Lymph node dissection with cervical approach as a salvage surgery for locoregional failure after definitive chemoradiotherapy in a patient with recurrent esophageal carcinoma: report of a case

Abstract Salvage surgery is one important therapeutic option after locoregional failure of definitive chemoradiotherapy (dCRT) in patients with advanced or recurrent esophageal carcinoma. We have performed cervical lymph node dissection as a salvage surgery after chemoradiotherapy in a patient with recurrent esophageal carcinoma. A 54-year-old Japanese man was admitted to our hospital because of multiple lymph node metastases after endoscopic submucosal dissection (ESD) for early-stage esophageal carcinoma. The patient underwent a circumferential ESD of early-stage esophageal carcinoma in another hospital. The esophageal carcinoma, measuring $75 \times 60$ mm in size, was a superficial spreading type located in the middle portion of the thoracic esophagus. Histology of the resected specimen revealed a moderately to poorly differentiated squamous cell carcinoma, and the depth of invasion was limited within the mucosal layer associated with a small area being attached to the muscularis mucosae. Five months after ESD, lymph node metastases in the regions of right recurrent nerve and the left tracheobronchus were found, for which dCRT was performed. These metastatic lymph nodes disappeared in the chest CT scan images. Lymph node metastasis in the region of the right recurrent nerve then reappeared 8 months after the completion of CRT. Considering the solitary lymph node metastasis and surgical invasiveness, lymph node dissection using a cervical approach was selected as a salvage surgery. Cervical approach for the lymph node dissection in the region of right recurrent nerve may be one feasible option as a minimally invasive salvage surgery for patients with recurrent esophageal carcinoma after dCRT.

Key words Esophageal cancer · Lymph node metastasis · Salvage surgery · Definitive chemoradiotherapy

Introduction

Although esophagectomy associated with lymph node dissection remains a standard treatment for patients with resectable esophageal carcinoma, a wide variety of therapeutic modalities including chemotherapy and radiotherapy with or without the association of surgery have been employed for patients with advanced or recurrent esophageal carcinoma [1,2]. Although definitive chemoradiotherapy (dCRT) has frequently been applied as a definitive treatment for advanced or recurrent esophageal carcinoma [3], a certain proportion of cases show resistance against dCRT and have less opportunity to find the next efficient and available therapeutic options. Salvage surgery has recently been recognized as an important therapeutic option after locoregional failure of dCRT [4–8]. Because salvage surgery is not intended as a part of the dCRT plan, it is associated substantially with a higher risk of postoperative infectious and noninfectious complications because of the pathophysiological changes in the field resulting from surgical manipulation [9–12]. Therefore, a well-balanced and appropriate procedure of salvage surgery should be selected, accounting for surgical invasiveness, efficacy of surgery, and risk of postoperative complications [13]. However, cases of salvage surgery after dCRT have not been sufficiently accumulated to determine the appropriate surgical procedure in individual cases [11,14]. We recently experienced a case of lymph node metastasis after dCRT that was successfully treated with salvage surgery. The cervical approach was applied to perform lymph node dissection in the region of the right recurrent nerve. This case highlights the importance of lymph node dissection using a minimally invasive cervical approach as one option for salvage surgery in lymph node recurrence after dCRT.
A 54-year-old Japanese man was admitted to our hospital because of multiple lymph node metastases after endoscopic submucosal dissection (ESD) for early-stage esophageal carcinoma. The esophageal carcinoma, measuring $75 \times 60$ mm in size, was a superficial spreading type located in the middle portion of the thoracic esophagus and was limited within the mucosal layer (Fig. 1). The macroscopic type of the lesion was 0-IIb, and the resected specimen was $77 \times 63$ mm in size (Fig. 2). The patient underwent a circumferential endoscopic submucosal dissection (ESD) for early-stage esophageal carcinoma in another hospital in September 2005. Histological examination of the resected specimen revealed a moderately to poorly differentiated squamous cell carcinoma, inf b, pT1a, ie (+), ly0, v0, IM0, pPM 4 mm, pDM 4 mm, pEM 0.5 mm, which was described according to the Guidelines for Clinical and Pathological Studies on Carcinoma of the Esophagus [15,16]. The depth of invasion of squamous cell carcinoma (SCC) was limited within the mucosal layer. A total of two small areas, which comprised less than 5% of the total cancerous area, revealed the SCC attached to the muscularis mucosae of the esophageal wall. The SCC was not invasive to the lymphatic vessel, which was confirmed by immunohistochemical staining using D2–40, a specific marker for lymphatic vessels. Four weeks after ESD, endoscopic examination revealed stenosis of the esophagus at the portion of ESD caused by fibrotic change of the circumferential ESD scar. The patient had undergone sequential endoscopic dilatations nine times after the ESD in another hospital.

Five months after ESD, lymph node metastases were then found by routine follow-up computed tomography (CT) scan performed at another hospital, and the patient was referred to our hospital for further treatment following his relocation to our geographic area. The chest CT scan