

LETTER TO
THE EDITOR
EDİTÖRE
MEKTUP

A Rare Congenital Vascular Anomaly: A Case of Left-sided Inferior Vena Cava - Computed Tomography Findings

Nadir Bir Konjenital Vasküler Anomali: Solda Yerleşimli Vena Cava Inferior-Bilgisayarlı Tomografi Bulguları

Mustafa Koç¹, Evren Köse², Mustafa Sarsılmaz³

Dear Editor,

The inferior vena cava (IVC) conveys blood to the right atrium from all structures below the diaphragm. The majority of its course is within the abdomen, but a small section lies within the fibrous pericardium in the thorax. It is formed by the junction of the common iliac veins anterior to the fifth lumbar vertebral body, a little to its right. It ascends anterior to the vertebral column, to the right of the aorta. It opens into the inferior-posterior part of the right atrium (1, 2).

The normal IVC is composed of four segments: hepatic, suprarenal, renal, and infrarenal segments (3, 4). The hepatic segment is derived from the vitelline vein. The right subcardinal vein develops into the suprarenal segment by the formation of the subcardinal-hepatic anastomosis. The renal segment develops from the right supracardinal and postsubcardinal anastomosis. It is generally accepted that the infrarenal segment derives from the right supracardinal vein, although this view is somewhat controversial. In the thoracic region, the supracardinal veins give rise to the azygos and hemiazygos veins. In the abdomen, the postcardinal veins are progressively replaced by the subcardinal and supracardinal veins but persist in the pelvis as the common iliac veins. The infrahepatic IVC develops between the 6th and 8th weeks of embryonic life as a composite structure formed from the continuous appearance and regression of three paired embryonic veins. In order of appearance, they are the posterior cardinal, the subcardinal, and the supracardinal veins (4).

The anomalies of the IVC are related to its complex formation. Left-sided IVC, double IVC, azygos continuation of the IVC, circumaortic left renal vein, retroaortic left renal vein are some anomalies of the IVC. The prevalence of left sided IVC is 0.2%-0.5% (1, 5, 6). In most cases the left inferior vena cava crosses over to the right via the left renal vein or more inferiorly and the cross over is usually anterior, but rarely is posterior to the aorta. Entire transposition of the inferior vena cava to the left with hemiazygos continuation is extremely rare although it has been previously described (7, 8).

We encountered left-sided IVC in the contrast enhanced abdominal computed tomography (CT) when the etiology of abdominal pain was investigated in a male patient aged 68 years (Figure 1). Physical examination revealed no abnormality. A routine laboratory test was within normal limits. Awareness of the presence of these anomalies is important. They should be differentiated from adenopathy, tumours and dilated gonadal veins.

The left-sided IVC joins the left renal vein which crosses anterior to the aorta in the normal fashion, uniting with the right renal vein to form a normal right-sided pre renal IVC. There was no other vascular abnormality. The patient was asymptomatic for this variation as with previously reported cases (9).

In vascular imaging, computed tomography angiography (CTA) and magnetic resonance angiography have been widely used. Conventional angiography is the gold standard in vascular imaging, Multi-detector CTA is a relatively new method and is very useful in the diagnosis and management of congenital anomalies (5, 6).

Conventional angiography, the gold standard in vascular imaging, is an invasive and expensive method. In addition, less invasive techniques such as computed tomography angiography (CTA) and magnetic resonance angiography (MRA) have become more widely used. Because of the recent advances in CT technology, multi-detector CTA has replaced conventional angiography in most clinical applications. Multi-detector CTA is a relatively new method and is very useful in the diagnosis and management of congenital vena cava anomalies (5, 6). The awareness of the presence of these anomalies is important. They should be differentiated from adenopathy, tumours and dilated

¹Department of Radiology, State Hospital, Bingöl, Turkey

²Department of Anatomy, Faculty of Medicine, İnönü University, Malatya, Turkey

³Department of Anatomy, Faculty of Medicine, Fırat University, Elazığ, Turkey

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Correspondance/Yazışma
Dr. Mustafa Koç
Department of Radiology,
State Hospital, 12000
Bingöl, Turkey
Phone: +90 424 233 35 55
e.mail: mkoc@firat.edu.tr



Figure 1. Contrast enhanced axial abdomen CT showed left-sided IVC (arrow)

gonadal veins. The major clinical significance of this anomaly is the potential for misdiagnosis as left-sided paraaortic adenopathy. In addition, spontaneous rupture of an abdominal aortic aneurysm into a left IVC has been reported (10).

In this report, we presented computed tomography (CT) findings of left sided IVC as a rare congenital vascular anomaly.

Authors' contributions

Conceived and designed the study: MK. Examination and follow-up of the patient: MK, EK. Analyzed the data: MK. Wrote the paper: MK.

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