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## VISCERAL SURGERY VIDEOS

# Robotic complete lymphadenectomy at the splenic hilum during total gastrectomy for advanced gastric cancer (with video)



T. Ojima, K. Hayata, H. Yamaue\*

Second Department of Surgery, School of Medicine, Wakayama Medical University, 811-1, Kimiidera, 641-8510 Wakayama, Japan

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### KEYWORDS

Gastric cancer;  
Robotic surgery;  
Total gastrectomy;  
Splenectomy;  
Lymphadenectomy

In Europe, gastrectomy with additional splenectomy is not performed routinely in patients with gastric cancer. In a recent large-scale randomized controlled trial comparing splenectomy versus spleen preservation during total gastrectomy for proximal advanced gastric cancer on a lesser curvature, splenectomy was associated with higher blood loss and increased morbidity [1]. More precisely, the incidence of postoperative pancreatic fistula in splenectomy group patients was 12.6% and the survival benefit of splenectomy for prophylactic lymphadenectomy was not observed [1]. In Japan, spleen preservation is consequently the standard of care during total gastrectomy for proximal gastric cancer without invasion of the greater curvature. However, additional splenectomy with complete lymphadenectomy at the splenic hilum is indicated in patients with advanced gastric cancer localized to the greater curvature of the proximal stomach or with macroscopic nodal metastasis at the splenic hilum. Splenectomy remains inevitable for complete lymphadenectomy at the splenic hilum (No. 10 and 11d) [2]. High incidence of pancreatic fistula is associated with additional splenectomy with lymphadenectomy around the peripancreatic area in previous literature evaluating open and conventional laparoscopic total gastrectomy [1,3]. Robotic surgery may play an important role in ergonomics and offers advantages, such as motion scaling, tremor filtering, seven degrees of wrist-like motion, and three-dimensional vision. Consequently, drawbacks associated with conventional laparoscopic surgery may be overcome by robotic total gastrectomy (RTG) with radical lymphadenectomy.

This video showed a robotic complete lymphadenectomy at the splenic hilum with additional splenectomy during RTG in a 67-year-old male with proximal advanced gastric cancer invading the greater curvature. RTG with D2 lymphadenectomy [2] was performed using a robotic platform. The tail of the pancreas was first mobilized from the retroperitoneum (Fig. 1), and the lymphadenectomy around the splenic artery (No. 11) was performed (Fig. 2). The splenic artery was ligated and cut at 5 cm from its root (Fig. 3). The spleen was removed en bloc with the hilar nodes (No. 10) (Fig. 4). After completion of the splenectomy,

\* Corresponding author.

E-mail address: yamaue-h@wakayama-med.ac.jp (H. Yamaue).

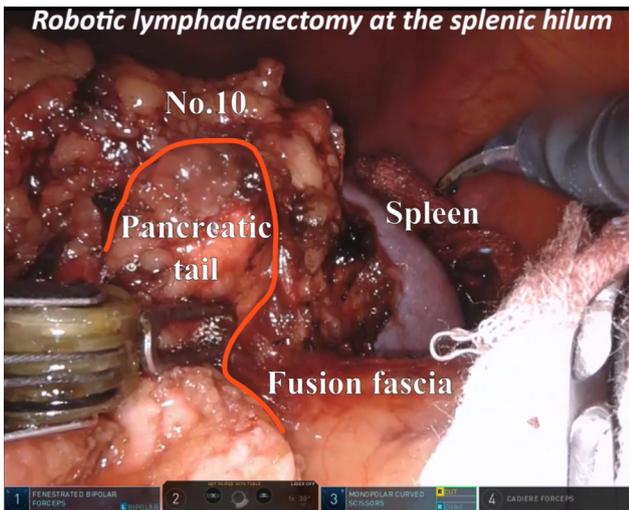


Figure 1. Video extract.

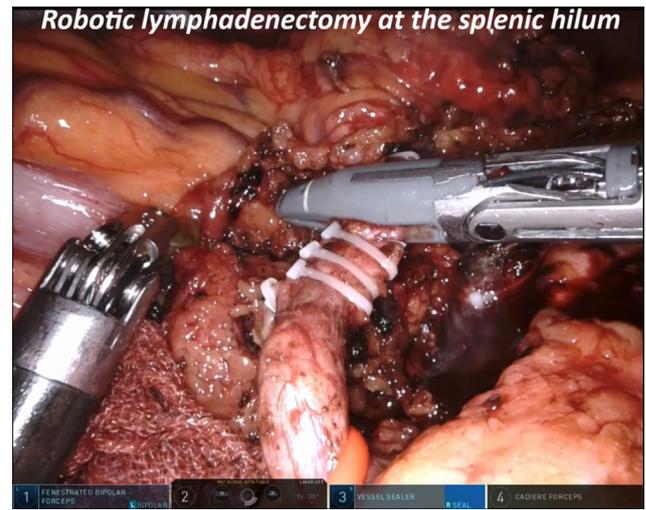


Figure 3. Video extract.

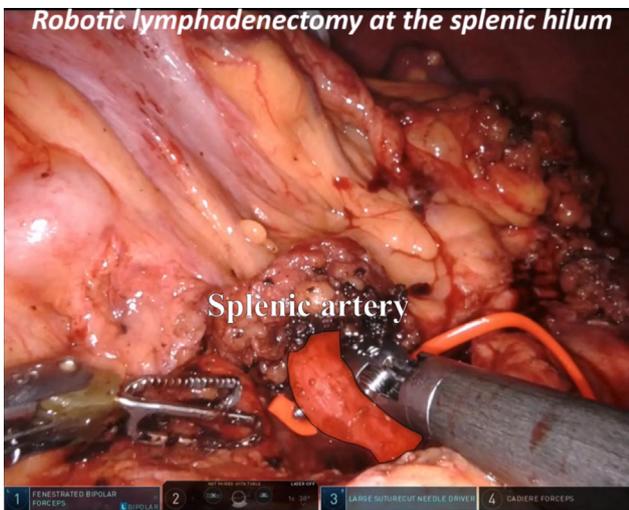


Figure 2. Video extract.

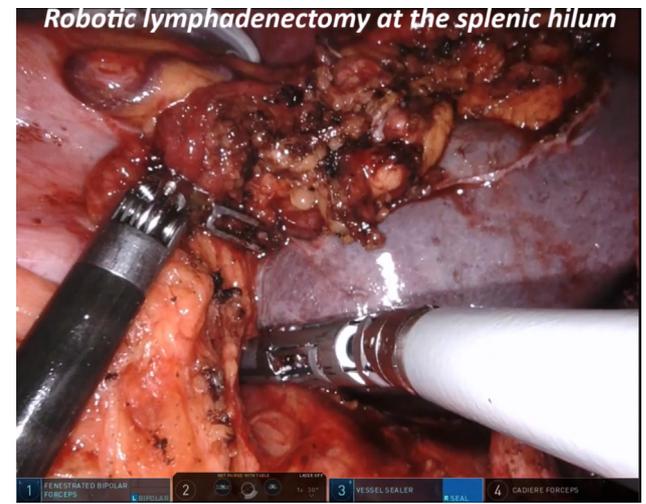


Figure 4. Video extract.

the root of the right gastroepiploic vein and artery were dissected (No. 6). The duodenum around the pylorus ring was isolated and transected using a linear stapler. The root of the right gastric artery was isolated in the hepatoduodenal ligament and resected with clips (No. 5). The lesser omentum along the liver edge to the esophagogastric junction was also resected. Lymph nodes along the common hepatic artery (Nos. 8 and 12), and around the celiac trunk and the proximal part of the splenic artery (Nos. 9 and 11) were dissected. The root of the left gastric vein and artery were then dissected (No. 7). Finally, abdominal esophagus was transected using a stapler and a total gastrectomy was performed after radical lymphadenectomy. Final pathology showed a  $4.5 \times 4.0$  cm sized poorly differentiated adenocarcinoma (pT3). Four metastases were observed among 95 lymph nodes (pN2). The final stage was IIIA [2]. This video shows the different steps necessary to follow to perform robotic total gastrectomy (RTG) with radical lymphadenectomy. This robotic procedure may be associated with decreased incidence of pancreatic fistula but this remains to be validated in further studies. Registration number: UMIN000027969/000031536 (<http://www.umin.ac.jp/ctr/>).

## Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.jvisc Surg.2018.12.005>.

## Disclosure of interest

The authors declare that they have no competing interest.

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