Double inferior vena cava in gynaecological oncology surgery

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DESCRIPTION

A 45-year-old premenopausal woman, nuligest, with no relevant medical history, was admitted to umbilical hernia repair surgery. During the procedure, a suspicious nodule in the peritoneum sac was found to bulge outwards the hernia hole and was removed, and a diagnostic laparoscopy was performed confirming peritoneal carcinomatosis. The anatomopathological examination demonstrated high-grade serous carcinoma, probably from ovarian/tubal origin. CT imaging revealed ascites, a mass with 8 cm in diameter in the left adnexal region and a mass with 4 cm in the right adnexal region. The serum CA-125 levels were 454 ng/mL (normal, <35 U/mL). The multidisciplinary team decided on neoadjuvant chemotherapy with paclitaxel and carboplatin. After four cycles, an interval debulking surgery was performed, including total hysterectomy, bilateral oophorectomy, omentectomy and retroperitoneal lymphadenectomy (pelvic and lombo-aortic). During the surgery, an unreported double inferior vena cava (IVC) with interiliac communication (IiC) from the left to the right common iliac vein was diagnosed (figure 1). Preoperative CT failed to diagnose this anomaly. The right common iliac vein and an IiC joined to form the right IVC. The right IVC ascended along the right side of the abdominal aorta. The left IVC arose by the union of the left common iliac vein and IiC. The IiC between the duplicated IVC ran obliquely upwards from left to right. The left IVC coursed cranially along the left side of the abdominal aorta and terminated on the left renal vein. The left ovary vein drained into the left renal vein after the union with left IVC. The origin, the course and the territories of the other vessels appeared normal. The kidneys and the ureters were also normal. Lymphadenectomy was performed without any complications.

Findings from the pathological evaluation indicated that the tumour was limited to the ovaries, with 46 negative nodes. As adjuvant therapy, the patient received paclitaxel and carboplatin. Olaparib as maintenance therapy was proposed because of somatic BRCA mutation positive status. At a follow-up of 8 months, the patient remains disease free.

Retroperitoneal lymph node dissection remains an integral part of the treatment of patients with gynaecological carcinomas, for staging early ovarian cancer patients, for primary surgical cytoreduction in advanced-stage disease and for secondary surgical cytoreduction.^{1,2} This procedure is associated with higher complication rates. Awareness of anatomic

Figure 1 Photographs showing duplicated inferior vena cava (IVC). (A) On both sides of the abdominal aorta a venous vessel, double IVC, is identified. (B) The interiliac communication between the duplicated IVC ran obliquely upwards from left to right. AO, abdominal aorta; IiC, interiliac communication; LRV, left renal vein; RIVC, right inferior vena cava; LOV, left ovary vein.

Learning points

- Pelvic surgeons need to have detailed knowledge about the retroperitoneal vascular anatomy.
- Double inferior vena cava is present in 1%–3% of the general population. When this anomaly had not been identified, fatal and uncontrollable bleeding can occur.
- Previous recognition of anatomic variations provides better surgical planning.

variations is crucial to reduce surgical risk. Laparotomy or minimally invasive approach (laparoscopic or robotic) are secure options depending on surgeon expertise.^{1,3}

Double IVC is present in 1%–3% of the general population and arises from the persistence of both supracardinal veins in the subrenal tract.^{4,5} According to Morita *et al*, these anomalies are classified according to the pattern of IiC, with the present clinical case representing a type 2b (double IVC with IiC from the left common iliac vein), which occurs in approximately 40% of cases.^{6,7} This anomaly can create clinical problems in gynaecological oncology surgery and serious haemorrhage, mainly from IiC. When IVC anomalies had not been identified preoperatively, fatal and uncontrollable bleeding has been reported in 10% of patients.⁸

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