

A case of single lymph node metastasis near the common hepatic artery following a curative endoscopic resection for gastric mucosal cancer

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Abstract Although the absolute indication for endoscopic resection (ER) in gastric cancer is widely accepted, expanded indication for endoscopic submucosal dissection (ESD) is still regarded as investigational because of the risk of concomitant lymph node (LN) metastasis or recurrence following ESD. However, LN metastasis in early gastric cancer confined to absolute indication for ER cannot be negligible. Herein we report a 72-year-old man who underwent laparoscopic distal gastrectomy for LN metastasis around the common hepatic artery following curative ESD to the lesion that had met as an absolute indication for ER 1 year ago. There was only one metastatic LN near the common hepatic artery (LN 8), without malignancy at the ESD site or other harvested LNs.

Keywords Endoscopic resection · Early gastric cancer · Lymph node metastasis

Introduction

According to Japanese gastric cancer treatment guidelines 2010 (ver. 3), the absolute indication for endoscopic resection (ER) is confined to differentiated-type adenocarcinoma without ulcerative findings or lymphovascular invasion, for which the depth of invasion is clinically diagnosed as T1a (mucosa) and the diameter is 2 cm or less [1]. Moreover, expanded criteria for ER, which must be

performed by the endoscopic submucosal dissection (ESD) method, have been proposed for lesions with a negligible risk of lymph node (LN) metastasis [2]. Many reports showed a significantly low incidence of LN metastasis for gastric cancer confined to the absolute indication for ER [2, 3]. However, the risk for synchronous or metachronous LN metastasis still remains. We experienced a rare case of LN metastasis found near the common hepatic artery 1 year after ESD for absolute indication and herein report the case.

Case report

A 72-year-old man was admitted in April 2009 because of early gastric cancer (EGC) detected by annual screening gastrofiberscopy (GFS). There were no specific findings in the physical examination or laboratory data. The patient had no medical history of malignant tumors. The lesion was a type 0-IIa + IIc moderately differentiated adenocarcinoma, 20 mm in size, without an ulcer on the lesser curvature side of the antrum (Fig. 1a). Endoscopic ultrasound revealed the lesion to be confined to the mucosa. In the preoperative computed tomography (CT) scan, there was a LN 10 mm in diameter near the common hepatic that was overlooked as a reactive lymphadenopathy (Fig. 2a). ESD was performed on this lesion, resulting in an en bloc resection (Fig. 1b). Pathological examination revealed a type 0-IIa + IIc lesion 20 × 18 mm in size with central erosion. Mapping for the ESD specimen revealed a dumbbell-shaped gastric cancer confined to the mucosal layer (Fig. 1c). Moderately differentiated histology was dominant in the upper portion of the lesion and well-differentiated histology was dominant in the lower portion. The tumor was confined within the lamina propria (T1a) without lymphovascular invasions (Fig. 3a, b). The

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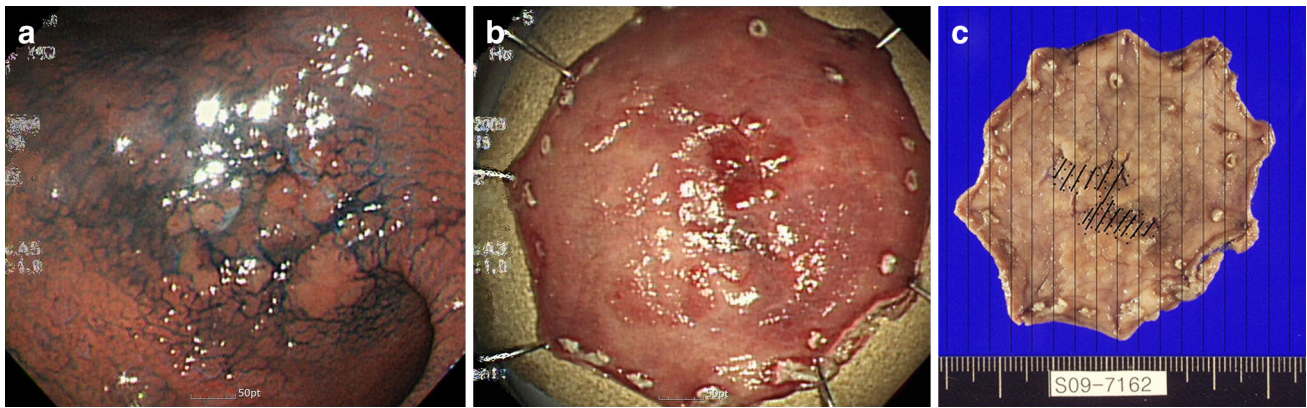


Fig. 1 **a** Gastrofiberscopy showed a type 0-IIa + IIc lesion 20 mm in size without ulceration on the lesser curvature side of the antrum. **b** En bloc resection of the specimen. **c** Tumor mapping showed dumbbell-shaped area of cancer



Fig. 2 **a** Preoperative computed tomography (CT) showed a 1-cm lymph node around the common hepatic artery. **b** CT in February 2010 showed an enlarged common hepatic lymph node, 2 cm in size.

c CT in October 2010 showed increased size of the common hepatic lymph node from 2 to 3 cm

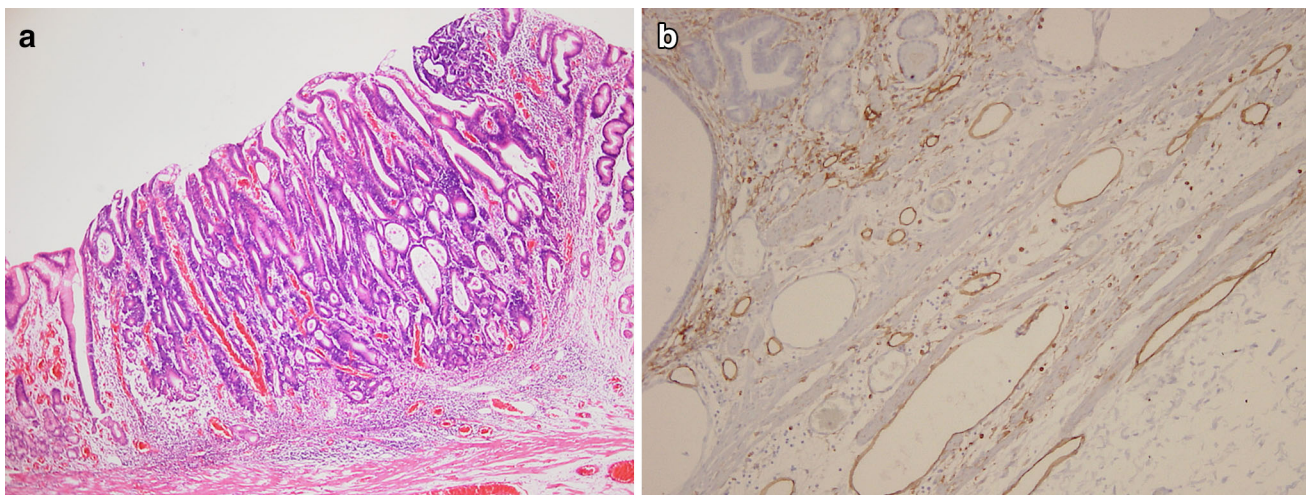


Fig. 3 **a** Pathological examination revealed a 20 × 18 mm well-differentiated tubular adenocarcinoma involving lamina propria. Hematoxylin and eosin (H&E). ×40. **b** D2-40 stain examination revealed no lymphatic invasion. D2-40. ×100

specimen had safe horizontal and vertical margins, so it was determined that the resection was curative based on the standard pathological criteria.

Thereafter, the physician followed the patient with CT and GFS every 6 months. In February 2010, an enlarged LN 2 cm in size was found near the common hepatic artery



Fig. 4 Laparoscopic finding of enlarged lymph node near common hepatic artery

with CT, suggesting a metastatic lesion (Fig. 2b). In addition, positron emission tomography (PET)-CT showed an FDG hot uptake in the same lesion near the common hepatic area. However, considering the primary tumor lesion and short elapsed time from ESD, the physician decided to follow up with CT 6 months later. The CT performed 6 months later showed a more enlarged common hepatic LN 2–3 cm in size (Fig. 2c). No other lesions except an ESD scar were seen on GFS. Although we had no pathological confirmation, LN metastasis from the primary lesion that was resected with ESD was highly suggested. Therefore, a standard distal gastrectomy with D2 LN dissection was carried out, including the enlarged LN, which was located at an anterosuperior position along the common hepatic artery (Fig. 4). Postoperative pathological examination found that the enlarged common hepatic LN

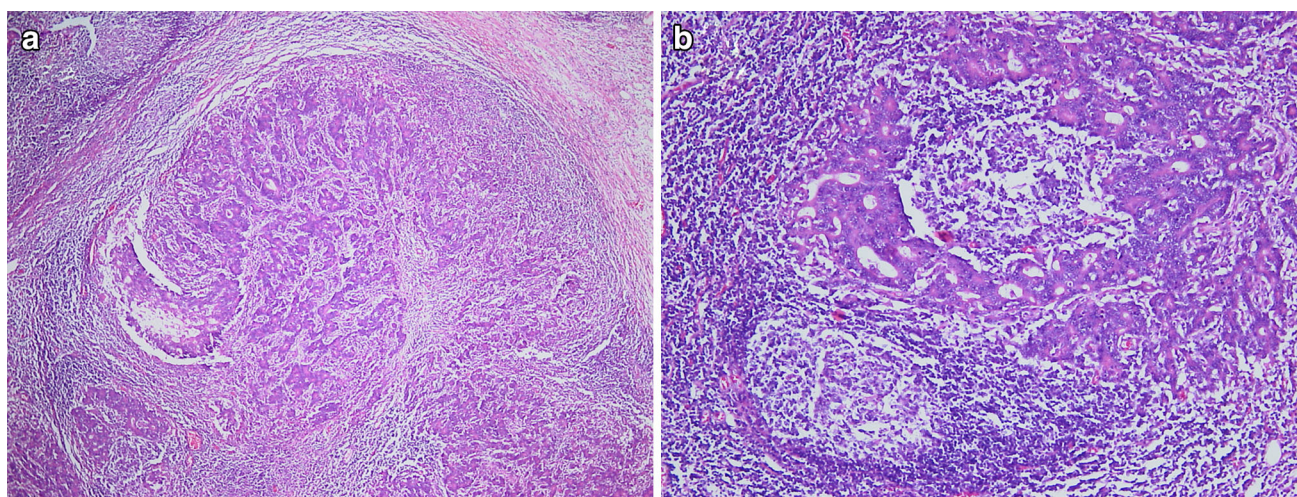


Fig. 5 Histopathological examination for the enlarged lymph node showed moderately differentiated tubular adenocarcinoma. H&E. **a** $\times 40$; **b** $\times 100$

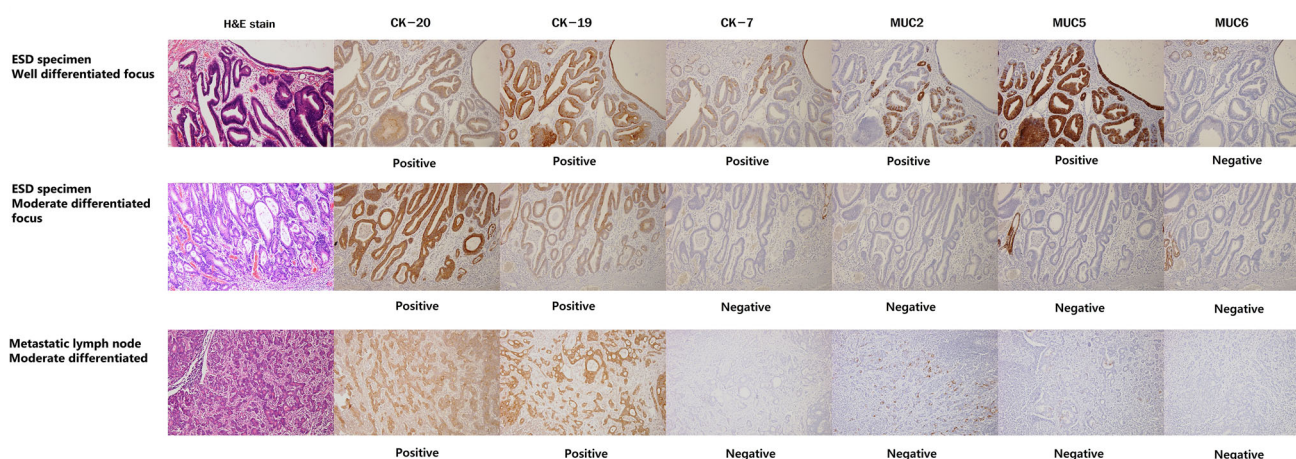


Fig. 6 Immunohistochemistry stains revealed similar patterns of various cytokeratin and MUC stains between primary lesion in moderately differentiated area and metastatic lymph node. All $\times 100$

was the only metastatic LN with moderately differentiated adenocarcinoma (Fig. 5). Immunohistochemistry (CK-20, CK-19, CK-7, MUC2, MUC5, MUC6) for the primary lesion and the metastatic LN was performed to rule out the possibility of LN metastasis from another origin (Fig. 6). The immunohistochemistry pattern in the metastatic LN was similar to the primary lesion in the moderately differentiated portion. In addition, there was no remnant or recurrent malignancy at the ESD site in the stomach, and no other metastatic LN was found among 23 other retrieved LNs. During the 2-year follow-up period, there was no evidence of recurrence in this patient.

Discussion

Mucosal gastric cancer with differentiated tubular adenocarcinomas that are less than 2 cm in size has been acceptable for ESD. Furthermore, extended criteria for ESD include differentiated adenocarcinomas with negative lymphovascular involvement that are either intramucosal cancer without ulcer findings regardless of tumor size, intramucosal cancer with ulcer finding less than 3 cm in size, or SM1 cancer less than 3 cm in size [1]. Although the rate of LN metastasis for EGC is reported only in about 10 % of cases in many reports [3, 4], many reports insisting on the negligible risk of LN metastasis in EGC under absolute and expanded criteria for ESD have been published [2, 5]. However, there still persists the possible risk of hidden LN metastasis or recurrence at perigastric or extraperigastric LN [3, 6, 7]. Needless to say, it would be a major concern for endoscopists performing ESD for gastric cancer.

Previously, reports for LN metastasis, even liver metastasis, following ESD for expanded criteria were published [8, 9]. Those cases had risk factors for LN metastasis histologically such as submucosal invasion and histologically mixed-type mucosal gastric cancer. In our case, there were no other risk factors to increase LN metastasis. Moreover, enlargement of the common hepatic LN was found in a very short period of time (6 months) after curative ESD. For this reason, the physician decided to continue observation instead of operating; this might delay the timing of curative surgery.

In the present case, an enlarged LN 1 cm in size near the common hepatic artery had already existed but was regarded as reactive LN enlargement in preoperative CT. The physician performed ESD, neglecting the possibility of LN metastasis, because of the favorable nature of the primary lesion. However, LN size increased from 1 to 3 cm in 12 months, and also showed a hot uptake in PET-CT.

Because it was a very rare case, LN metastasis from an unknown origin might be possible. For this reason we performed various immunohistochemistry procedures in

two different histological foci of the primary tumor and metastatic LN, finding that metastasis had originated from a moderately differentiated focus.

Endoscopic ultrasound (EUS)-guided fine-needle aspiration (FNA) is reported to show high sensitivity and specificity in patients with lymphadenopathy suspected of recurrent malignancy [10]. Oya et al. confirmed LN metastasis following curative ESD by EUS-guided FNA before the operation [8]. Considering these reports, EUS-guided FNA might have helped to make an early diagnosis in our case.

Our case might be a representative one presenting a limitation of ESD in evaluating LN status. To overcome these shortages of ESD, ESD with concurrent LN dissection without gastrectomy or ESD with sentinel LN biopsy has been performed with favorable results [11, 12]. However, those techniques need further studies and follow-up periods for validation.

Although the absolute indication for ER is generally accepted, the preoperative LN status should be thoroughly evaluated, and curative surgery is recommended when LN metastasis is suspected. In addition, surgery should be recommended in case of lymphovascular invasion following ER. Needless to say, careful follow-up is mandatory following ER for even differentiated intramucosal gastric cancer.

Conflict of interest None.

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