

Accessory polar renal artery not pre-operatively visualized at extra-peritoneal para-aortic lymphadenectomy

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SUMMARY

The objective of this video is to describe the technique of extra-peritoneal para-aortic laparoscopic lymphadenectomy and emphasize potential vascular risks that should be taken into account during the procedure.

The procedure was performed at Donostia University Hospital, a tertiary referral and educational center in San Sebastián, Spain.

A 58-year-old woman, body mass index 25.4 kg/m², G2P2, with a diagnosis of intermediate-risk endometrial adenocarcinoma, International Federation of Gynecology and Obstetrics (FIGO) IBG2 based on pre-operative endometrial histology and pre-operative magnetic resonance imaging (MRI), but upstaged to high-risk endometrial adenocarcinoma on final report (IBG3). In our hospital, risk stratification is based on pelvic MRI (myometrial invasion, cervical invasion) and biopsy (histology and grade) to tailor surgery. Computed tomography (CT) scan pre-operatively is only performed for type 2 endometrial carcinoma and grade 3 histologies.

The local institutional review board was consulted, which confirmed that the study was exempt from requiring approval.

The patient underwent an extra-peritoneal para-aortic laparoscopic lymphadenectomy, trans-peritoneal bilateral pelvic lymphadenectomy, and a total hysterectomy and bilateral salpingo-oophorectomy.

It is mandatory to check pre-operative imaging studies in order to identify vascular anomalies that are not

uncommon and may increase the risk of vascular complications.¹ Frequently these vascular anomalies, such as a retro-aortic left renal vein, or a double vena cava or left vena cava, may be a casual finding in the pre-operative study, and often such findings are not reported by the radiologist. It is vitally important that the surgeon checks for and identifies any such anomalies, as the risk of complications may be decreased if anomalies of this type are detected pre-operatively. In addition, in the case of existing polar renal arteries, these are frequently not identified in the pre-operative study,² leading to a risk of injury and partial renal necrosis. There are several anatomical variations of the renal arteries, with an aortic lower polar artery found in 3% of cadavers and 1% of patients on CT, more frequently on the right side.³ Renovascular hypertension⁴ secondary to an injury of an accessory polar renal artery (APRA) has also been described.

Although vascular anomalies, especially venous ones, are more frequently found at the infra-renal left level, in this video we show access to the right side of the dissection and the care that needs to be taken in order not to damage a vascular structure at this level. Special caution is required with the right side of the dissection so as not to injure any perforating veins, including Fellow's vein, when pushing all the nodes to the roof of the dissection.

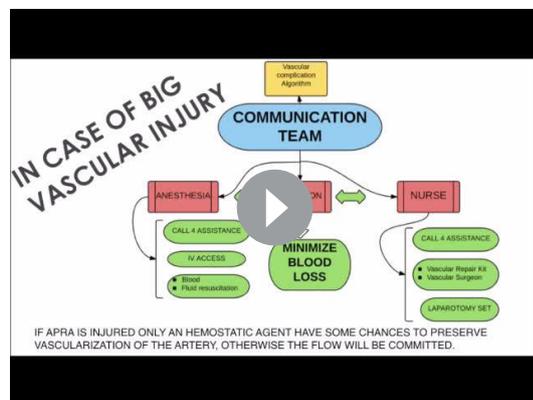
The dissection maneuvers are fine and blunt, establishing bridges of tissue to be sectioned, and thus identifying vascular structures, such as a right APRA that is to be identified and preserved.

The surgeon must have a good knowledge of retro-peritoneal vascular anatomy, they should examine pre-operative imaging studies to check for vascular anomalies, and they need to possess an accurate surgical technique to avoid potential vascular injury during laparoscopic para-aortic lymphadenectomy.

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Video 1 Accessory polar renal artery (APRA), inferior mesenteric artery (IMA) and aorta



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