International Journal of Surgery 36 (2016) 335–341

Contents lists available at ScienceDirect

International Journal of Surgery

journal homepage: www.journal-surgery.net

Original research

Additional surgical resection after endoscopic mucosal dissection for early gastric cancer: A medium-sized hospital's experience

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HIGHLIGHTS

- Additional surgical resection (ASR) after ESD for gastric cancer was analyzed.
- Half of the ASR specimens had neither residual cancer nor lymph node metastasis.
- Minor changes in non-curative ESD criteria requiring ASR might be necessary.

ARTICLE INFO

Article history:
Received 31 October 2016
Received in revised form
11 November 2016
Accepted 14 November 2016
Available online 15 November 2016

Keywords:
Endoscopic submucosal gastrectomy
Early gastric cancer
Additional surgical resection
Residual cancer
Lymph node metastasis

ABSTRACT

Purpose: In Japan, the majority of early gastric cancers (EGCs) are now treated with endoscopic submucosal dissection (ESD). Patients with non-curative lesions treated by ESD are advised to undergo additional surgical resection (ASR) based on guidelines from the Japan Gastroenterological Endoscopy Society (JGES) and Japanese Gastric Cancer Association (JGCA). However, many studies have demonstrated that residual cancer and lymph node metastasis are only rarely found in ASR specimens. Here we retrospectively analyzed the conditions that could enable the avoidance of unnecessary ASR.
Methods: The ESD data for 114 absolute indication lesions and 26 lesions of expanded indication lesions were analyzed. The indications and the curability were evaluated according to the JGES/JGCA guidelines.
Results: The rates of non-curative resection and ASR were significantly higher in the expanded indication group compared to the absolute indication group (26.9% and 19.2% vs. 7.9% and 0.9%, respectively). ASR was performed for six patients. Three of their ARS specimens contained neither residual cancer nor lymph node metastasis, and the pathological findings of the preceding ESD specimens deviated slightly from the curative criteria defined by the guidelines. The conditions of the lesions that did not meet the curative criteria were as follows: (1) sm1 invasion of undifferentiated-type lesion <10 mm dia., (2) 21–25 mm dia. mucosal undifferentiated-type lesion, or (3) peacemeal resection with a horizontal margin positive for the mucosal differentiated-type.
Conclusions: These data suggest that a close follow-up without ASR might be appropriate for patients in the above-mentioned three categories after non-curative ESD for EGC.

1. Introduction

The guidelines issued by the Japan Gastroenterological Endoscopy Society (JGES) and Japanese Gastric Cancer Association (JGCA) stated that endoscopic submucosal dissection (ESD) is an absolute indication (AI) for a differentiated-type early gastric cancer (EGC) without ulcerative findings [UL(−)] for which the depth of invasion is clinically diagnosed as T1a (tumor confined to the mucosa) and the diameter is ≤ 2 cm [1,2]. These guidelines also recommend ESD as an expanded indication (EI) for EGC that are clinically diagnosed as T1a within the following categories: (a) differentiated-type, UL(−), > 2 cm dia.; (b) differentiated-type, UL(+), ≤3 cm dia.; (c)

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http://dx.doi.org/10.1016/j.ijsu.2016.11.084
1743-9191/

Depth of invasion	Ulceration	Differentiated-type		Undifferentiated-type	
Clinically diagnosed T1a	UL (-)	≤ 2 cm	> 2 cm	≤ 2 cm	> 2 cm
		Absolute indication	**Expanded indication**	**Expanded indication**	Out of indication
	UL (+)	≤ 3 cm	> 3 cm	Any size	
		Expanded indication	Out of indication	Out of indication	
Clinically diagnosed T1b	UL (-)/(+)	Any size			
		Out of indication			

Fig. 1. Classification of indication for endoscopic submucosal dissection defined by the Japan Gastroenterological Endoscopy Society (JGES) and the Japanese Gastric Cancer Association (JGCA). T1a, tumor confined to the mucosa; T1b, tumor confined to the submucosa including sm1 (<500 μm from the muscularis mucosae) and sm2 (≥500 μm); UL, ulcerative finding.

undifferentiated-type, UL(−), ≤2 cm diam. (Fig. 1).

In U.S. or Europe, ESD has been performed for only a limited number of patients with EGC because EGC is rare in those parts of the world. However, regarding the indications of ESD and additional surgical resection (ASR) for EGC, the guidelines issued by the U.S. National Comprehensive Cancer Network and the European Society of Gastrointestinal Endoscopy are almost the same as the JGES/JGCA guidelines [3,4]. Most of the JGES/JGCA guideline statements are based on analytical epidemiological studies or case series, and their guidelines have been revised every few years with the accumulation of evidence [1,2,5–7].

Notwithstanding the careful selection for ESD indications, some lesions require ASR after ESD because they do not meet the curative criteria defined by the JGES/JGCA guidelines. However, it has been reported that residual cancer (RC) and lymph node metastasis (LNM) in ASR specimens were detected at low rates of 5.6%–11.5% and 7.5%–16.7%, respectively [8–14]. We conducted the present study with the goal of identifying some categories of non-curative ESD in which unnecessary ASR may be avoided. We retrospectively analyzed the patients who underwent ESD at our medium-sized hospital, which has 220 beds (approx. 500 outpatients are seen per day). Despite the small patient series, the ESD experience for EGC patients at a medium-sized local public hospital may contribute some useful information in this field.

2. Methods

2.1. Patients

From June 2007 to May 2016, 325 patients with gastric cancer were treated at our hospital. Among these patients, 188 patients were clinically diagnosed with EGC of T1a or T1b (tumor confined to the submucosa) and 137 patients were diagnosed with advanced gastric cancer. All of the advanced gastric cancer patients underwent open (125 patients) or laparoscopic (12 patients) gastrectomy. Among the 188 patients clinically diagnosed with EGC, 101 patients (114 lesions) were diagnosed as having an AI for ESD, and all 114 of these lesions were treated with ESD. Twenty-nine patients (33 lesions) clinically diagnosed as having EGC were evaluated as an EI for ESD; 22 of these patients (26 lesions) underwent ESD and the other seven patients underwent surgery (open gastrectomy, three patients; laparoscopic gastrectomy, four patients).

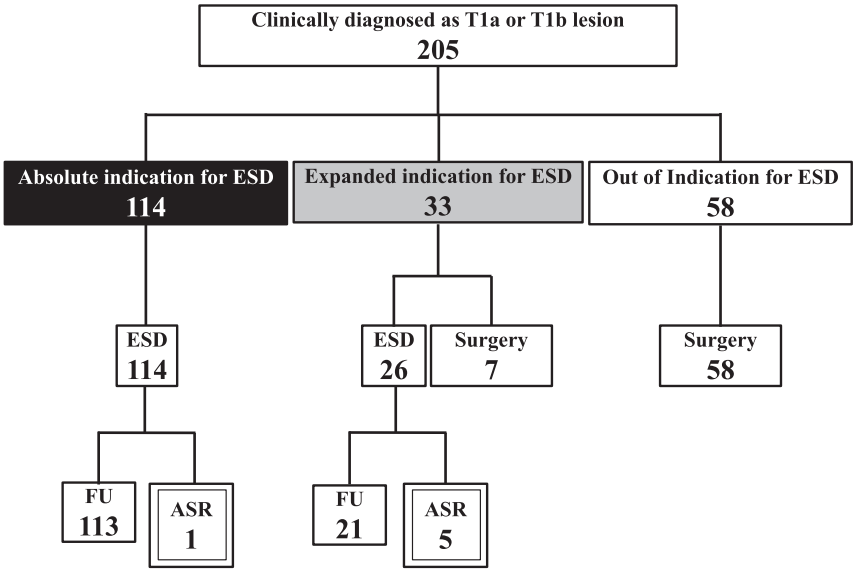

Fig. 2. Flowchart of treatment for the 205 gastric cancer lesions clinically diagnosed as T1a or T1b according to indication for endoscopic submucosal dissection (ESD). ASR, additional surgical resection; FU, follow-up.