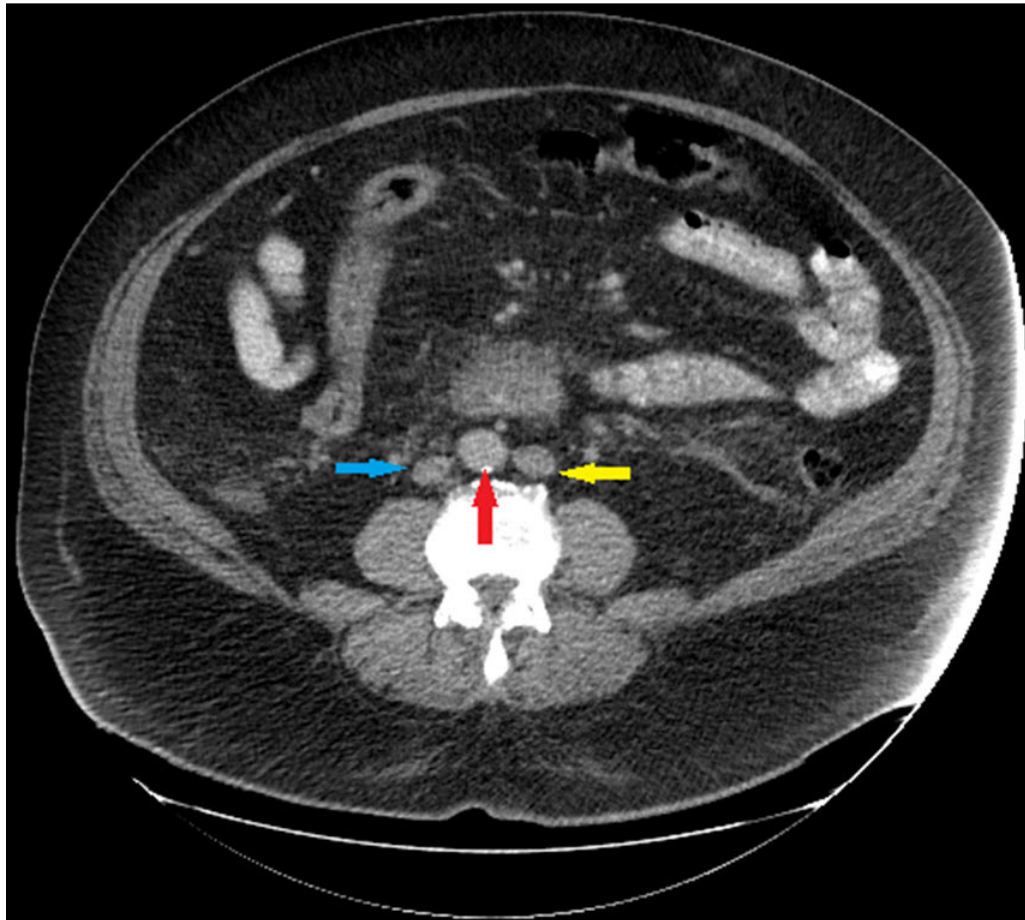


Figure 2. Transverse abdominal CT showing normal right-sided IVC (blue arrow), abdominal aorta (red arrow), and left-sided IVC (yellow arrow)



Discussion—Duplication of the IVC is estimated to affect 0.2 to 3% of the population. The embryogenesis of the IVC is complex and is usually complete by the 10th week of gestation. Duplication of the infra-renal portion of the IVC occurs when the left supracardinal vein fails to regress. This asymptomatic congenital variation is usually diagnosed incidentally on abdominal imaging performed for another reason.¹⁻⁵

It is important to recognise this rare entity because it:

- Can be associated with other renal anomalies like horseshoe kidney;
- Can be confused with abdominal aortic aneurysm or lymph node enlargement;
- Can impose a significant operative challenge to the surgeon during multi-visceral recovery operation on a deceased organ donor; and
- Can be a concealed source of recurrent pulmonary thromboembolism in patients with lower extremity deep venous thrombosis who already have had IVC filters in their right sided IVC. (Some authors believe that IVC duplication itself is a risk factor for venous thromboembolism.)

Author information: Abdel Rahman Lataifeh, MD; Paula Anderson, MD. Division of Pulmonary and Critical Care Medicine, University of Arkansas for Medical Sciences, Little Rock, Arkansas, USA

Correspondence: Abdel Rahman Lataifeh MD, Division of Pulmonary and Critical Care Medicine, University of Arkansas for Medical Sciences, 4301 W. Markham St, Slot 555, Little Rock, AR 72205, USA.

arlataifeh@uams.edu

References:

1. Tamizifar B, Seilani P, Zadeh MR. Duplication of the inferior vena cava and thrombosis: a rare case. *J Res Med Sci*. 2013 Oct;18(10):911-3.
2. Raza SS, Farid S, Reddy MS, Ahmad N. Duplication of the inferior vena cava. *J Surg Case Rep*. 2011(9):10. doi:10.1093/jscr/2011.9.10. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3649301/>
3. Masood J, Barua JM. Images in clinical medicine. Duplication of the inferior vena cava, *N Eng J Med*. 2007 May 3;356(18):e17.
4. Kennealey PT, Saidi RF, Markmann JF, et al. Duplicated inferior vena cava—something to consider in the evaluation of a living-donor renal transplant. *Dialysis & Transplantation* 2009 October;38(10):420-422. <http://onlinelibrary.wiley.com/doi/10.1002/dat.20363/pdf>
5. Siddiqui RA, Hans S. Double inferior vena cava filter implantation in a patient with a duplicate inferior vena cava. *J Invasive Cardiol*. 2008 Feb;20(2):91-2.