Perigastric Abscess as a Complication of Endoscopic Submucosal Dissection for Early Gastric Cancer: First Case Report

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Endoscopic submucosal dissection (ESD) for early gastric cancer (EGC) is a widely accepted and well established procedure because of its curative potential and low invasiveness compared with surgery. Perforation is a potential major complication during ESD, and non-surgical treatments such as endoscopic closure with clips are sufficient in most cases. Here, we report a case of perigastric abscess that occurred as a complication of ESD for EGC. The patient improved with administration of antibiotics without surgical intervention. (Korean J Gastroenterol 2016;67:142-145)

Key Words: Endoscopic submucosal dissection; Early gastric cancer; Perigastric abscess

INTRODUCTION

Perforation is a potential major complication of endoscopic submucosal dissection (ESD) for gastric epithelial neoplasia. The risk of perforation during ESD is reported to be up to 8%. When perforation occurs during ESD, non-surgical management such as endoscopic closure with clips allows fast recovery and is sufficient in most cases. We recently diagnosed and successfully managed with antibiotics a patient with perigastric abscess formation after a micro-perforation during ESD. Although phlegmonous gastric and gastric wall abscess after ESD have been reported, perigastric abscess as a complication after ESD has never been published in the English literature.

CASE REPORT

A 63-year-old woman was admitted to our hospital for endoscopic resection of a gastric epithelial neoplasia. The patient’s medical history was unremarkable except for 10 years of hypertension. She received ESD for early gastric cancer (EGC) with en bloc resection (Fig. 1) without complications. The resected lesion was measured at 4.5×3.4 cm, histopathologic examination revealed tubular adenocarcinoma with moderate differentiation limited to the lamina propria, and lymphovascular invasion was not detected. The size of the adenocarcinoma was measured at 3.0×1.6 cm. She did not complain of any peritoneal irritation signs such as abdominal pain and rebound tenderness after the procedure. However, free air was detected on routine chest X-rays taken...
immediately after the procedure (Fig. 2A). Intravenous pantoprazole was started on the day of ESD and flomoxef was administered for three days. Since she did not complain of any peritoneal irritation signs, oral feeding was started two days after ESD. Four days after ESD, chest X-ray showed minimal free air at the right subdiaphragmatic space (Fig. 2B) and laboratory findings revealed leukocyte counts at 5,700/μL (reference value, 4,000-9,900/μL). She was discharged four days after ESD.

She returned to the outpatient clinic 10 days after ESD complaining of mild epigastric pain but no other symptoms. Oral proton pump inhibitor was prescribed for one month.
However, three weeks after ESD she came to the emergency room complaining of chilling, myalgia and substernal pain of three days duration. Physical examination revealed a soft abdomen and no palpable mass. Laboratory examination showed increased CRP up to 92.4 mg/L (reference value, 0-5 mg/L) and leukocyte counts of 9,400/μL. Abdominal CT showed loculated fluid collections abutting the proximal part of the stomach, suggesting perigastric abscess (Fig. 3). Empirical antibiotics for perigastric abscess were administered: intravenous ceftriaxone with metronidazole for 10 days followed by oral cefditoren for 21 days. Antibiotics were chosen following the advice of the infectious disease specialist. Blood culture did not harvest any microorganisms. The patient was discharged on the ninth hospital day in much improved condition. An abdominal CT was performed five weeks after initial abdominal CT and revealed regression of the perigastric abscess (Fig. 4). The patient has been examined regularly in the outpatient clinic for four months, and she has not experienced any other events.

DISCUSSION

The exact pathogenesis of perigastric abscess is unknown. It is probably caused by bacterial infection of the serosal side of the gastric wall by direct invasion through a breach in the gastric mucosa or secondary to hematogenous spread from a distant infectious source. A previous study reported that 38.1% of patients who underwent ESD for gastric neoplasia showed intraperitoneal free air by abdominal CT. It is thus plausible that the micro-perforation during ESD might provide an entry of microorganisms into the peritoneal cavity. We assume that contaminated materials might have flowed along the serosal surface of the stomach and finally settled into the lowest part of stomach, the greater curvature side of the fundus, during the procedure in our case.

A previous report described mean fasting periods of 5.3 days for perforations occurring after ESD. However, abdomen CTs after ESD revealed higher rates of perforation not detected on chest X-rays. Most of these perforations would go unnoticed since abdomen CTs are not performed routinely. This suggests that perforations after ESD should not be managed in the same manner. It is our policy that patients with minimal intraperitoneal air after ESD without any peritoneal irritation sign are managed as if they have no complications.

Nasogastric tube insertion and intravenous antibiotics might be helpful, but the effectiveness of these treatments and choice of antibiotics are an open question. European guidelines for ESD suggest broad spectrum antibiotics for perforations complicating gastric ESD. However, there are no guidelines for antibiotic or other management for micro-perforation immediately after gastric ESD.

Traditionally, surgery with broad spectrum antibiotics has been used for treating gastric wall abscess. Some reports...
suggest endoscopic drainage as an effective treatment for gastric wall abscess.\textsuperscript{2,3,8-11} However, standard recommendations for perigastric abscess treatment are not established due to limited reports.\textsuperscript{12} In this case, we administered antibiotics only without radiologic or endoscopic intervention. This resulted in complete resolution of the perigastric abscess. Gastric irrigation with saline solution before ESD reduces the bacterial colony count from gastric juice.\textsuperscript{13} This pretreatment might be helpful when the possibility of procedure-related infection is very high.

A risk of disseminating malignancy in the peritoneal cavity associated with any invasive procedure should be considered, as in our case. Fortunately, peritoneal dissemination is unlikely to occur after gastric perforations during endoscopic resection.\textsuperscript{14} The patient did not require emergency surgery because the perigastric abscess was localized, the symptoms were tolerable and improved with conservative management including antibiotics.

In conclusion, this is the first report, to the best of our knowledge, of a perigastric abscess after ESD for EGC successfully managed with antibiotics. When a patient shows any symptoms of systemic inflammation after ESD for gastric neoplasia, proper diagnostic tools such as abdomen CT should be conducted. Conservative treatment with antibiotics might be a therapeutic option when the lesion is localized without any sign of peritoneal irritation.

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