

Robotic thoracic surgery of the posterior superior mediastinal mass

Shiguang Xu, Bo Liu, Xilong Wang, Hao Meng, Tong Wang, Wei Xu, Shumin Wang

Department of Thoracic Surgery, Northern Hospital, Shenyang 110015, China

Correspondence to: Shumin Wang, MD, PhD. Department of Thoracic Surgery, Northern Hospital, No. 83, Wenhua Road, Shenhe District, Shenyang 110015, China. Email: sureman2003congo@163.com.

Submitted Jan 15, 2015. Accepted for publication Mar 01, 2015.

doi: 10.3978/j.issn.2305-5839.2015.03.07

View this article at: <http://dx.doi.org/10.3978/j.issn.2305-5839.2015.03.07>

Clinical data

Medical history

The patient, a 34-year-old woman, was admitted due to “a mediastinal mass found during health check-up 3 months ago”. She underwent health check-up in a local hospital 3 months ago, during which CT displayed a mediastinal mass. No specific treatment was provided. One week ago, she received a second CT, which showed that the mediastinal mass did not change obviously. She then visited our hospital for surgical treatment. She had no previous history of relevant conditions.

Physical examination

No positive sign was detected during the physical examination at admission.

Auxiliary examination

Chest CT: there was a roundish soft-tissue opacity in the right posterior superior mediastinum. It was sized about 5.0 cm × 4.5 cm, with homogeneous density and smooth margin (*Figure 1*).

Pre-operative preparation

Conventional skin preparation was performed. Body markers were made for port creation.

Procedures

Anesthesia and body position

After the induction of general anesthesia, the patient was

placed in a left lateral decubitus position under double-lumen endotracheal intubation. With her hands put in front of head, she was fixed in a jackknife position.

Surgical procedures

- (I) Incisions: a 1.2 cm camera port was created in the 6th intercostal space at right middle axillary line. Two 0.8 cm working ports were created in the 7th intercostal space between the right posterior axillary line and the subscapular line and in the 4th intercostal space between the anterior axillary line and midclavicular line, respectively (*Figure 2*);
- (II) Inspection of the thoracic cavity and insertion of the robot arms: the endoscopic airtight trocar was inserted through the camera port to establish 8 mm artificial pneumothorax, then the robotic endoscope was inserted for inspecting the thoracic cavity. Under the endoscopic monitoring, the robot trocars were separately inserted via the two working ports, so as to place the #2 robotic arm (left hand) and the #1 robotic arm (right hand). The #2 robotic arm was connected with the bipolar cautery forceps, and the #1 robotic arm with unipolar cautery hook (*Figure 3*);
- (III) Inspection of the lesion and its relationship with the neighboring tissues/organs: the lesion was located in the right posterior superior mediastinum and pleural cupula, with smooth localized capsule (*Figure 4*);
- (IV) Open the mediastinal pleura (*Figure 5*);
- (V) Dissociate the tumor (*Figure 6*);
- (VI) Resection of tumor (*Figure 7*);
- (VII) Hemostasis of the tumor bed (*Figures 8,9*);
- (VIII) Harvest the dissected tumor (*Figures 10,11*);
- (IX) After the robot system was withdrawn, the thoracic

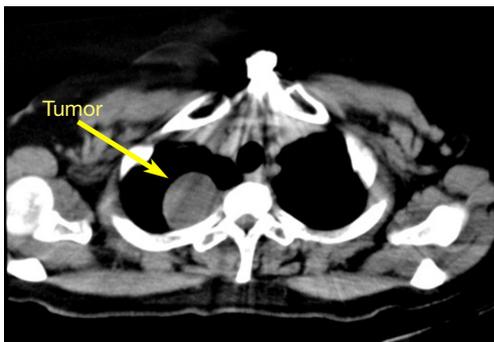


Figure 1 Chest CT shows a mass in the in the right posterior superior mediastinum.

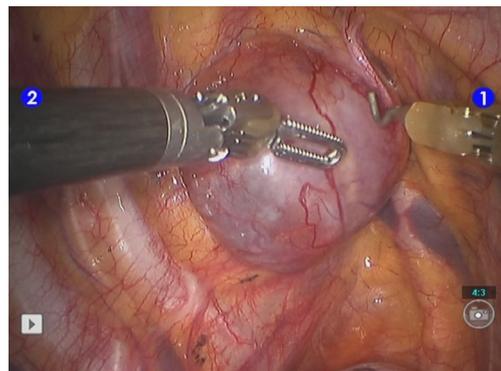


Figure 4 The smooth lesion protrudes into the thoracic cavity.

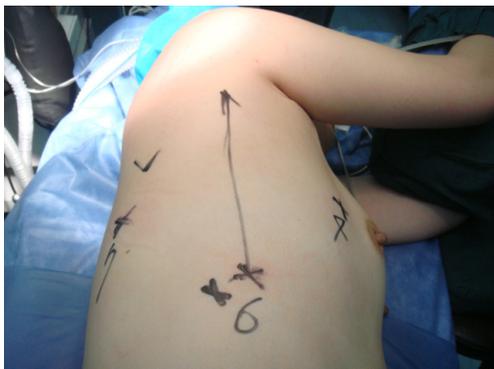


Figure 2 Location of each port.

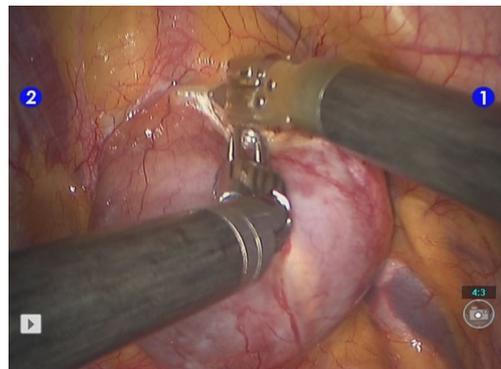


Figure 5 Cut open the mediastinal pleura on the tumor surface with the unipolar cautery hook.

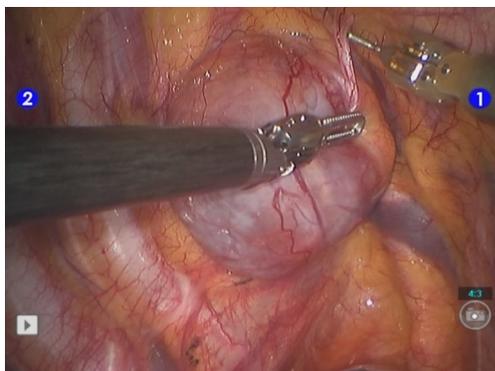


Figure 3 The #1 robotic arm (right hand) and the #2 robotic arm (left hand) under the endoscope.

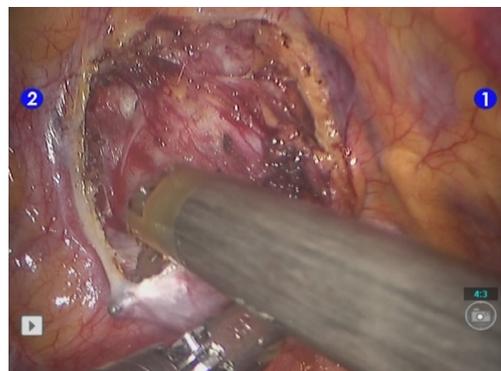


Figure 6 Separate the capsule alongside the proper capsule of the tumor.

drainage tube was indwelled at the camera port. Close the chest after sputum suctioning and lung recruitment. The intraoperative blood loss was about 5 mL; no blood was transfused.

Postoperative treatment

After the surgery, the patient received symptomatic treatment under routine general anesthesia. No antibiotic or hemostatic agent was applied.

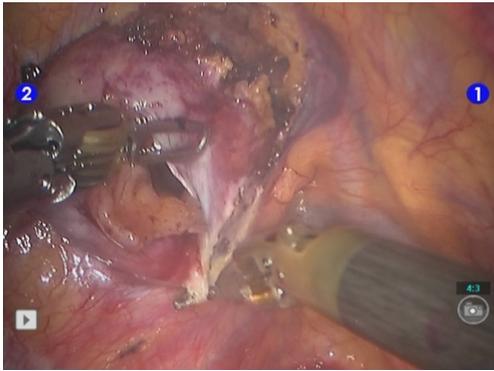


Figure 7 Lift the tumor and cut off the tumor root, thus completely dissociating and dividing the tumor.

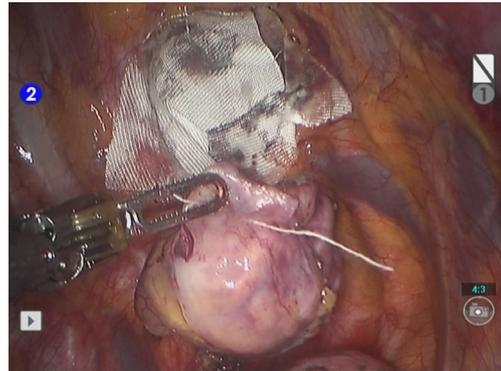


Figure 10 The dissected tumor.



Figure 8 After the #1 robotic arm was withdrawn, the tumor bed was cleaned with gauzes, and the bipolar coagulation forceps were applied to stop bleeding.

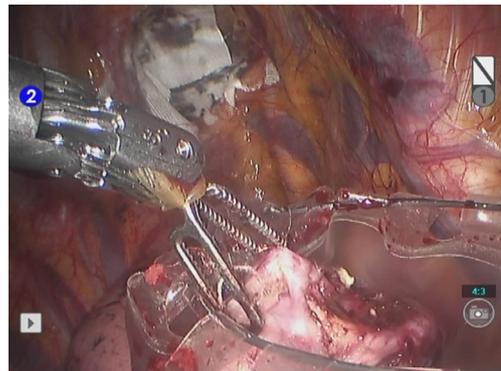


Figure 11 An endoscopic retriever was inserted via the trocar connected with the #1 robotic arm to harvest the dissected tumor.

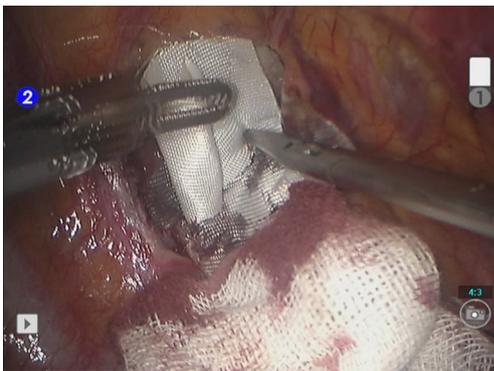


Figure 9 The wound surface was covered with a hemostatic gauze.

Pathological diagnosis

Morphology: the specimen was sized 5.0 cm × 4.0 cm × 4.0 cm. It was moderately hard and contained Tofu skin-like substance. The pathological diagnosis was a giant nerve sheath tumor in the right posterior superior mediastinum.

Acknowledgements

Disclosure: The authors declare no conflict of interest.

Cite this article as: Xu S, Liu B, Wang X, Meng H, Wang T, Xu W, Wang S. Robotic thoracic surgery of the posterior superior mediastinal mass. *Ann Transl Med* 2015;3(9):127. doi: 10.3978/j.issn.2305-5839.2015.03.07