

Unicentric Castleman disease; the laparoscopic en bloc resection of a hypervascular giant lymph node in the aortacaval zone

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Abstract

Unicentric Castleman disease (UCD) is a rare disease of the lymph nodes with unknown etiology, most commonly presenting as localized asymptomatic adenopathy incidentally discovered on radiographic imaging. The retroperitoneum is a rare site for UCD, where it can mimic malignant tumors. Complete surgical resection with disease-free margins is considered both diagnostic and curative. However, this may be challenging due to the high vascularity and close proximity of UCD to major vessels. A 42-year-old patient with a 46x44x26 mm mass in the aortocaval area at the level of the renal pelvis underwent surgery with the suspicion of metastatic lymphadenopathy. Laparoscopic excision of the mass was carried out and the histopathological examination revealed the presence of UCD. This video article aimed to demonstrate the surgical steps and techniques used to minimize hemorrhage during dissection of UCD. Laparoscopy is safe and effective in the diagnosis and treatment of UCD, provided the operating surgeons have a thorough knowledge of abdominal anatomy and are aware of the functions and limitations of surgical devices used during laparoscopy.

Keywords: Aortacaval zone, giant lymph node, laparoscopy, unicentric castleman disease

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Introduction

This video article aimed to demonstrate the laparoscopic complete resection of a giant lymph node located in the aortocaval region, postoperatively diagnosed as Unicentric Castleman disease (UCD). We describe the surgical technique used to minimize blood loss and collateral tissue damage during resection of this rarely encountered and highly vascular mass.

Case Report

A 42-year-old G3P3 patient was admitted to the hospital with postprandial abdominal discomfort and bloating. Abdominal ultrasonography, magnetic resonance imaging, positron emission tomography scan and computed tomography imaging revealed a 50x40 mm mass in the aortocaval area resembling a pathologic lymph node (Figure 1). No other foci of malignancy were detected in other organ systems. Excisional biopsy was



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recommended for diagnosis by the interventional radiologist, due to risk of severe hemorrhage, tumor spread, and loss of cell architecture with fine needle aspiration.

Surgical method

Following exposure of the aortacaval area, the overlying peritoneum was dissected starting from the bifurcation point of the aorta until the level of the renal vessels. Dissection continued until the lateral border of the inferior vena cava (IVC) on the right, and the lateral border of the aorta on the left.

An ultrasonic scalpel was used to dissect the caudal end of the mass. As the vascularity of the mass increased, a Maryland jaw vessel sealer and bipolar forceps were used interchangeably for better hemostasis. The mass was found to be situated between the IVC on the right, aorta on the left, and the lumbar vein at the caudal end. Cranially, it was bordered by the right renal artery on the posterior, and the left renal vein on the anterior aspect. Care was taken to avoid injury to the left renal vein. Since veins lack pulsatility and have thinner

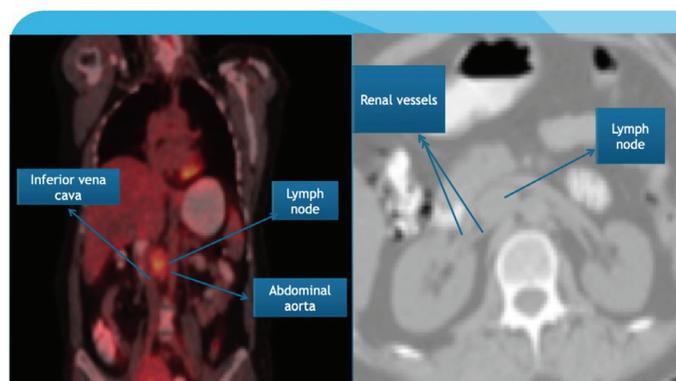


Figure 1. PET-CT images of the giant lymph node
PET: Positron emission tomography, CT: Computed tomography

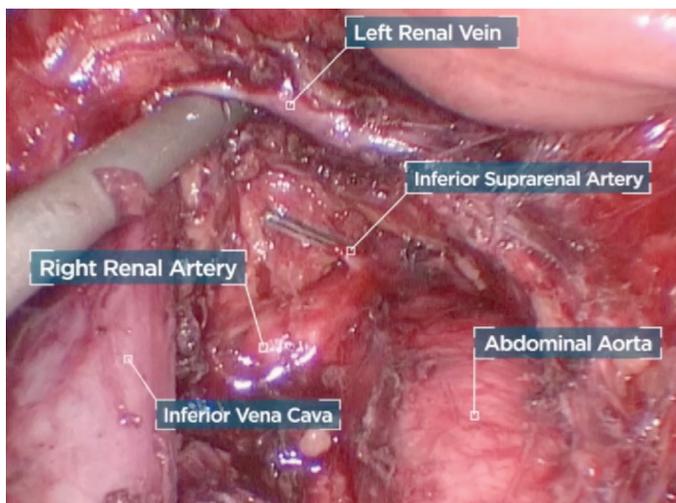


Figure 2. Ligation of the inferior suprarenal artery

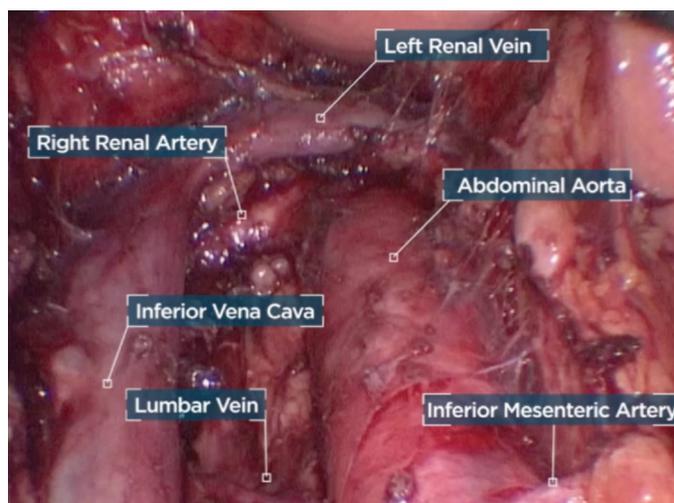


Figure 3. Vascular borders of the resected giant lymph node

vessel walls than arteries, it is harder to obtain a tactile sense of them with laparoscopic devices, making them more prone to injury than arteries. Hence, the accidental incorporation of an artery into the blades of a vessel sealer is more likely to be noticed by the surgeon than the incorporation of a vein. The feeding artery originating directly from the aorta was cut after the placement of hemostatic clips. Another hemostatic clip was placed over the inferior suprarenal artery (Figure 2, 3). The mass was excised completely and externalized using an endobag.

The patient was discharged 48 hours postoperatively without complications. Histopathological examination revealed the diagnosis of Unicentric Castleman disease.

Discussion

UCD is an atypical disease of the lymph nodes with unknown etiology (1,2). Although rare, it should be considered in the differential diagnosis of an incidentally detected, solid, intra-abdominal mass resembling an enlarged lymph node with prominent blood flow on Doppler ultrasonography (3). Total resection is curative but challenging due to the high vascularity and tendency of UCD to be located in close proximity to major vessels (4). Although preoperative diagnosis is not possible, having a high index of suspicion will prompt surgeons into taking meticulous care during surgery and help prevent unnecessary hemorrhage. Laparoscopy is safe and effective in the diagnosis and treatment of UCD, provided the operating surgeons have a thorough knowledge of abdominal anatomy and the functions and limitations of laparoscopic devices.

Video 1. Laparoscopic en bloc resection of a hypervascular giant lymph node



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