

Robot-assisted thoracolaparoscopic esophagolymphadenectomy for esophageal cancer

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With interest we read the article by Kernstine and colleagues, describing their initial experience with totally robot-assisted thoracolaparoscopic esophagolymphadenectomy [1]. Their series consisted of three consecutive groups, each combining the robot-assisted thoracoscopic procedure with either open abdominal surgery, laparoscopy, or robot-assisted laparoscopy. These groups represent the learning curve followed by the authors.

Indeed, we followed a similar strategy with our first 21 cases of robot-assisted thoracolaparoscopic esophagolymphadenectomy, published in this journal in 2006 [2]. We experienced a steep learning curve and found a reduction of the pulmonary complication rate only after we had introduced the laparoscopic abdominal phase. This is consistent with previous reports of conventional thoracolaparoscopic esophagectomy [3].

Before introducing the procedure in our clinic, we tested the port position and the position of the robotic system extensively in a cadaveric study and came to a thoracic position similar to that presented by Kernstine et al. [1]. The position of the robotic system in our setup, however, is more dorsocranial [2, 4].

In our experience, the Da Vinci robotic system (Intuitive Surgical, Inc, Sunnyvale, CA, USA) has been very beneficial during the thoracoscopic phase of esophageal resection and lymph node dissection, allowing for a very precise dissection along the vital mediastinal structures. Yet, we have found the robotic system less suitable for the abdominal phase, requiring maneuvers with large amplitude leading to collisions of the robotic arms. Especially

during the dissection along the greater curvature of the stomach, a large area of various positions must be covered. We therefore perform the abdominal phase by conventional laparoscopy using an ultrasonic dissector device. Selective use of the robot can save operating time. The median operating time for robot-assisted thoracoscopy with conventional laparoscopy is 7.5 h [2], compared with 11.2 h in case of the totally robotic procedure [1].

The authors do not describe any benefit from use of the robotic system during the abdominal phase. The median number of lymph nodes dissected in the current series was less than in our series (18 [1] vs 20 [2]), even though the authors denominate their procedure a three-field lymph node dissection. A formal cervical lymph node dissection was not performed in this series, so actually a two-field lymphadenectomy was performed [5].

With regard to the azygos vein, we agree with the authors that the trunk of this vein can be preserved during robot-assisted thoracoscopic esophagolymphadenectomy. We have recently shown in a cadaveric study that preservation of the azygos vein during thoracic esophagolymphadenectomy did not substantially affect the extent of mediastinal lymph node harvesting [6].

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