

# A Case of Gastric Cancer with Residual Tumor Only in the Para-Aortic Lymph Nodes after Systemic Chemotherapy followed by Conversion Surgery

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## Key Words

Gastric cancer · Conversion surgery · Para-aortic lymph node metastasis

## Abstract

We report the case of a 60-year-old male who was diagnosed with gastric cancer. Upper gastrointestinal endoscopy indicated advanced cancer in the posterior wall of the gastric body. Biopsy revealed poorly differentiated adenocarcinoma. Abdominal computed tomography demonstrated thickening of the gastric wall and enlargement of the regional lymph nodes and of the para-aortic lymph nodes (PAN). The involvement of the PAN extended from the celiac axis to the caudal area of the inferior mesenteric artery [cT3N3aH0P0M1(LYM), stage IV]. Systemic chemotherapy was initiated. After 3 courses of S-1 plus cisplatin combination chemotherapy, the primary lesion and the enlarged lymph nodes revealed marked regression except for a minute residual lesion in the lymph nodes. Upon obtaining informed consent, open distal gastrectomy, D2 lymphadenectomy with PAN dissection, and Roux-en-Y reconstruction were performed. The patient was discharged from the hospital 35 days after the operation. Histopathological examination of the resected samples revealed malignant cells only in the PAN, not in the stomach or in the regional lymph nodes [ypT0N0M1(LYM),

Tsutsuyama et al.: A Case of Gastric Cancer with Residual Tumor Only in the Para-Aortic Lymph Nodes after Systemic Chemotherapy followed by Conversion Surgery

stage IV]. Currently, the patient is undergoing postoperative adjuvant chemotherapy with S-1 and has remained well without any recurrence after 6 months following surgery.

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## Introduction

Systemic chemotherapy is the standard treatment for metastatic gastric cancer. Recently, there have been some reports of conversion surgery in cases where systemic chemotherapy was successful. However, the indication of surgery, optimal regime, and courses of chemotherapy, and the extent of lymph node dissection in conversion surgery are controversial clinical issues. In the present case, we performed conversion surgery, and a residual tumor was detected only in the para-aortic lymph nodes (PAN), although postoperative histopathological examination indicated complete regression of both the primary lesion and regional lymph node metastases.

## Case Report

A 60-year-old male was referred to our hospital for further evaluation of the gastric tumor diagnosed by a primary care doctor. He was 170.9 cm tall and weighed 58.1 kg (body mass index 19.9). Upper gastrointestinal endoscopy indicated type III advanced gastric cancer in the posterior wall of the gastric body (fig. 1). Biopsy results yielded a diagnosis of poorly differentiated adenocarcinoma. A computed tomography (CT) scan revealed thickening of the posterior wall in the lower gastric body with enlargement of lymph nodes along with the lesser curvature, greater curvature, celiac artery, and PAN (No. 16a2, No. 16b1, No. 16b2; fig. 2). No liver metastases or ascites were identified.

The clinical diagnosis was cT3N2M1(LYM) stage IV, and systemic chemotherapy was initiated for the treatment of unresectable advanced gastric cancer. After 3 courses of S-1 plus cisplatin combination chemotherapy (S-1: 80 mg/m<sup>2</sup>, days 1–21; CDDP: 60 mg/m<sup>2</sup>, day 8), the primary lesion (fig. 3) and the enlarged lymph nodes (fig. 4) revealed a marked regression except for a minute residual lesion in the lymph nodes. Additional positron emission tomography-CT indicated no fluorodeoxyglucose uptake at the site of the primary lesion, regional lymph nodes, or PAN (fig. 5). We presented the patient with two options: continuing systemic chemotherapy or a conversion surgery, and the latter was selected. Open distal gastrectomy, dissection of D2 and PAN, and Roux-en-Y reconstruction were performed. Following surgery, the patient developed an intra-abdominal abscess (Clavien-Dindo classification: grade IIIa), but was successfully treated with ultrasound-guided abscess drainage. The patient was discharged 35 days after surgery.

The resected specimen showed scarring in the posterior wall of the gastric body (fig. 6). Histopathological examination did not show the presence of malignant cells in the stomach or regional lymph nodes but revealed malignant cells only in the PAN [ypT0N0M1(LYM), stage IV] (fig. 7).

The patient was administered S-1 (80 mg/m<sup>2</sup>) as postoperative adjuvant chemotherapy and has exhibited recurrence-free survival 6 months following surgery.

Tsutsuyama et al.: A Case of Gastric Cancer with Residual Tumor Only in the Para-Aortic Lymph Nodes after Systemic Chemotherapy followed by Conversion Surgery

## Discussion

Stage IV gastric cancer has a poor prognosis. A randomized clinical trial conducted in Japan and Korea indicated that systemic chemotherapy is the standard treatment for metastatic gastric cancer (JCOG0705, REGATTA trial). On the other hand, there have been some reports of conversion surgery with advances in chemotherapy.

Conversion surgery is radical resection performed for previously unresectable cases that become resectable as a result of regression following chemotherapy. It should be distinguished from neoadjuvant chemotherapy, which is used for clinically resectable cases aiming downstaging. However, a strict separation of the two strategies is sometimes difficult because the definition of 'unresectable' varies among physicians.

PAN involvement in gastric cancer patients is classified as stage IV and generally considered to be distant metastasis [1]. On the other hand, the vast number of retrospective studies showed that 10–20% of patients with metastasis to the PAN actually survived for 5 years after R0 resection, and prospective studies of multimodal therapy are currently being conducted [2–4]. However, most of these studies are dealing with PAN in the region caudal to the celiac axis and cranial to the inferior mesenteric artery, termed lymph node stations No. 16a2–b1 in the Japanese Classification of Gastric Carcinoma. Cases of lymph node metastasis that extend to the caudal side of the inferior mesenteric artery (No. 16b2), as in our case, are normally treated as unresectable.

There are a number of reports of chemotherapy followed by surgery for unresectable stage IV gastric cancer. Although, some of the case reports showed complete histopathological regression of both the primary lesion and involved lymph nodes [5, 6], there are no reports of remaining metastases solely involving the PAN along with complete regression of the primary lesion and involved regional lymph nodes, as in the present case.

The extent of lymph node dissection is a controversial clinical issue when performing conversion surgery in gastric cancer patients with PAN metastasis. Actually, the proportions of cases where PAN dissection is performed varies considerably across the reports [7, 8].

Of course, we cannot conclude whether dissection of PAN will contribute to the improvement of prognosis in the present case. Park et al. [9] showed that gastric cancer patients with PAN involvement alone experience a better survival with palliative chemotherapy; however, the 3-year overall survival was only 13.1% for de novo metastatic disease. On the other hand, neoadjuvant chemotherapy with S-1 and cisplatin followed by surgery including PAN dissection for gastric cancer with extensive lymph node metastasis showed 3-year overall survival rates of 59% [2], although the target is somewhat different from the present case. These results suggest that PAN dissection may be an option when performing conversion surgery in gastric cancer patients with PAN metastasis.

In the present case, we performed 3 courses of preoperative S-1 plus cisplatin combination chemotherapy and were then able to safely perform gastrectomy with PAN dissection. However, there is insufficient evidence regarding the safety, optimal regimen, and number of courses required when performing conversion surgery. Further studies are warranted.

## Statement of Ethics

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Tsutsuyama et al.: A Case of Gastric Cancer with Residual Tumor Only in the Para-Aortic Lymph Nodes after Systemic Chemotherapy followed by Conversion Surgery

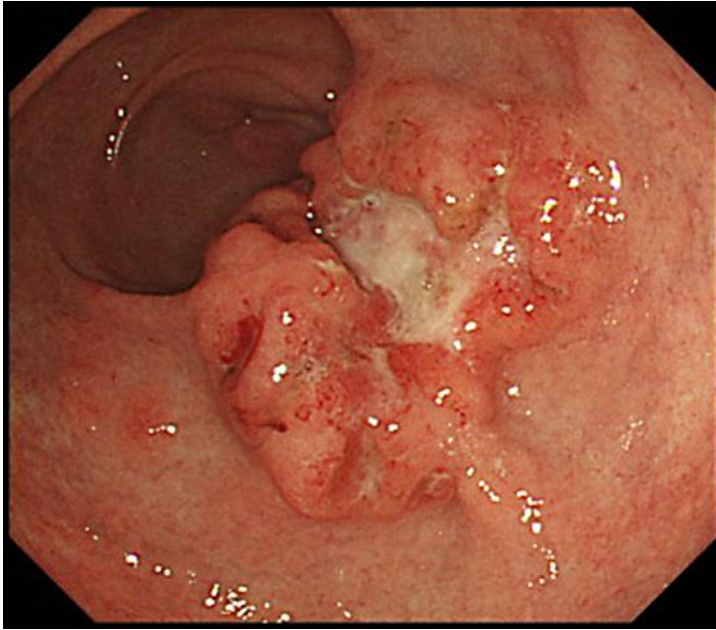
### Disclosure Statement

The authors declare that they have no competing interests.

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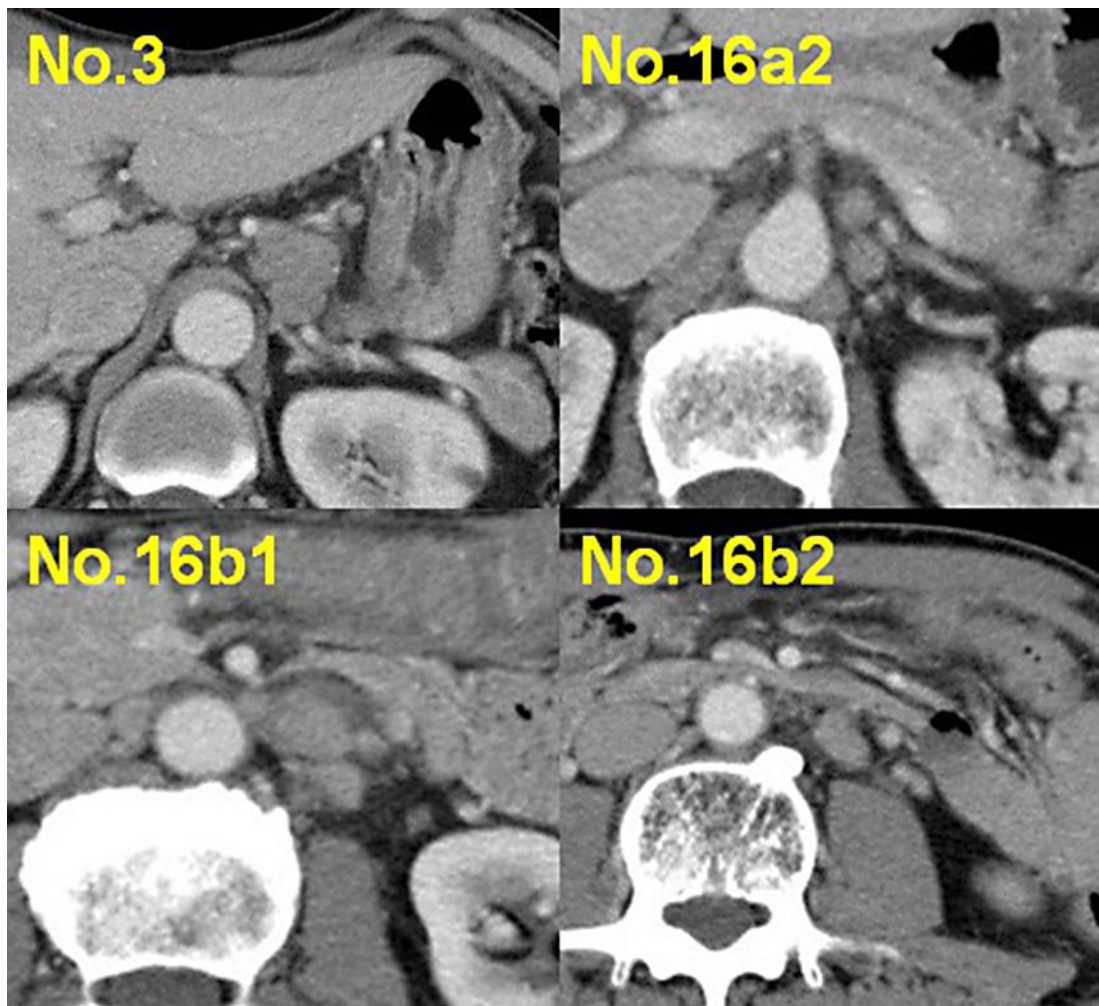
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Tsutsuyama et al.: A Case of Gastric Cancer with Residual Tumor Only in the Para-Aortic Lymph Nodes after Systemic Chemotherapy followed by Conversion Surgery



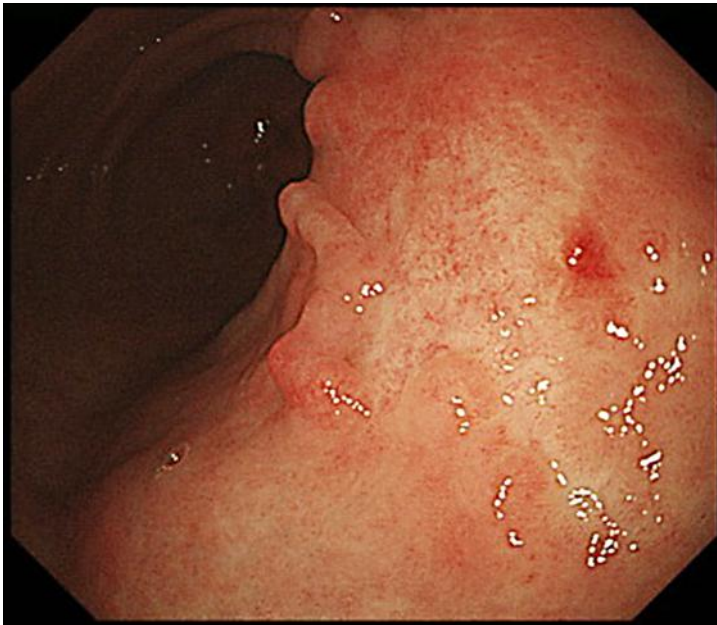
**Fig. 1.** Upper gastrointestinal endoscopy findings at the initial visit. A type III tumor was identified in the posterior wall of the gastric body.

Tsutsuyama et al.: A Case of Gastric Cancer with Residual Tumor Only in the Para-Aortic Lymph Nodes after Systemic Chemotherapy followed by Conversion Surgery



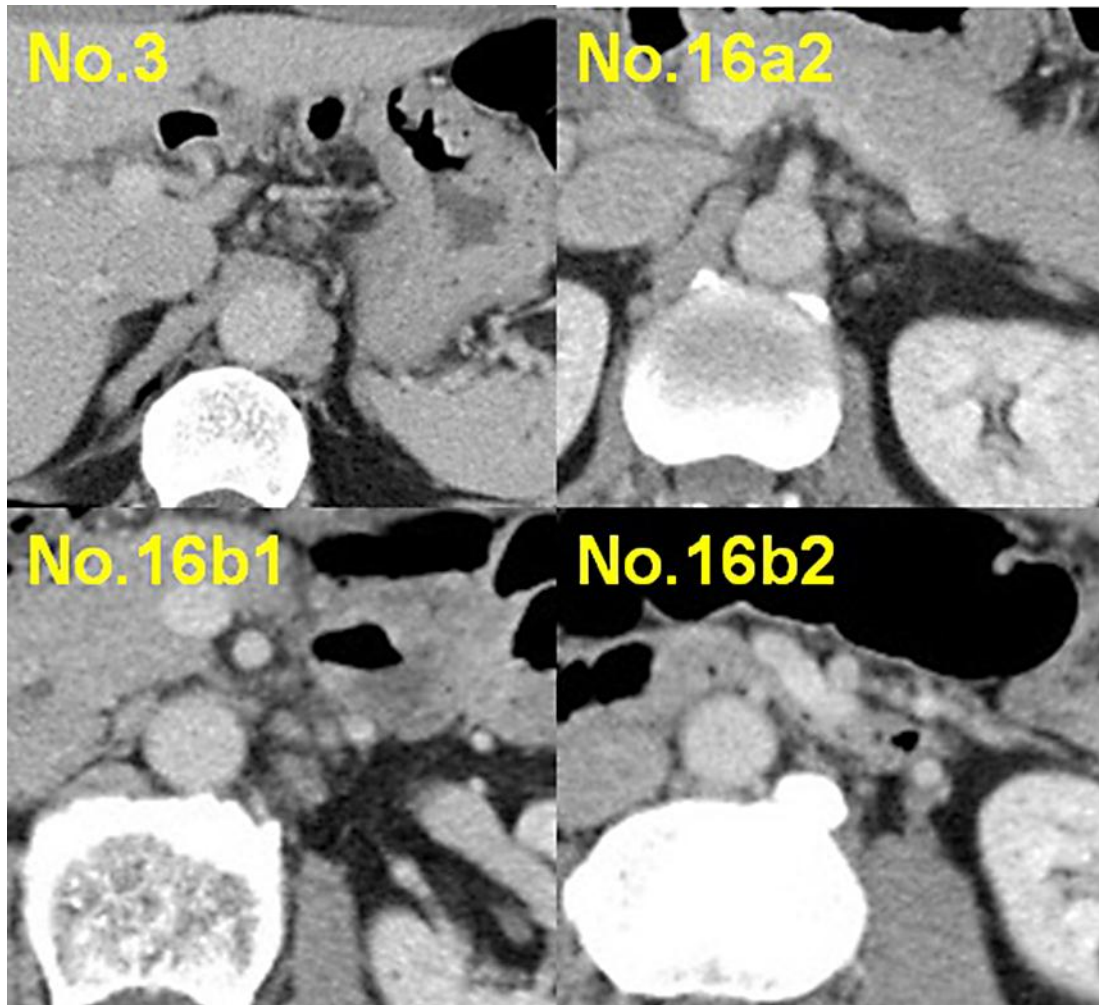
**Fig. 2.** CT imaging at the initial visit. CT images revealed enlargement of the regional lymph nodes and PAN extending from the caudal side of the celiac artery to the caudal side of the inferior mesenteric artery.

Tsutsuyama et al.: A Case of Gastric Cancer with Residual Tumor Only in the Para-Aortic Lymph Nodes after Systemic Chemotherapy followed by Conversion Surgery



**Fig. 3.** Upper gastrointestinal endoscopy findings following chemotherapy. Macroscopic observations indicated complete regression of the primary lesion.

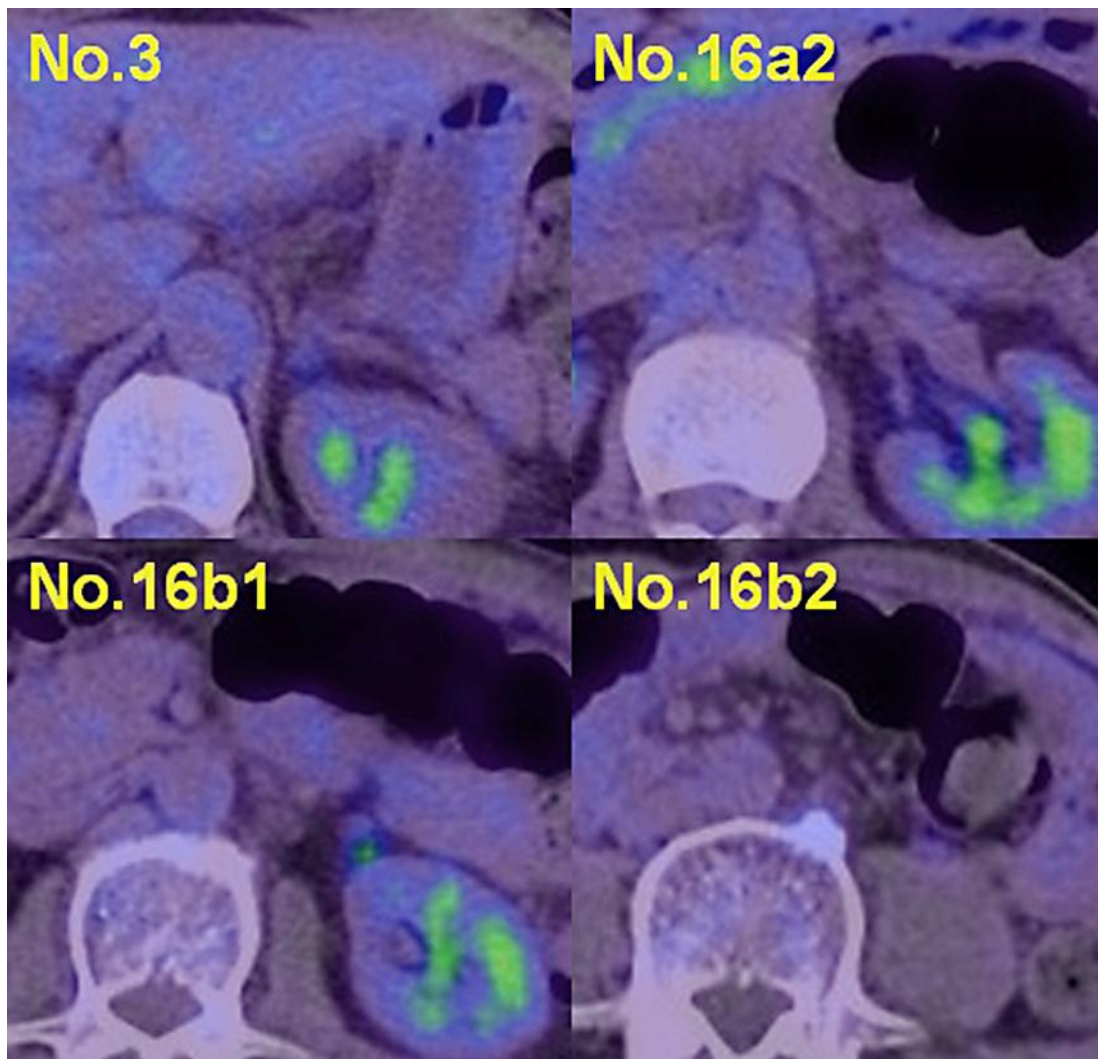
Tsutsuyama et al.: A Case of Gastric Cancer with Residual Tumor Only in the Para-Aortic Lymph Nodes after Systemic Chemotherapy followed by Conversion Surgery



**Fig. 4.** CT imaging following chemotherapy. Partial regression of the regional lymph nodes and PAN is indicated.

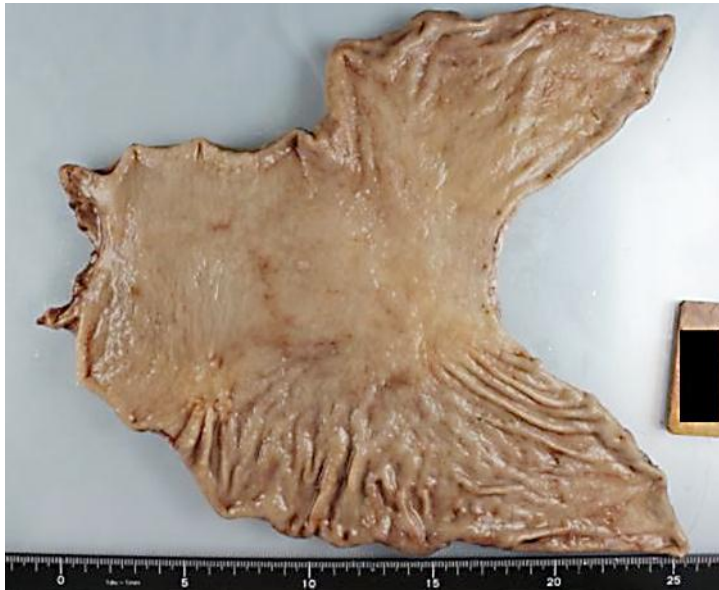


Tsutsuyama et al.: A Case of Gastric Cancer with Residual Tumor Only in the Para-Aortic Lymph Nodes after Systemic Chemotherapy followed by Conversion Surgery



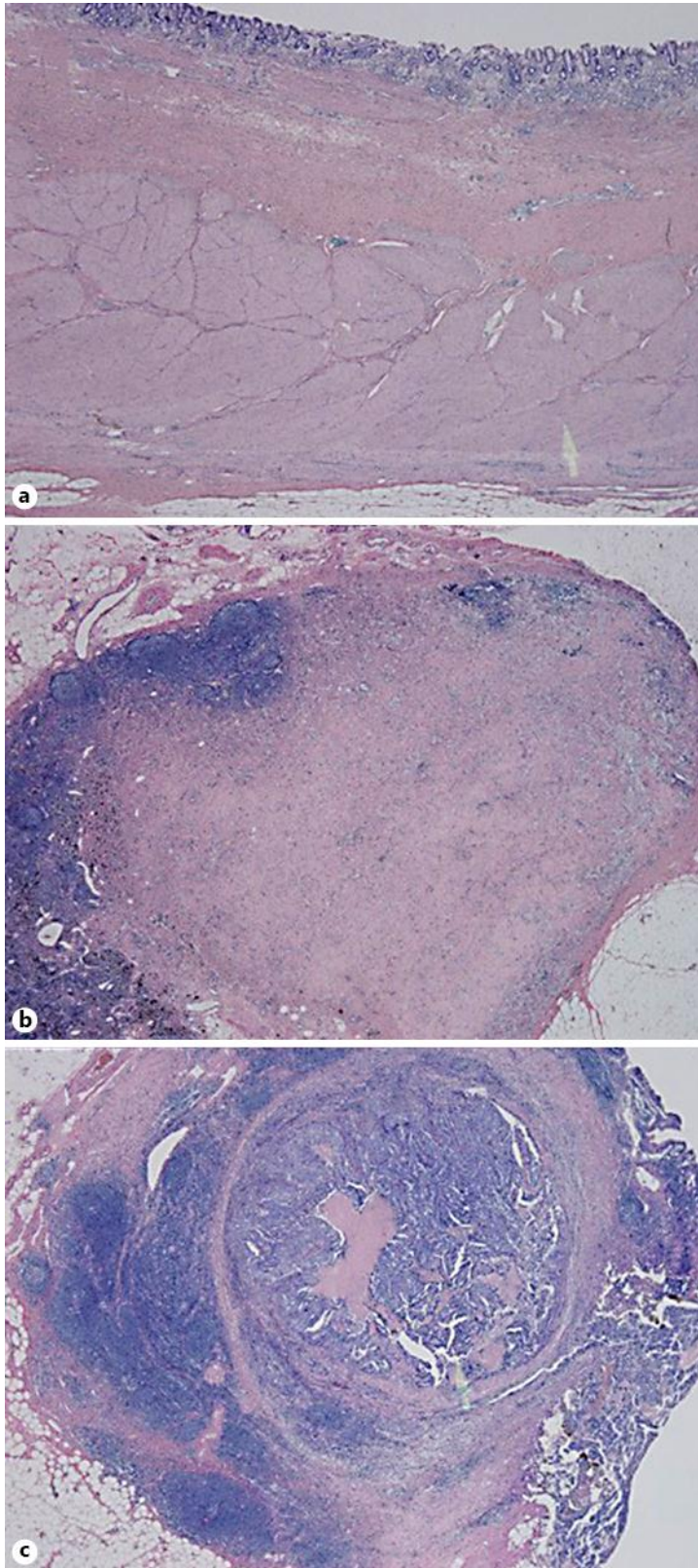
**Fig. 5.** Positron emission tomography-CT imaging following chemotherapy. No fluorodeoxyglucose uptake was observed in either regional lymph nodes or PAN.

Tsutsuyama et al.: A Case of Gastric Cancer with Residual Tumor Only in the Para-Aortic Lymph Nodes after Systemic Chemotherapy followed by Conversion Surgery



**Fig. 6.** Surgically resected specimen. Macroscopic observation indicated complete regression of the primary lesion.

Tsutsuyama et al.: A Case of Gastric Cancer with Residual Tumor Only in the Para-Aortic Lymph Nodes after Systemic Chemotherapy followed by Conversion Surgery



**Fig. 7.** Histopathological findings. Complete regression of the primary lesion and regional lymph nodes (a, b), but remnant cancer cells in the PAN (c).