

Case Report

## Favorable Outcome of Repeated Salvage Surgeries for Rare Metastasis to the Ligamentum Teres Hepatis and the Upper Abdominal Wall in a Stage IV Gastric Cancer Patient

Takahiro Murokawa<sup>a,c</sup>, Shinya Sakamoto<sup>a</sup>, Motoyasu Tabuchi<sup>a</sup>, Kenta Sui<sup>a</sup>, Kazuhide Ozaki<sup>a</sup>, Manabu Matsumoto<sup>b</sup>, Jun Iwata<sup>b</sup>, Takehiro Okabayashi<sup>a\*</sup>, and Hiroshi Yoshida<sup>c</sup>

Departments of<sup>a</sup>Gastroenterological Surgery, <sup>b</sup>Diagnostic Pathology, Kochi Health Sciences Center, Kochi 781-8555, Japan, <sup>c</sup>Department of Gastrointestinal and Hepato-Biliary-Pancreatic Surgery, Nippon Medical School, Tokyo 113-8603, Japan

Gastric cancer with peritoneal metastases is typically a devastating diagnosis. Ligamentum teres hepatis (LTH) metastasis is an extremely rare presentation with only four known cases. Herein, we report salvage surgery of successive metastases to the abdominal wall and LTH in a patient originally presenting with advanced gastric cancer with peritoneal metastasis, leading to long-term survival. A 72-year-old man with advanced gastric cancer underwent curative-intent distal gastrectomy with D2 lymph node dissection for gastric outlet obstruction. During this procedure, three small peritoneal metastases were detected in the lesser omentum, the small mesentery, and the mesocolon; however, intraoperative abdominal lavage cytology was negative. We added cytoreductive surgery for peritoneal metastasis. The pathological diagnosis of the gastric cancer was tubular adenocarcinoma with pT4aN1pM1(PER/P1b)CY0 stage IV (Japanese classification of gastric carcinoma/JCGC 15th), or T4N1M1b stage IV (UICC 7th). Post-operative adjuvant chemotherapy with S-1 (TS-1) + cisplatin (CDDP) was administered for 8 months followed by S-1 monotherapy for 4 months. At 28 months after the initial surgery, a follow-up computed tomography (CT) detected a small mass beneath the upper abdominal wall. The ass showed mild avidity on <sup>18</sup>F-fluorodeoxyglucose positron-emission (FDG-PET) CT. Salvage resection was performed for diagnosis and treatment, and pathological findings were consistent with primary gastric cancer metastasis. At 49 months after the initial gastrectomy, a new lesion was detected in the LTH with a similar level of avidity on FDG-PET CT as the abdominal wall metastatic lesion. We performed a second salvage surgery for the LTH tumor, which also showed pathology of gastric cancer metastasis. There has been no recurrence up to 1 year after the LTH surgery. With multidisciplinary treatment the patient has survived almost 5 years after the initial gastrectomy. Curative-intent gastrectomy with cytoreductive surgery followed by adjuvant chemotherapy for advanced gastric cancer with localized peritoneal metastasis might have had a survival benefit in our patient. Successive salvage surgeries for oligometastatic lesions in the abdominal wall and the LTH also yielded favorable outcomes.

**Key words:** gastric cancer, peritoneal metastasis, ligamentum teres hepatis, oligometastasis, salvage surgery

**G**astric cancer (GC) is the fifth most common malignancy and the third leading cause of can-

cer-related death worldwide [1]. In Japan, GC is the second most common cancer and second most frequent cause of mortality, Cancer Statistics. Cancer Information

Received February 1, 2023; accepted May 8, 2023.

\*Corresponding author. Phone: +81-88-837-6766; Fax: +81-88-837-3000  
E-mail: tokabaya@gmail.com (T. Okabayashi)

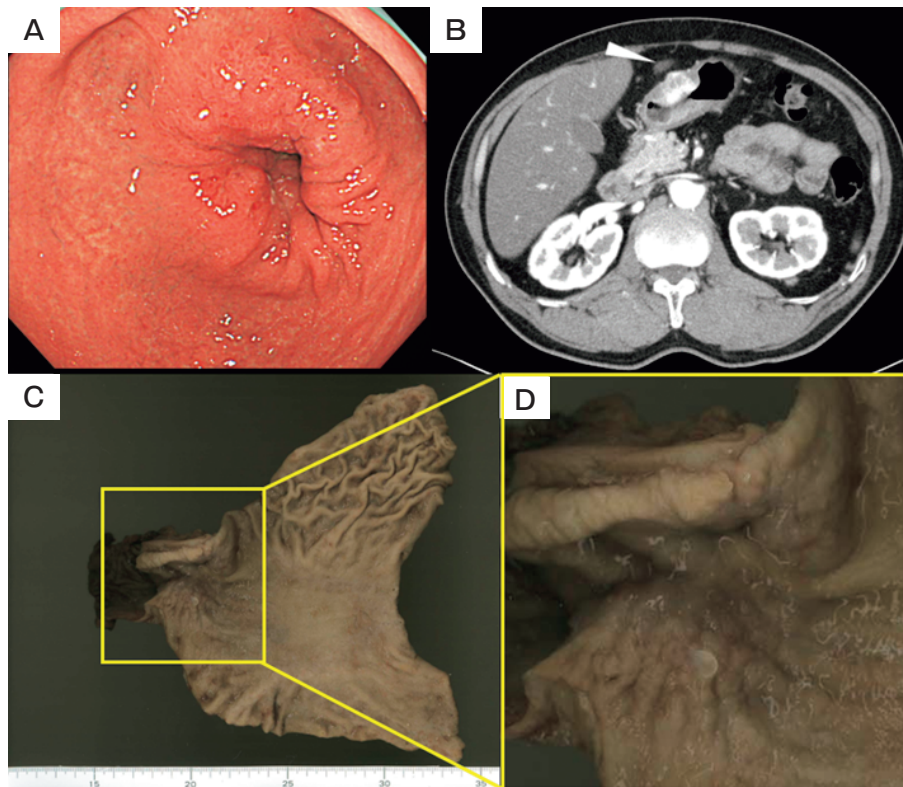
Conflict of Interest Disclosures: No potential conflict of interest relevant to this article was reported.

Service, N.C.C., Japan (Vital Statistics of Japan, Ministry of Health, Labour and Welfare), CANCER STATISTICS IN JAPAN 2022 <[https://ganjoho.jp/public/qa\\_links/report/statistics/2022\\_en.html](https://ganjoho.jp/public/qa_links/report/statistics/2022_en.html)> (accessed April, 2022). Peritoneal metastasis (PM) frequently accompanies advanced GC and suggests a very poor prognosis [2]. Treatment of GC with PM has not been well established; however, multimodal treatment for oligometastatic disease is becoming more common [3]. Recently, Yamaguchi *et al.* showed the efficacy of postoperative chemotherapy after curative-intent surgery, even for advanced GC with localized PM or positive peritoneal lavage cytology [4]. In this report, we describe a rare case of repeated salvage surgeries for rare ligamentum teres hepatis (LTH) and abdominal wall metastases in a patient who initially had stage IV GC with localized PM and had been treated with curative-intent gastrectomy with macroscopic complete resection of PM (*i.e.*, cytoreductive surgery) and adjuvant chemotherapy. The metachronous recurrences in the upper abdominal wall

and LTH were completely resected. No recurrence or distant metastasis was observed 12 months after the last salvage surgery for LTH metastasis, and the patient was still surviving 4 years and 11 months after the initial gastrectomy.

### Case Presentation

A 72-year-old man was referred to our hospital due to gastric outlet obstruction. He was diagnosed with advanced GC in the antrum by endoscopy with biopsy; computed tomography (CT) (Fig. 1A, 1B) also identified a synchronous left renal cell cancer. Tumor markers, such as CEA and CA 19-9, were not elevated, and the preoperative radiological examination showed no evidence of unresectable GC. Elective surgery was planned; however, during the procedure, three 2-mm masses were discovered in the lesser omentum, the small mesentery, and the posterior lobe of the transverse mesocolon and confirmed as peritoneal metastasis.



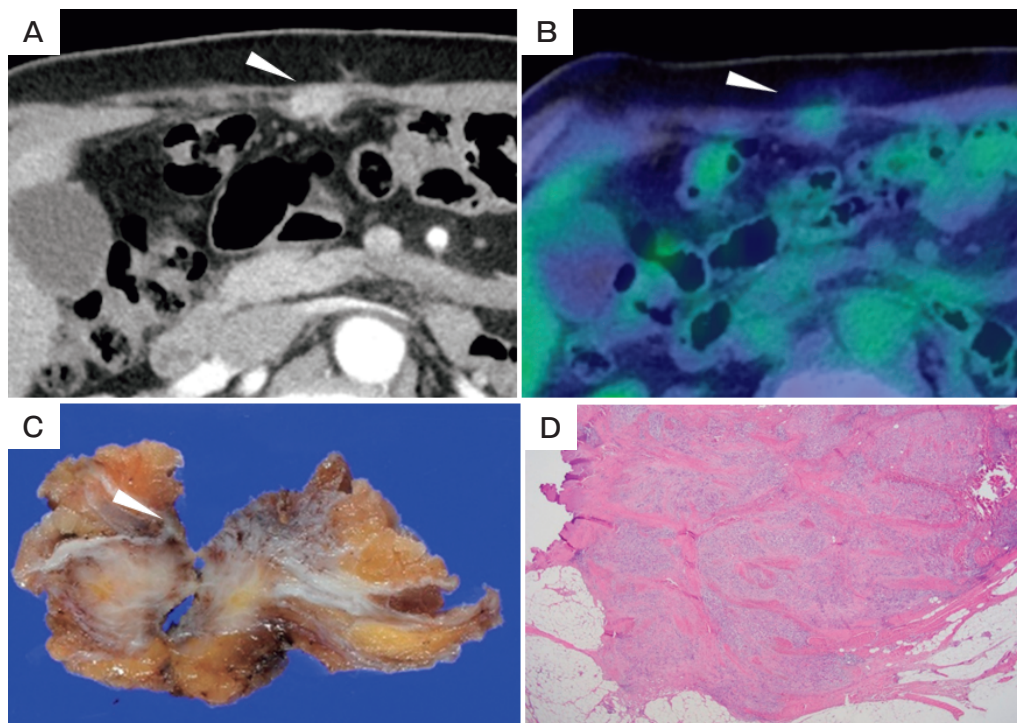
**Fig. 1** Clinical findings and specimen of the primary gastric cancer. **A**, Gastroscopy showed a circumferential mass in the antrum of the stomach; **B**, Contrast CT showed enhanced gastric wall thickening in the lower stomach (white arrowhead); **C**, **D**, The primary gastric cancer specimen.

ses using intraoperative rapid pathological diagnosis (P1b/Japanese classification of Gastric Carcinoma/JCGC 15th). Intraoperative abdominal lavage cytology, however, was negative (CY0). We performed standard distal gastrectomy with dissection of the regional lymph nodes (D2) and macroscopic complete resection for the peritoneal metastases primarily to address the gastric outlet syndrome and to prevent bleeding from the tumor. Left partial nephrectomy was performed simultaneously for the renal tumor. Examination of the specimen resected from the antrum revealed a 40×39 mm type 3 GC (Fig. 1C, 1D). The pathological diagnosis was moderately differentiated (tub2>por2) adenocarcinoma with pT4aN1pM1 (PER/P1b) stage IV (JCGC 15th), or T4N1M1b stage IV (UICC 7th). The surgical margins of the GC and the resected peritoneal masses were negative (R0), and the their Her2 status was negative (1+/immunohistochemistry test). The renal cell cancer was an early-stage clear cell carcinoma.

Post-operative adjuvant chemotherapy comprising S-1 (TS-1; Taiho Pharmaceutical Co. Ltd.; Tokyo, Japan)+cisplatin (CDDP) was administered for 8

months; for the next 4 months this regimen was reduced to S-1 monotherapy due to the adverse effect of general fatigue. Follow-up contrast computed tomography (CT) 28 months after the surgery, or 16 months after cessation of adjuvant chemotherapy, detected a 10-mm mass beneath the upper abdominal wall. There was no elevation of tumor markers at the time (Fig. 2A). <sup>18</sup>F-fluorodeoxyglucose positron-emission (FDG-PET) CT showed mild avidity with an early SUVmax of 1.94 (Fig. 2B). Salvage tumorectomy was performed for diagnosis and treatment since the abdominal wall lesion appeared to be a solitary lesion (Fig. 2C) and could cause pain if chemotherapy failed. Multidisciplinary discussion also intended recycling platinum-based regimen was preserved at this point. The pathological findings of the tumor were consistent with metastasis of the primary GC (Fig. 2D). Intensive follow-up was continued without systemic chemotherapy since this metastasis could have been due to tumor implantation from the previous gastrectomy, rather than the peritoneal metastasis.

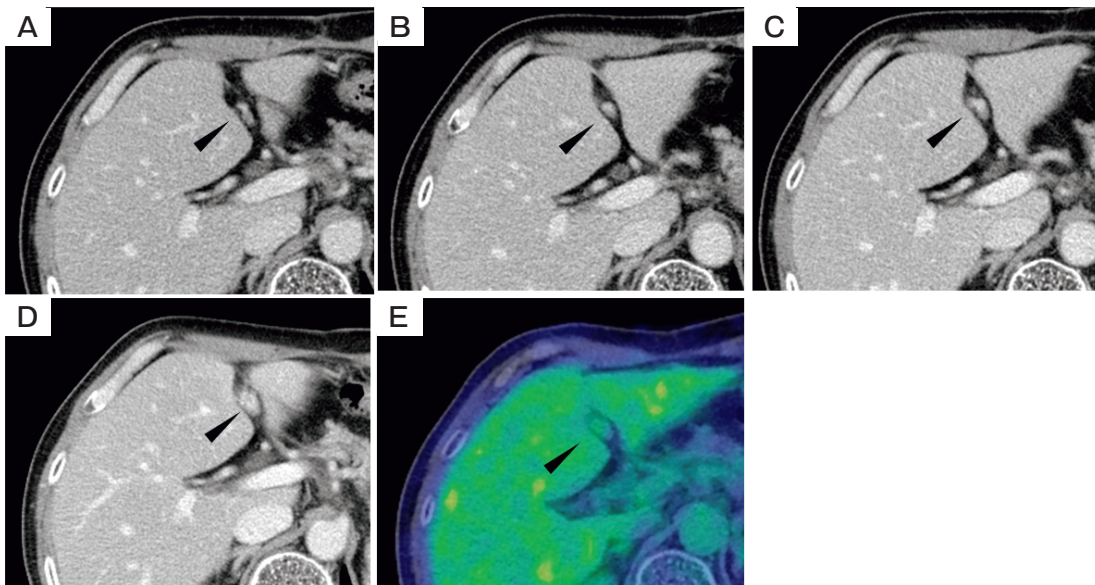
Twenty-one months after the salvage surgery to the



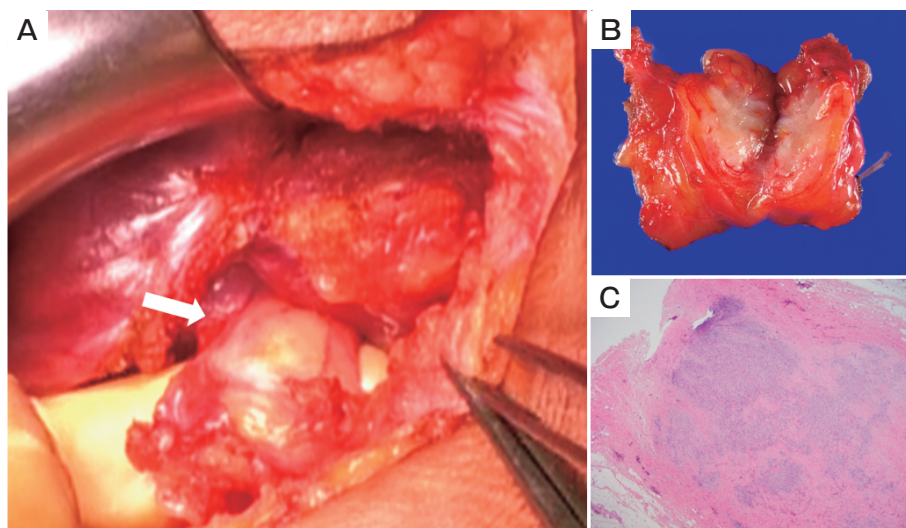
**Fig. 2** Clinical and pathological findings of metastasis to the abdominal wall (white arrowhead shows abdominal wall metastasis). **A**, Contrast CT showed the irregular mass beneath the rectal fascia; **B**, On FDG-PET CT, the mass had mild avidity; **C**, The tumor specimen; **D**, Histopathological examination confirmed it as a metastasis from the initial gastric cancer.

abdominal wall metastasis, and 49 months after the initial gastrectomy, a new 10-mm mass was detected in the LTH (Fig. 3A-D) with a similar level of avidity on FDG-PET CT as the previous abdominal metastatic lesion (early SUVmax, 2.34; Fig. 3E). The tumor markers were not elevated and again, no other distant metastatic lesion was found. The tumor was suspected as a metas-

tasis considering the previous findings of metastasis to the abdominal wall, but it was difficult to clinically determine whether it originated from the stomach or the kidney. Therefore, we performed a second salvage surgery for the LTH tumor rather than perform systemic chemotherapy. The LTH was surgically resected (Fig. 4A, 4B) and pathologically diagnosed as metasta-



**Fig. 3** Serial contrast CT and additional PET/CT findings of the lesion of the ligamentum teres hepatis (black arrowhead shows the LTH). Contrast CT at 23, 39, 40 and 50 months after the gastrectomy (A–D) The additional PET-CT (E).



**Fig. 4** Clinical and pathological findings of metastasis to the ligamentum teres hepatis (white arrow shows the mass in the LTH). **A**, Intraoperative findings of the LTH mass; **B**, The tumor specimen; **C**, Histopathological examination revealed it as a metastasis from the initial tubular adenocarcinoma in the stomach.

sis from the GC (Fig. 4C). Mild lymphovascular invasion was found in the tumor, but vascular invasion was absent (ly1, v0). No recurrence has occurred up to 1 year after the LTH surgery. The patient has survived for almost 5 years after the initial gastrectomy with multidisciplinary treatment.

## Discussion

This is the first successfully treated case of metachronous LTH and abdominal wall metastasis from a case initially diagnosed as stage IV GC, which had been treated with curative-intent gastrectomy and cytoreductive surgery (CRS) for localized peritoneal metastasis. The presentation of the LTH metastasis was extremely uncommon, but the combination of intensive follow-up of contrast CT with additional FDG-PET CT was helpful in detecting and confirming this metastasis during surveillance. Although the patient had peritoneal metastases, which generally confer a dismal prognosis, curative-intent radical surgery followed by adjuvant chemotherapy and repeated salvage surgeries for abdominal wall and LTH cancer recurrences have allowed an unexpectedly long survival of at least 5 years from treatment initiation.

This is the first case report of metastasis to the LTH from GC. To our knowledge, only four cases of metastasis to the LTH and falciform ligament have been reported [5-8]; these originated from thyroid cancer, prostate cancer, breast cancer and intrahepatic cholangiocarcinoma, respectively (Table 1). The thyroid cancer and prostate cancer patients experienced the metastasis more than 10 years after the initial resection. The metastasis from prostate cancer was speculated to have derived from occult peritoneal metastasis, whereas the other 3 cases were explained by hematogenous metastatic pathways. The breast cancer patient's recurrence at the LTH appeared 2 years after radical mastectomy and adjuvant chemotherapy. During that period, the patient had undergone breast reconstructive surgery using the rectus abdominis flap. The authors speculated that this vascular pedicle flap might have been the anatomical pathway (via superior epigastric vessels and the remnant umbilical vein) from the primary site to the LTH, or that this metastasis was caused by avascular foci stimulated by the surgical procedure. Nomura *et al.* also reported a case of resected intrahepatic cholangiocarcinoma in segment IV with simultaneous metastasis

in the falciform ligament. They speculated that anastomosis of falciform ligament and supraepigastric vessels might have been the metastatic pathway. In our patient, the metastasis to the LTH, which was already separated at the primary surgery, was a solitary lesion. Based on the clinical course and pathological findings, it is possible that a cancer cell might have exfoliated from the previous abdominal wall metastasis and invaded the LTH via lymphatic vessels at the stump of the LTH. The patient's metastasis to the abdominal wall itself could be considered a rare occurrence, and it was difficult to determine whether its implantation occurred at the time of the primary gastrectomy or constituted a PM recurrence. Nevertheless, the timing was 16 months after cessation of adjuvant chemotherapy, which might suggest that the adjuvant chemotherapy had some anti-tumor effect. These metastases were clinically judged as oligometastases, so we decided to perform local resection.

Although FDG-PET CT for GC recurrence surveillance is still controversial in terms of size and type of recurrence sites, avidity with different histologies, and cost-benefit at outpatient clinics [9-11], additional FDG-PET CT offers detailed information on metastasis, especially when recurrence is suspected in the clinical setting [12]. In our patient, FDG-PET CT was helpful in identifying successive oligometastatic lesions and planning local therapy.

Multidisciplinary treatment and therapeutic strategies for metastatic GC have been attempted previously [13]. Advanced GC with PM still has a relatively poor prognosis despite the use of systemic chemotherapy. Optimal treatment strategies have differed widely in the eastern and western settings and remain controversial [14, 15]. The phase 3 randomized controlled REGATTA study did not favor palliative gastrectomy with adjuvant chemotherapy for incurable advanced GC with a single non-curable factor, but the cohort did not include patients with P1 status in JCGC 15th [16]. Slight PM is often difficult to diagnose radiologically in preoperative settings. When PM is diagnosed intraoperatively, if the metastasis is focal, *i.e.*, judged as P1 or P2, palliative or radical gastrectomy followed by systemic chemotherapy could be acceptable and might have survival benefit from retrospective studies [17-19], but patients with type 4 GC were not considered appropriate candidates for such treatment [18]. According to a large retrospective study with 506 patients conducted by Yamaguchi *et*

Table 1 Literature review of metastasis to the ligamentum teres hepatis/the falciform ligament

| Author                   | Patient (Age/sex) | Primary tumor                    | Timing of metastasis from primary surgery | Imaging modality   | Size (cm) at the detection | Preope Cx | Diagnostic method  | Metastatic pathway   | Adjuvant treatment          | Prognosis after Dx                |
|--------------------------|-------------------|----------------------------------|---|--|----------------------------|-----------|--|--|-----------------------------|-----------------------------------|
| Garcia-Burillo et al [6] | 69/F              | Thyroid cancer                   | 20 years                                  | <sup>18</sup> F-FDG PET/CT, <sup>123</sup> I whole-body scan | Not reported               | None      | Resection  | Hematogenous (high vascularity in the specimen)                    | 131-I                       | No recurrence, 6 months           |
| Kranzbuhler et al [7]    | 58/M              | Prostate cancer                  | 11 years                                  | <sup>68</sup> GaPSMA-PET/MRI                                 | 1.5 × 2.7                  | None      | Surgical biopsy  | Occult peritoneal dissemination                                    | None                        | Not reported                      |
| Prete et al [8]          | 69/F              | Breast cancer                    | 2 years                                   | CT   | 8                          | None      | Resection  | Hematogenous (superior epigastric vessels, remnant umbilical vein) | Cx (Epirubicin + Docetaxel) | Died, 6 months (Brain metastasis) |
| Nomura et al [9]         | 85/F              | Intrahepatic cholangio-carcinoma | Simultaneous                              | CT, MRI  | 2.9                        | None      | Combined resection with primary tumor (Left hepatectomy) | Hematogenous (Intramembrane falciform ligament vein)               | None                        | No recurrence, 6 months           |

M, Male; F, Female; CT, Computed tomography; Cx, Chemotherapy; Dx, diagnosis; Preope, preoperative.

*al.*, adjuvant chemotherapy after radical gastrectomy with macroscopic complete resection of PM had some survival benefits for GC patients with CY1 and/or P1a, but its 5-year survival was only 22-27% and the median survival time was 24.7-29.5 months [4]. Upfront radical gastrectomy with macroscopic complete resection of limited PM in combination with adjuvant chemotherapy could be indicated in selected patients with symptoms like obstruction or bleeding. In preoperatively high-risk-of-PM cases such as T3/4 and type4 GC, staging laparoscopy/exploratory laparotomy followed by neoadjuvant systemic chemotherapy with the goal of eventual conversion surgery has become somewhat of a standardized strategy [20]. Recently, Yoshida *et al.* reported a large international multicenter retrospective study (CONVO-GC-1) in which patients with limited PM (P1 and/or CY1 status) had better survival after R0 resection, with a median survival time of 44.8 months ( $p < 0.001$ ) [21]. Several prospective randomized trials, such as “RENAISSANCE” (NCT02578368), are underway to address issues related to conversion surgery for metastatic GC [20].

Our patient experienced two recurrences at unusual sites in the abdomen, mimicking PM; however, these were solitary occurrences, and ascites was never seen throughout the period. The behavior of these metastases was thought to be different from that of devastating PM. The indication for surgical resection of these lesions was based on the concept of oligometastasis, resulting in prolonged patient survival [3]. Further research is needed to clarify the definition of oligometastasis in metachronous PM and cases of miscellaneous metastasis and to establish a treatment strategy.

In summary, we described the first rare case of LTH and abdominal wall metastasis from GC. At the time of the initial diagnosis, the GC had already developed peritoneal disease; however, the combination of curative-intent gastrectomy with adjuvant chemotherapy might have had a survival benefit. Subsequent salvage surgeries for oligometastatic lesions in the abdominal wall and LTH have led to a favorable overall survival of almost 5 years to date.

Funding. This work was supported by Kochi Organization for Medical Reformation and Renewal grants.

Acknowledgments. We would like to thank Editage (www.editage.com) for English language editing.

## References

- Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA and Jemal A: Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* (2018) 68: 394–424.
- Kuramoto M, Shimada S, Ikeshima S, Matsuo A, Yagi Y, Matsuda M, Yonemura Y and Baba H: Extensive intraoperative peritoneal lavage as a standard prophylactic strategy for peritoneal recurrence in patients with gastric carcinoma. *Ann Surg* (2009) 250: 242–246.
- Jung JO, Nienhüser H, Schleussner N and Schmidt T: Oligometastatic Gastroesophageal Adenocarcinoma: Molecular Pathophysiology and Current Therapeutic Approach. *Int J Mol Sci* (2020) 21: 951.
- Yamaguchi T, Takashima A, Nagashima K, Makuuchi R, Aizawa M, Ohashi M, Tashiro K, Yamada T, Kinoshita T, Hata H, Kawachi Y, Kawabata R, Tsuji T, Hihara J, Sakamoto T, Fukagawa T, Katai H, Higuchi K and Boku N: Efficacy of Postoperative Chemotherapy After Resection that Leaves No Macroscopically Visible Disease of Gastric Cancer with Positive Peritoneal Lavage Cytology (CY1) or Localized Peritoneum Metastasis (P1a): A Multicenter Retrospective Study *Ann Surg Oncol* (2020) 27: 284–292.
- García-Burillo A, Monturiol-Duran JA, Iglesias-Felip C, Villasboas-Rosciolesi D and Castell-Conesa J: Follicular Thyroid Carcinoma Metastases on Round Ligament of Liver. *Clin Nucl Med Clin Nucl Med* (2021) 46: 326–328.
- Kranzbühler B, Tran S, Zilli T and Burger IA: 68Ga-PSMA PET/MR-Positive Peritoneal Metastasis in the Falciform Ligament in Recurrent Prostate Cancer. *Clin Nucl Med* (2017) 42: e388–e389.
- Prete FP, Di Giorgio A, Alfieri S and Doglietto GB: Breast-cancer metastasis in the round ligament of the liver. *Lancet Oncol* (2006) 7: 354.
- Nomura Y, Sakai H, Akiba J, Hisaka T, Sato T, Goto Y, Akashi M, Fukutomi S, Muroya D, Kanno H, Okamura S, Yano Y, Yano H, Akagi Y and Okuda K: Laparoscopic left hepatectomy for a patient with intrahepatic cholangiocarcinoma metastasis in the falciform ligament: a case report. *BMC Surg* (2021) 21: 122.
- Sim SH, Kim YJ, Oh DY, Lee SH, Kim DW, Kang WJ, Im SA, Kim TY, Kim WH, Heo DS and Bang YJ: The role of PET/CT in detection of gastric cancer recurrence. *BMC Cancer* (2009) 9: 73.
- Kim DW, Park SA and Kim CG: Detecting the recurrence of gastric cancer after curative resection: comparison of FDG PET/CT and contrast-enhanced abdominal CT. *J Korean Med Sci* (2011) 26: 875–880.
- De Potter T, Flamen P, Van Cutsem E, Penninckx F, Filez L, Bormans G, Maes A and Mortelmans L: Whole-body PET with FDG for the diagnosis of recurrent gastric cancer. *Eur J Nucl Med Mol Imaging* (2002) 29: 525–529.
- Nakamoto Y, Togashi K, Kaneta T, Fukuda H, Nakajima K, Kitajima K, Murakami K, Fujii H, Satake M, Tateishi U, Kubota K and Senda M: Clinical value of whole-body FDG-PET for recurrent gastric cancer: a multicenter study. *Jpn J Clin Oncol* (2009) 39: 297–302.
- Al-Batran SE, Homann N, Pauligk C, Illerhaus G, Martens UM, Stoehlmacher J, Schmalenberg H, Luley KB, Prasn timer N, Egger M, Probst S, Messmann H, Moehler M, Fischbach W, Hartmann JT, Mayer F, Höffkes HG, Koenigsmann M, Arnold D, Kraus TW, Grimm K, Berkhoff S, Post S, Jäger E, Bechstein W, Ronellenfitsch U, Mönig S and Hofheinz RD: Effect of Neoadjuvant Chemotherapy Followed by Surgical Resection on Survival in Patients With Limited Metastatic Gastric or Gastroesophageal Junction Cancer: The AIO-FLOT3 Trial. *JAMA Oncol* (2017) 3: 1237–1244.
- Japanese Gastric Cancer, A., Japanese Gastric Cancer Treatment Guidelines 2021 (6th edition). *Gastric Cancer* (2023) 26: 1–25.
- Bonnot PE, Piessen G, Kepenekian V, Decullier E, Pocard M, Meunier B, Bereder JM, Abboud K, Marchal F, Quenet F, Goere D, Msika S, Arvieux C, Pirro N, Wernert R, Rat P, Gagnière J, Lefevre JH, Courvoisier T, Kianmanesh R, Vaudoyer D, Rivoire M, Meeus P, Passot G and Glehen O; FREGAT and BIG-RENAPE Networks: Cytoreductive Surgery With or Without Hyperthermic Intraperitoneal Chemotherapy for Gastric Cancer With Peritoneal Metastases (CYTO-CHIP study): A Propensity Score Analysis. *J Clin Oncol* (2019) 37: 2028–2040.
- Fujitani K, Yang HK, Mizusawa J, Kim YW, Terashima M, Han SU, Iwasaki Y, Hyung WJ, Takagane A, Park DJ, Yoshikawa T, Hahn S, Nakamura K, Park CH, Kurokawa Y, Bang YJ, Park BJ, Sasako M and Tsujinaka T; REGATTA study investigators: Gastrectomy plus chemotherapy versus chemotherapy alone for advanced gastric cancer with a single non-curable factor (REGATTA): a phase 3, randomised controlled trial. *Lancet Oncol* (2016) 17: 309–318.
- Hioki M, Gotohda N, Konishi M, Nakagohri T, Takahashi S and Kinoshita T: Predictive factors improving survival after gastrectomy in gastric cancer patients with peritoneal carcinomatosis. *World J Surg* (2010) 34: 555–562.
- Saito H, Kono Y, Murakami Y, Kuroda H, Matsunaga T, Fukumoto Y, Tomohiro O and Fujiwara Y: Gross Appearance and Curability Are Predictive Factors of a Better Prognosis After Gastrectomy in Gastric Cancer Patients with Metastasis to the Adjacent Peritoneum of the Stomach. *Yonago Acta Med* (2017) 60: 174–178.
- Nie RC, Chen S, Yuan SQ, Chen XJ, Chen YM, Zhu BY, Qiu HB, Peng JS and Chen YB: Significant Role of Palliative Gastrectomy in Selective Gastric Cancer Patients with Peritoneal Dissemination: A Propensity Score Matching Analysis. *Ann Surg Oncol* (2016) 23: 3956–3963.
- Kinoshita J, Yamaguchi T, Moriyama H and Fushida S: Current status of conversion surgery for stage IV gastric cancer. *Surg Today* (2021) 51: 1736–1754.
- Yoshida K, Yasufuku I, Terashima M, Young Rha S, Moon Bae J, Li G, Katai H, Watanabe M, Seto Y, Hoon Noh S, Kwang Yang H, Ji J, Baba H, Kitagawa Y, Morita S, Nishiyama M and Kodera Y; CONVO-GC-1 Study Group, Federation of Asian Clinical Oncology (FACO): International Retrospective Cohort Study of Conversion Therapy for Stage IV Gastric Cancer 1 (CONVO-GC-1). *Ann Gastroenterol Surg* (2021) 6: 227–240.