Transdiaphragmatic and transxiphoid cardiophrenic lymph node resection step-by-step in advanced ovarian cancer

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ABSTRACT

Upper abdominal disease is present in the majority of patients with advanced-stage epithelial ovarian, fallopian tube, and primary peritoneal cancer. Extensive upper abdominal procedures have been associated with higher rates of complete cytoreduction and improved survival.¹ Cardiophrenic lymph nodes (CPLNs) can be involved in patients with extensive upper abdominal tumor burden, as they receive the lymphatic drainage from the diaphragm and the abdominal cavity.² Surgical removal of enlarged CPLNs helps to identify stage IV disease and to decrease the rate of residual disease. CPLN involvement should not preclude primary cytoreductive surgery when complete abdominal cytoreduction can be achieved.³ CPLN resection is associated with low complication rates, including pleural effusion, pneumothorax, and pneumonia. Videoassisted thoracic

surgery and transdiaphragmatic approach represent two alternative approaches for their resection.⁴

Video 1 shows step-by-step the surgical technique for removing enlarged lymph nodes located in the lowest part of the anterior, medium, and posterior mediastinum by a laparotomic approach in three patients who underwent a primary cytoreductive surgery for high-grade serous ovarian cancer. Transxiphoid approach is employed to remove retroxiphoid lymph nodes, which are found in the anterior mediastinum. The xiphoid process can optionally be resected and the ventral diaphragmatic fibers incised to give access to the anterior mediastinum. This virtual space is developed, and enlarged nodes are identified and removed without pleural opening. The tendinous diaphragmatic opening can be closed with interrupted stitches.

Still figure. Schematic picture with the two different approaches for mediastinal lymph node resection (abdominal view). (Abbreviations: LN, lymph node)

Video 1. Transdiaphragmatic and transxiphoid cardiophrenic lymph node resection.

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Right transdiaphragmatic approach is useful for removing enlarged right costophrenic and paracaval lymph nodes, situated in the medium and posterior mediastinum, respectively. This technique requires a previous hepatic mobilization before the opening of the right diaphragm and the parietal pleura. The fat pads of the medium and posterior mediastinum are examined to remove enlarged lymph nodes. The diaphragm is closed with a running suture and the pneumothorax can be evacuated employing a chest tube. It is possible to perform an air leak test to verify diaphragmatic tightness.

In conclusion, transxiphoid approach is useful for resecting retroxiphoid lymph nodes while transdiaphragmatic approach can be used for costophrenic and paracaval lymph node resection.

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