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Robot-assisted Laparoscopic Retroperitoneal Lymph Node Dissection for Testicular Cancer: Evolution of the Technique.

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Abstract

BACKGROUND: Retroperitoneal lymph node dissection (RPLND) is an accepted staging and treatment option for nonseminomatous germ cell tumor. Robotic surgery offers technical advantages and is being increasingly used in urologic procedures.

OBJECTIVE: To determine the feasibility and safety of robotic surgery for RPLND.

DESIGN, SETTING, AND PARTICIPANTS: A retrospective review of robotic (R)-RPLND performed by a single surgeon from April 2008 to October 2014 using two approaches was performed. In total, 20 procedures in 19 patients were evaluated. Eleven men had clinical stage (CS) I disease, six had CS II, one of whom had prior chemotherapy, and two had CS III disease and had also undergone previous chemotherapy.

SURGICAL PROCEDURE: A lateral robotic approach was initially used; however, a supine robotic approach was developed to allow for bilateral dissection in one setting without repositioning. Template dissection with nerve sparing was performed for CS I patients and full bilateral dissection for patients with CS II or higher disease and for those who had active disease according to intraoperative frozen section results.

OUTCOME MEASUREMENTS: Mean operative time, estimated blood loss, hospital stay, and lymph node count were retrospectively reviewed, as was the presence of recurrence or the need for adjuvant therapy over median follow-up of 49 mo (interquartile range [IQR] 37.4-70.5). Intraoperative and postoperative complications were also reviewed.

RESULTS AND LIMITATIONS: R-RPLND was performed successfully in 20 procedures in 19 patients; 11 were performed from a lateral approach and nine from a supine approach. The median operating time (available for 19 of 20 cases) was 293min (IQR 257.5-317). Median estimated blood loss and length of stay were 50ml (IQR 50-100) and 1 d (IQR 1-2), respectively. Some 70% (14/20) of patients were discharged after one night. The median lymph

node yield was 19.5 (IQR 13.8-27.3). Eleven patients had pathologic stage I disease, and eight had residual disease on pathology. There was one ureteral transection that was repaired robotically at the time of surgery with no long-term sequelae. There were no open conversions or transfusions. Two patients had ejaculatory dysfunction following bilateral RPLND. There has been no evidence of retroperitoneal disease recurrence during the follow-up period. Limitations include the retrospective nature of the study and the single surgeon experience.

CONCLUSIONS: R-RPLND can be successfully performed and provides improved visualization and dexterity over conventional laparoscopy. Patients experience significantly reduced morbidity and the nodal yield is comparable to open surgical techniques.

PATIENT SUMMARY: We studied our experience with robot-assisted removal of lymph nodes from the abdomen among men with testicular cancer. This method was found to be safe and effective with a very short hospital stay.

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KEYWORDS: Retroperitoneal lymph node dissection; Robotic surgery; Testicular cancer

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