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Discovery of a duplicated inferior vena cava during surgical resection for retroperitoneal sarcoma

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We report the case of a 58-year old woman who underwent an extended compartmental surgery for a voluminous retroperitoneal liposarcoma. We peri-operatively discovered an unusual important caliber vein at the left side of the aorta which was thought to be a draining vein of the tumor and about to be ligated. After liberating the mass from the vein, we realized that it was a left sided inferior vena cava (IVC) which was reached by the left renal vein before joining the right sided IVC above the emergence of the renal arteries (Fig. 1). This anatomical variant was consistent with a duplicated IVC. The duplicated IVC is a variation with prevalence ranging between 0,2 and 3%. Most of the observed anatomical variants of the IVC are congenital and related to alterations in the developing process of the IVC system. [1]

In most cases, the left sided IVC joins with the left renal vein which in turn joins with the right sided IVC before the hepatic segment. A communication between the bilateral common iliac veins may or may not be present (Fig. 2). Extended compartmental resection for giant retroperitoneal liposarcomas close to central vessels implies a meticulous vascular approach and a good knowledge of vascular anatomical variants. 3D vascular reconstructions performed preoperatively could avoid peri-operative difficulties.

Reference

1. Shin DS, Sandstrom CK, Ingraham CR, et al. The inferior vena cava: a pictorial review of embryology, anatomy, pathology, and interventions. *Abdominal Radiology (New York)* 2019;44(7):2511–27.

Figures legends

Figure 1: Peri-operative view of the tumor after abdominal wall opening (left). Peri-operative view after compartmental resection (right); A: Abdominal Aorta; LIVC: Left Inferior Vena Cava; RIVC: Right Inferior Vena Cava; ●: left renal vein stump; ✱ : left renal artery stump.

Figure 2: Postoperative reexamination of preoperative CT-scan (left) and 3D reconstruction (right) showing the voluminous tumor and the duplicated inferior vena cava.

A: Abdominal Aorta; LRV: Left Renal Vein; LIVC: Left Inferior Vena Cava; RIVC: Right Inferior Vena Cava; ✱: Anastomosis between right and left common iliac veins.



