CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 42 (2018) 85–89

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Salvage esophagectomy with pancreatectomy for local recurrence of thoracic esophageal cancer after definitive chemoradiotherapy: A case report

Noriyuki Nishiwaki*, Yasuhiro Tsubosa, Masahiro Niihara

Division of Esophageal Surgery, Shizuoka Cancer Center, Shizuoka, Japan

ARTICLE INFO

Article history:
Received 13 October 2017
Received in revised form
23 November 2017
Accepted 28 November 2017
Available online 6 December 2017

Keywords:
Esophageal cancer
Salvage surgery
Pancreatectomy

ABSTRACT

INTRODUCTION: We encountered a case of advanced thoracic esophageal cancer in which R0 resection was achieved by salvage esophagectomy with pancreatectomy, but relapse occurred in the early postoperative phase.

PRESENTATION OF CASE: A 64-year-old man with lower intrathoracic esophageal cancer received chemoradiotherapy, and a complete response was achieved. Subsequently, however, lymph node relapse, with infiltration into the pancreas, was observed. Thus, subtotal esophageal resection, total gastrectomy, distal pancreatectomy, and splenectomy were performed. Hepatic relapse occurred 7 months after the surgery, and the patient died 18 months after the surgery.

DISCUSSION: The surgical risk of salvage surgery is considered to be extremely high, however selected patients may benefit from highly invasive procedures. In this case, despite R0 resection was achieved by salvage esophagectomy with pancreatectomy, a relapse occurred in the early postoperative phase. The treatment outcome of esophageal cancer patients with infiltration into the pancreas was not favorable.

CONCLUSIONS: Because the risk of postoperative complications and relapse is high in patients with advanced esophageal cancer undergoing esophagectomy with pancreatectomy, the applicability of surgery needs to be carefully considered.

1. Introduction

The effectiveness of salvage surgery for local recurrence after definitive chemoradiotherapy (CRT) for esophageal cancer remains unclear. However, surgical excision is the only curative modality and several studies have reported the effectiveness of salvage surgery for local recurrence after definitive CRT [1–4].

Here, we describe a case of thoracic esophageal cancer in which a complete response (CR) was achieved after chemoradiotherapy, but lymph node recurrence, with infiltration into the pancreas occurred. Although R0 resection was accomplished by salvage esophagectomy with pancreatectomy, a relapse occurred in the early postoperative phase.

This work has been reported in line with the SCARE criteria [5].

2. Presentation of case

A 64-year-old man presented with a chief complaint of difficulty with swallowing. He had a history of prostate cancer. The patient's lifestyle included approximately 360 mL sake and 350 mL beer consumption per day, and 20 cigarettes per day for the past 20 years. Upper gastrointestinal endoscopy showed geographic esophageal 0–IIc lesions at 25 cm and 30 cm from the incisors; moreover, a type-2 lesion was observed 35–40 cm from the incisors (Fig. 1a–c). A biopsy confirmed squamous cell carcinoma. On contrast-enhanced computed tomography (CT), the primary lesion in the lower thoracic part of the esophagus demonstrated thickening of the wall all around it. Metastasis was observed in lymph nodes along the right recurrent nerve, left gastric artery, lesser curvature, and around the abdominal aorta. There was a possibility of lymph node infiltration into the pancreas at the lesser curvature lymph node (Fig. 2a). Fluorodeoxyglucose-positron emission tomography (FDG-PET) showed increased FDG uptake in the primary lesion and the lymph node along the left gastric artery (Fig. 2b). The patient was diagnosed with lower intrathoracic esophageal cancer T3N2M1 (LYM) Stage IV (seventh edition of the Union for International Cancer Control system).

* Corresponding author at: Division of Esophageal Surgery, Shizuoka Cancer Center, 1007 Shimonagakubo, Nagaizumi-cho, Sunto-Gun, Shizuoka 411-8777, Japan.
E-mail addresses: n.nishiwaki@scchr.jp (N. Nishiwaki), y.tsubosa@scchr.jp (Y. Tsubosa), m.niihara@scchr.jp (M. Niihara).

https://doi.org/10.1016/j.ijscr.2017.11.052

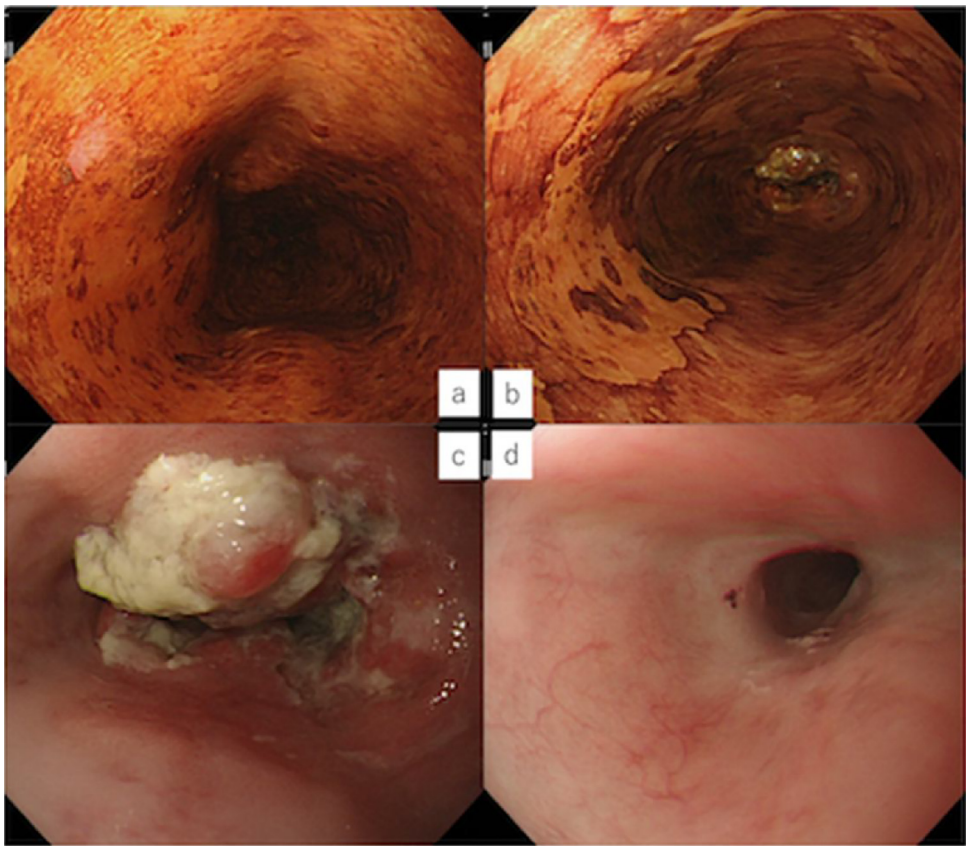

Fig. 1. Esophagoscopy prior to treatment, showing superficial esophageal tumors (a) 25 cm and (b) 30 cm from the incisors. (c) A 70-mm-long protruding lesion on the right wall of the esophagus, 36–43 cm from the incisors. (d) After docetaxel, CDDP, and 5-FU (DCF) therapy, and chemoradiotherapy (CRT), these lesions disappeared, and the outcome was rated as a complete response (CR).

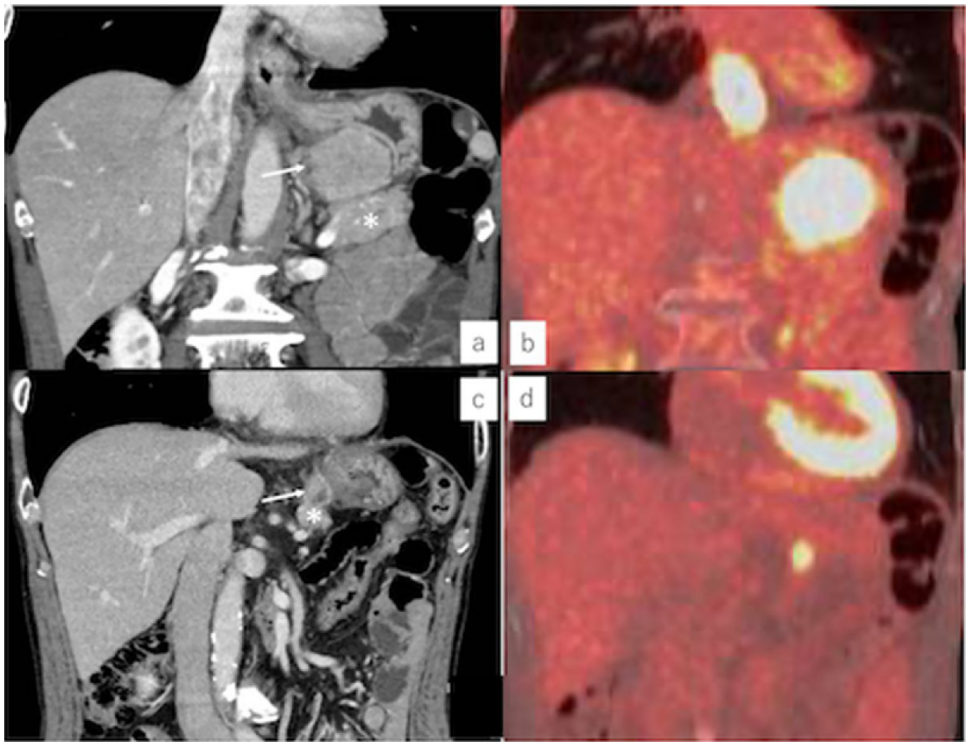

Fig. 2. (a) Computed tomography (CT) showed a 65 mm swollen lymph node invading the pancreas (*) and stomach at the lesser curvature of the stomach (indicated by an arrow). (b) Positron emission tomography (PET)-CT showing fluorodeoxyglucose (FDG) uptake by the lymph node. (c) After DCF and CRT, the invasion to the stomach and pancreas was unclear, (d) but the lymph node displays FDG uptake.

Table 1
A summary of the literature describing patients who underwent esophagectomy with pancreatectomy.

Age, Sex	Operative procedure/reconstruction route & organ	Complication	Diagnosis (TNM)	Reason (Pancreatectomy)	Reccurence	Prognosis	Reporter (year)
70, Male	Right thoraco-laparotomic subtotal esophagectomy and distal pancreatectomy with splenectomy/postmediastinal route gastric tube reconstruction	Minor leakage	ND	Metastatic lymph node invaded pancreas	ND	ND	Hashimoto et al. (1992) [16]
59, Male.	Left thoraco-laparotomic inferior esophagectomy, total gastrectomy, distal pancreatectomy with splenectomy and lateral segmentectomy of the liver/Roux- en Y (small intestine)	None	ND	Metastatic lymph node invaded pancreas	ND	ND	Ishiguro et al. (2003) [17]
53, Male	Left thoraco-laparotomic inferior esophagectomy, total gastrectomy and distal pancreatectomy with splenectomy/Roux-en Y (small intestine)	None	T4bN1M0 Stage IIIC (UICC TNM 7th)	Primary tumor invaded pancreas	ND (Lymph node)	10 M (alive)	Matsubara et al. (2003) [18]
62, Male	Right thoraco-laparotomic subtotal esophagectomy, total gastrectomy and distal pancreatectomy with splenectomy/Roux-en Y (small intestine)	Catheter infection, pneumonia	T1bN1M1 (stomach) Stage IV (UICC TNM 7th)	Metastatic tumor (stomach) invaded pancreas	10 M (Lymph node)	16 M (dead)	Hata et al. (2007) [19]
52, Male	Right thoraco-laparotomic subtotal esophagectomy and distal pancreatectomy with splenectomy/postmediastinal route gastric tube reconstruction	Major leakage, pyothorax	T3N2M0 Stage III (UICC TNM 7th)	Metastatic lymph node invaded pancreas	None	84 M (alive)	Saito et al. (2011) [20]
78, Male	Right thoraco-laparotomic subtotal esophagectomy, total gastrectomy, cholecystectomy and distal pancreatectomy with splenectomy/Roux-en Y (small intestine)	ND	T3N1M1 (stomach) Stage IV (UICC TNM 7th)	Metastatic tumor (stomach) invaded pancreas	ND	ND	Kusumoto et al. (2012) [21]
59, Male	Right thoraco-laparotomic subtotal esophagectomy, partial gastrectomy, left lateral sectionectomy of liver and distal pancreatectomy with splenectomy/gastric tube reconstruction	Bile leakage	T1aNXM1 (stomach) Stage IV (UICC TNM 7th)	Metastatic tumor (stomach) invaded pancreas	ND (Pleural dissemination)	6 M (dead)	Nakazawa et al. (2012) [22]
ND	Subtotal esophagectomy, total gastrectomy and distal pancreatectomy with splenectomy/colonic reconstruction	ND	TXNXM1 (stomach) Stage IV (UICC TNM 7th)	Metastatic tumor (stomach) invaded pancreas	ND	ND	Tate et al. (2012) [23]
72, Male	Right thoraco-laparotomic subtotal esophagectomy, partial gastrectomy, partial hepatectomy and distal pancreatectomy with splenectomy/poststernal route gastric tube reconstruction	ND	ND	Metastatic lymph node invaded pancreas	ND	ND	Tei et al. (2015) [24]
64, Male	Right thoraco-laparotomic subtotal esophagectomy, total gastrectomy and distal pancreatectomy with splenectomy/Roux-en Y (small intestine)	Major leakage	T3N2M1(LYM) Stage IV (UICC TNM 7th)	Metastatic lymph node invaded pancreas	7 M (Liver)	18 M (dead)	Our case

Fig. 3. Macroscopic findings of the resected esophagus.

Three courses of DCF therapy (intravenous docetaxel and cisplatin infusion with continuous 5-fluorouracil [5-FU]) were administered, and the patient achieved a partial response. Additionally, CRT (intravenous cisplatin infusion with continuous 5-FU, 50.4 Gy/28 Fr for the primary lesion, 29.68 Gy/28 Fr for abdominal lymph nodes) was administered and CR was achieved. At 206 days after completion of CRT, a relapse in the lymph nodes along the lesser curvature, with a possibility of infiltration into the gastric wall and pancreas, was observed on CT and PET images (Fig. 2c and d). Therefore, salvage surgery involving a two-stage procedure was selected for treatment. The results of endoscopy indicated that a CR had been maintained (Fig. 1d).

Total gastrectomy, distal pancreatectomy, splenectomy, and then subtotal esophageal resection were performed. Because this was salvage surgery, radical dissection was performed only on the lymph nodes near the esophagus and lymph node along the right recurrent nerve, where metastasis was suspected before preoperative treatment. The surgery was completed after creation of an esophageal fistula and jejunostomy. The second surgery was performed 28 days after the first surgery. Reconstruction of the pedunculated jejunum was performed using an approach through the anterior thoracic wall. The second jejunal artery and vein and right internal thoracic artery and vein were anastomosed to allow for supercharge and superdrainage.

Pathological examination revealed no remnant of the cancer in the primary lesion (therapeutic effect Grade 3). Metastasis was observed in the lesser curvature lymph node, which infiltrated into the gastric wall and pancreas. Therefore, a diagnosis of lower intrathoracic esophageal cancer ypT0N1 (1/7) M0 (Fig. 3) was made. No complication occurred after the first surgery. After the second surgery, however, an anastomotic leak occurred at the site of the esophagojejunostomy and re-anastomosis was performed under local anesthesia.

The patient was discharged from the hospital 62 days after the first surgery. At 195 days after surgery, relapse with hepatic metastasis occurred. Although systemic chemotherapy was administered, the patient died 559 days after surgery.

3. Discussion

In recent years, as one of the multidisciplinary treatments of esophageal cancer, trimodality therapy comprising surgery, chemotherapy, and radiotherapy has been attracting considerable attention [6]. When patients are administered radical CRT, the rate of CR is approximately 89% in patients with stage I and 63% in patients with stage II/III, respectively [7,8]. Even in patients with T4 tumors and/or M1 lymph node metastasis, 33% have been reported to achieve a CR [9]. Despite the high CR rates, salvage therapy is required in the remaining patients who do not achieve a CR. Moreover, another report suggests that relapse occurs in 40–60% of patients in whom CR is attained [7–11]. Thus, the number of patients who require salvage surgery after radical CRT is expected to increase in the future.

Although the surgical risk of salvage surgery is considered to be extremely high, with high mortality and morbidity rates [4,12–14], selected patients may benefit from highly invasive procedures. Gardner-Thorpe et al. found that salvage esophagectomy for patients with a relapse who initially achieved a CR by CRT achieved long-term survival when R0 resection was performed [15]. Nakajima et al. reported that salvage surgery for recurrent abdominal lymph nodes preserving the esophagus was less invasive and achieved better outcomes when the primary tumor maintained a CR after CRT [3].

To our knowledge, this is the first report of a patient with esophageal cancer who underwent salvage esophagectomy with pancreatectomy. We identified 10 reported cases (Table 1) [16–24], including our case, that underwent esophagectomy with pancreatectomy in the Japanese literature. Infiltration of a metastatic lesion into the pancreas was observed in 9 of 10 cases, and the treatment outcome was not favorable. However, Saito et al. reported a long term survivor, therefore a limited number of patients might benefit from those highly invasive operations [20].

In our case, the tumor recurred after definitive CRT, therefore the only chance to achieve a cure was by salvage surgery. Several studies have reported the effectiveness of salvage surgery for recurrent cancer when R0 resection has been achieved [1–4]. By contrast, other studies have showed only a few patients who could achieve long term survival after esophagectomy with pancreatectomy [16–24], therefore careful judgement of the applicability of surgery is required. As for the present case, considering that the primary tumor maintained a CR, salvage surgery preserving the esophagus might be a therapeutic option.

4. Conclusion

We encountered a case of advanced thoracic esophageal cancer in which R0 resection was attainable by salvage esophagectomy with pancreatectomy after CRT; however, a relapse occurred in the early postoperative phase. Although the treatment outcome of esophagectomy with pancreatectomy has been reported as unfavorable, some patients could achieve long term survival by salvage surgery because of the improvement of trimodality therapy. However, we do not have sufficient evidence to establish indications for this high risk therapy, therefore, careful consideration and judgment on the applicability of surgery is required.

Conflict of interest

The authors have no conflict of interest.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Ethical approval

Given that this is a case report with no identifiable information included in the manuscript, ethical approval has been exempted by our institution.

Consent

The consent has not been given because death of patients. Consent provided by next of kin.

Author's contributions

NN, YT, and MN performed the surgery and perioperative management of the patient, and NN and YT drafted the manuscript. All authors read and approved the final manuscript.

Guarantor

Noriyuki Nishiwaki

Author's information

NN, YT, and MN are all staff of the Division of Esophageal Surgery, Shizuoka Cancer Center, Japan.

Acknowledgements

None.

References

[1] E. Farinella, A. Safar, H.A. Nasser, F. Bouazza, G. Liberale, M. Paesmans, et al., Salvage esophagectomy after failure of definitive radiochemotherapy for esophageal cancer, J. Surg. Oncol. 114 (2016) 833–837.
[2] M. Morita, R. Kumashiro, Y. Hisamatsu, R. Nakanishi, A. Egashira, H. Saeki, et al., Clinical significance of salvage esophagectomy for remnant or recurrent cancer following definitive chemoradiotherapy, J. Gastroenterol. 46 (2011) 1284–1291.
[3] M. Nakajima, Y. Domeki, H. Satomura, M. Takahashi, A. Sugawara, H. Muroi, et al., Salvage lymphadenectomy for recurrent esophageal cancer after chemoradiotherapy, Int. Surg. 99 (2014) 452–457.
[4] S.G. Swisher, P. Wynn, J.B. Putnam, M.B. Mosheim, A.M. Correa, R.R. Komaki, et al., Salvage esophagectomy for recurrent tumors after definitive chemotherapy and radiotherapy, J. Thorac. Cardiovasc. Surg. 123 (2002) 175–183.
[5] R.A. Agha, A.J. Fowler, A. Saeta, I. Barai, S. Rajmohan, D.P. Orgill, et al., The SCARE Statement: consensus-based surgical case report guidelines, Int. J. Surg. 34 (2016) 180–186.
[6] D.M.K. Takahari, Cutting-edge therapies for esophageal cancer, Chemo-radiation therapy, J. Jpn. Soc. Gastroenterol. 106 (2009) 771–778.
[7] K. Kato, K. Muro, K. Minashi, A. Ohtsu, S. Ishikura, N. Boku, et al., Phase II study of chemoradiotherapy with 5-fluorouracil and cisplatin for Stage II-III esophageal squamous cell carcinoma: JCOG trial (JCOG 9906), Int. J. Radiat. Oncol. Biol. Phys. 81 (2011) 684–690.
[8] H. Kato, A. Sato, H. Fukuda, Y. Kagami, H. Udagawa, A. Togo, et al., A phase II trial of chemoradiotherapy for stage I esophageal squamous cell carcinoma: japan Clinical Oncology Group Study (JCOG9708), Jpn. J. Clin. Oncol. 39 (2009) 638–643.
[9] A. Ohtsu, N. Boku, K. Muro, K. Chin, M. Muto, S. Yoshida, et al., Definitive chemoradiotherapy for T4 and/or M1 lymph node squamous cell carcinoma of the esophagus, J. Clin. Oncol. 17 (1999) 2915–2921.
[10] S. Yamamoto, R. Ishihara, M. Motoori, Y. Kawaguchi, N. Uedo, Y. Takeuchi, et al., Comparison between definitive chemoradiotherapy and esophagectomy in patients with clinical stage I esophageal squamous cell carcinoma, Am. J. Gastroenterol. 106 (2011) 1048–1054.
[11] J.S. Cooper, M.D. Guo, A. Herskovic, J.S. Macdonald, J.A. Martenson Jr., M. Al-Sarraf, et al., Chemoradiotherapy of locally advanced esophageal cancer: long-term follow-up of a prospective randomized trial (RTOG 85-01). Radiation Therapy Oncology Group, JAMA 281 (1999) 1623–1627.
[12] T. Nakamura, K. Hayashi, M. Ota, R. Eguchi, H. Ide, K. Takasaki, et al., Salvage esophagectomy after definitive chemotherapy and radiotherapy for advanced esophageal cancer, Am. J. Surg. 188 (2004) 261–266.
[13] E. Oki, M. Morita, Y. Kakeji, M. Ikebe, N. Sadanaga, A. Egasira, et al., Salvage esophagectomy after definitive chemoradiotherapy for esophageal cancer, Dis. Esophagus 20 (2007) 301–304.
[14] Y. Tachimori, N. Kanamori, N. Uemura, N. Hokamura, H. Igaki, H. Kato, Salvage esophagectomy after high-dose chemoradiotherapy for esophageal squamous cell carcinoma, J. Thorac. Cardiovasc. Surg. 137 (2009) 49–54.
[15] J. Gardner-Thorpe, R.H. Hardwick, S.J. Dwerryhouse, Salvage oesophagectomy after local failure of definitive chemoradiotherapy, Br. J. Surg. 94 (2007) 1059–1066.
[16] M.S.Y. Hashimoto, O. Takeyama, A case of esophageal cancer in which resection and reconstruction was possible by Appleby operation, Archiv fur Japanische Chirurgie 61 (1992) 92.
[17] F.K.M. Ishiguro, Y. Nakamura, A case of advanced esophageal cancer in which radical resection was attained by the left thoracolaparotomy and Appleby surgery, J. Japan Surg. Assoc. 64 (2003) 1268.
[18] K.M.T. Matsubara, H. Tanaka, A case of hemorrhage due to infiltration of esophageal cancer into the gastric wall that was resected by Appleby surgery after administration of TAE, J. Abdominal Emerg. Med. 24 (2004) 455.
[19] H.O.T. Hata, S. Ogiso, A case of superficial esophageal carcinoma with a giant intramural metastasis to the stomach, J. Japan Surg. Assoc. 68 (2007) 3010–3014.
[20] N.H.K. Saito, K. Mikami, A case of advanced esophageal carcinoma performed complete resection by appleby's operation with a seven-year survival, J. Japan Surg. Assoc. 72 (2011) 346–350.
[21] E.S.M. Kusumoto, S. Yamaguchi, A case of Stage IVb esophageal cancer with a massive metastasis in the gastric wall that was diagnosed before surgery, Annu. Meet. Japan Esophageal Soc. 66 (2012) 241.
[22] N.F.M. Nakazawa, T. Yoshida, A case of resected esophageal mucous membrane cancer with intramural metastatic lesion that was directly infiltrating into the liver and pancreas, J. Japan Surg. Assoc. 73 (2012) 813.
[23] T.H.S. Tate, H. Udagawa, A case of two-stage resection performed as multimodal therapy for superficial esophageal cancer with massive gastric intramural metastasis that infiltrated into the pancreas, Jpn. Assoc. Thoracic Surg. Higashi Kanto-Koushin Abstracts 160 (2012) 19.
[24] H.I.S. Chong, T. Hagi, A case of life-saving two-stage operation performed for major bleeding from a massive gastric lymph node metastasis along the lesser curvature, J. Abdominal Emerg. Med. 35 (2015) 432.