# Double Inferior Vena Cava With Numerous Venous Anomalies - A Case Report

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Supplemental Video

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INTRODUCTION: Routine laboratory dissection revealed a double inferior vena cava (IVC) and numerous other venous anomalies. RESOURCES: A 76-year-old European-descended female whose cause of death was hemorrhagic infarction of the brain. BACKGROUND: Double IVCs occur in 0.2-0.3% of the population.1 They are congenital in nature, manifesting between the 7th and 10th weeks of development, due to failure of the left supracardinal vein to regress.3 Various types of double IVC have been described, each type differing from another based on the presence, location, and morphology of a communicating bridge at the base of the sacrum; however, there is yet to exist a description of the anatomic variation characterized herein. DESCRIPTION: The IVC bifurcates equally at the renal veins. The left and right renal veins join the left and right IVCs, respectively. The left gonadal vein joins the left IVC, whereas the doubled right gonadal veins join the right renal vein. At S1, an oblique communicating vessel conjoins the left and right IVCs. On the right, the communicating bridge gives rise to the right internal iliac vein (IIV) and a communicating branch between the right external iliac vein (EIV) and right IIV. On the left, the communicating bridge yields the left proper IIV. The left IVC gives rise to the left EIV, which produces an accessory left IIV. Initially, the left EIV drains the internal pelvic bowl. Here, there is a superior communicating branch connecting the left accessory and proper IIVs. Distally, the accessory IIV produces the superior gluteal vein. Level with the left superior gluteal vein, there is an inferior communicating branch between the accessory and proper IIVs. Beyond this branch, the left EIV proceeds typically. The left proper IIV drains the middle rectal and inferior gluteal veins. SIGNIFICANCE: Embryologically, this case presents vascular malformations spanning across both the abdominal IVC and the pelvic iliac veins. Such continuity is rarely reported in cases of double IVCs. Surgically, there are many implications, as this anatomic variation could complicate thromboembolism filter placement,5 ovarian vein embolization,4 labial varices pathogenesis,2 and trauma.

Learning Objectives
1. Discuss the embryogenesis of the abdominal IVC.
2. Contrast the typical structure of the abdominal IVC and common iliac veins to the structure of the case presented.
3. Propose ways that this anomaly could complicate common pathologies and procedures.