

Spleen-preserving splenic lymph node dissection in radical total gastrectomy

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Abstract: Radical gastrectomy has been recognized as the standard surgical treatment for advanced gastric cancer, and essentially applied in a wide variety of clinical settings. The thoroughness of lymph node dissection is an important prognostic factor for patients with advanced gastric cancer. Splenic lymph node dissection is required during D2 radical gastrectomy for upper stomach cancer. This is often accompanied by removal of the spleen in the past few decades. A growing number of investigators believe, however, that the spleen plays an important role as an immune organ, and thus they encourage the application of a spleen-preserving method for splenic hilum lymph node dissection.

Key Words: Gastric cancer; D2 radical resection; lymph node dissection; splenic hilum



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According to the Japanese Gastric Cancer Treatment Guidelines, the splenic hilar lymph nodes (No. 10) are the station 2 lymph nodes in gastric cancer of the upper and middle stomach (cardia, fundus, and gastric body). In a typical D2 gastrectomy, this group must be dissected. In order to achieve a thorough dissection, there has been controversy as to whether the spleen is preserved or removed.

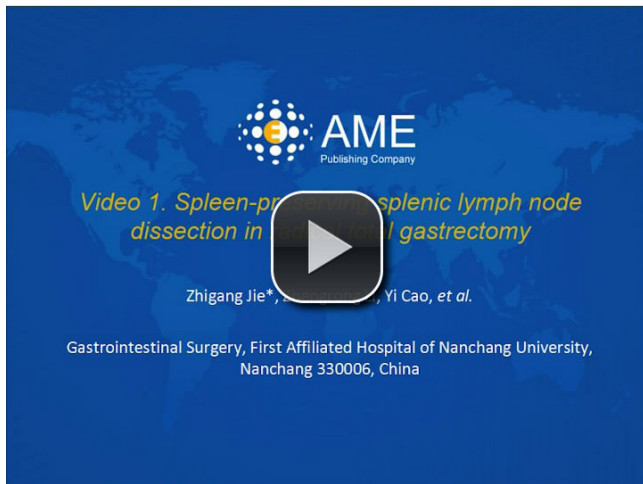
In April 2013, a 51-year-old female patient visited our department due to “upper abdominal swelling with nausea and vomiting for more than a month”. Gastroscopy and endoscopic ultrasound showed a mucosal nodular bulge at the gastric body and the fundus. The diagnosis was stomach cancer. Pathology suggested diffuse-type, poor cohesive cancer (gastric body), HP (-). Abdominal CT showed that the tumor was located at the junction of the gastric body and fundus, invading through the serosa and into the pancreatic capsule, with lymph node metastases. The cTNM staging was T4aN2M0. With adequate preoperative preparation, we performed spleen-preserving D2 radical total gastrectomy (*Video 1*) for the patient.

Following the routine procedures for D2 resection, we removed the anterior lobe of transverse mesocolon, and

separated the pancreatic capsule. After the Kocher incision was made, we found lymph nodes around the inferior vena cava, so dissection of the station 16 was conducted, followed by dissection of the station 13 posterior to the pancreatic head.

The gastrosplenic ligament was cut, and the spleen hilum was resected. The station 10 lymph nodes were dissected. It is much easier to resect the spleen than preserving it. Iatrogenic splenic injury can often occur during gastrectomy, especially when dissecting the lymph nodes around the splenic artery, fat and connective tissue around the spleen, and denuding the splenic artery, which is associated with a high risk of injury to the spleen and blood vessels. In this case, when major bleeding was present due to splenic vascular injury, we use 5-0 proline suture to close the vascular wounds effectively. The lesion was transected 3 cm above the cardia, and the specimen was removed. Roux-en-y esophagojejunal anastomosis was conducted.

Ikeguchi and coworkers (1) reported that splenectomy was needed in advanced gastric cancer complicated by serosal invasion and local lymph node metastases. The rate of metastases to splenic hilar lymph nodes was 20.19%, and failure to dissect the lymph nodes was associated with



Video 1 Spleen-preserving splenic lymph node dissection in radical total gastrectomy

poor prognosis, while the prognosis in patients undergoing successful dissection was comparable to those without metastasis. Zhang *et al.* (2) studied 108 cases with gastric cancer and the cardia and fundus to compare the prognoses with and without splenectomy. The 5-year survival rates were 38.17% in the spleen-preserving group, and 16.19% in the splenectomy group ($P=0.1008$), suggesting a worse

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prognosis in those undergoing splenectomy. Therefore, the spleen should be preserved as long as it is unaffected by the lesion.

The length of operation was 153 minutes, with an estimated blood volume of 80 mL. According to the staging criteria described in the seventh edition of AJCC, the postoperative pathologic stage was T4aN3M0 (IIIc). Liquid diet was started from the 4th day after surgery, and the patient was discharged on the 8th day. No evidence of complications or tumor recurrence and metastasis has been found in the ongoing follow-up.

Acknowledgements

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