

Case Report

A Patient with Advanced Gastric Cancer Who Achieved a Long-Term Prognosis by Early Diagnosis of Sister Mary Joseph's Nodule

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Keywords

Gastric cancer · Sister Mary Joseph's nodule · Chemotherapy

Abstract

The patient was a 66-year-old woman. An induration of approximately 15 mm in size that accompanied redness was palpable in the umbilical fossa. She did not respond to 1-month antibiotic treatment provided by the previous physician. For this reason, a biopsy of the site was performed with the possibility of neoplastic disease in mind, resulting in the detection of adenocarcinoma. Subsequent detailed whole-body examination revealed advanced gastric cancer and peritoneal dissemination, and the induration in the umbilical fossa was diagnosed as a direct infiltration from the peritoneal dissemination. Metastasis or infiltration of malignant tumor to the umbilicus is called Sister Mary Joseph's nodule (SMJN), and considered as a sign of poor prognosis. However, this case was successfully treated and achieved a long-term prognosis by the early diagnosis of SMJN. In routine clinical practice, it is considered necessary to examine patients carefully, as not to overlook SMJN.

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Introduction

Metastasis or infiltration of malignant tumor to the umbilicus is called Sister Mary Joseph's nodule (SMJN), and is a relatively rare lesion [1]. In most cases, the presence of lesion remains unnoticed until the malignant tumor is far advanced, and traditionally, SMJN has been known as a sign that suggests the status of terminal cancer [2]. However, we recently treated a patient with advanced gastric cancer who could receive systemic chemotherapy while maintaining general condition after an early diagnosis of the presence of SMJN, and who achieved a long-term prognosis.

Case Report

The patient was a 66-year-old woman with no particular medical history. She presented with redness in the umbilical fossa 2 months before her visit to our hospital. Her condition was not improved despite 1-month antibiotic treatment for the diagnosis of periomphalitis provided by a nearby physician, resulting in a referral to our hospital. In the initial examination in our hospital, an induration of 15 mm × 10 mm in size that accompanied redness was palpable in the umbilical fossa (Fig. 1). Since the 1-month antibiotic treatment provided by the previous physician was not effective and the induration was palpable, a skin tissue biopsy of the site was performed with the possibility of neoplastic disease in mind, rather than continuing conservative treatment further. As a result, poorly differentiated adenocarcinoma was detected (Fig. 2). In upper gastrointestinal endoscopy conducted to identify the primary site, type IV advanced gastric cancer was observed in the anterior wall of the gastric corpus (Fig. 3). Histopathological biopsy of the gastric cancer detected poorly differentiated adenocarcinoma, which was similar to the result of skin tissue biopsy of the umbilical fossa (Fig. 4). Computed tomography performed for whole-body examination revealed a high-density node in the umbilical area and elevated peritoneal concentration reflecting peritoneal dissemination (Fig. 5a). Based on these findings, the patient was diagnosed with advanced gastric cancer cT4bN1M1 of stage IV. Since the definitive diagnosis could be made before the general condition of the patient deteriorated, systemic chemotherapy was started as the standard therapy. As a result, SMJN was reduced and carcinomatous peritonitis was improved (Fig. 5b). The patient was still alive 21 months after the diagnosis.

Discussion

SMJN is defined as metastasis or infiltration of malignant tumor to the umbilicus. In 1928, Mayo [3] reported umbilical metastases of visceral malignant disease. Sister Mary Joseph, who was an assistant and a nurse working for Mayo, evaluated the prognosis of umbilical metastases. Bailey honored her achievements and named umbilical metastases of malignant tumors as SMJN in *Demonstration of Physical Signs in Clinical Surgery* in 1949 [4]. The frequency at which intraperitoneal malignant tumors form SMJN is approximately 1–3%, indicating that it is a relatively rare form of metastasis [1]. In many reports, the most common primary cancer of SMJN is gastric cancer, followed by gastrointestinal cancer including bowel cancer, and genital cancer, mainly ovarian cancer [5, 6]. The possible origins of SMJN are hematogenous metastasis from arteries or veins, lymphogenous metastasis from axillary, inguinal, or para-aortic lymph nodes, and direct infiltration from peritoneal dissem-

ination [7]. Since this patient had peritoneal dissemination and no other metastatic lesions suspected as hematogenous or lymphogenous metastasis, and the umbilicus lacks subcutaneous fat and muscle layers anatomically, direct infiltration from peritoneal dissemination was considered most likely.

Traditionally, the presence of SMJN remains unnoticed in most cases until the malignant tumor is far advanced, and has thus been considered as a sign of poor prognoses [2]. However, a study of prognosis according to treatment in 25 patients with advanced cancer who presented with SMJN reported that patients treated with surgery or anticancer drugs had a better prognosis as compared with those treated with best supportive care [5]. Therefore, diagnosing SMJN early, before general condition of patients deteriorates and thereby allowing for standard therapy according to the primary organ, may result in the improvement of patient prognosis. In fact, SMJN in the present case could be diagnosed while in a milder state as compared with traditionally reported SMJN [8]. As a result, chemotherapy could be started appropriately, and the patient is still alive 21 months after the diagnosis of SMJN.

In conclusion, the possibility of SMJN should be considered in routine clinical practice, even for minimal changes in the umbilicus such as those reported in our case. Moreover, diagnosing SMJN early and properly with such clinical attitude is considered highly important in identifying the presence of intraperitoneal malignant tumors early and improving prognosis by treatment.

Statement of Ethics

The authors have no ethical conflicts to declare.

Disclosure Statement

The authors have no conflicts of interest to disclose.

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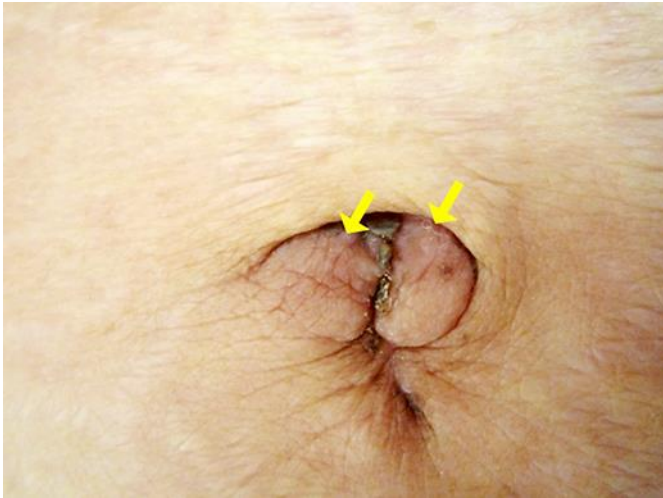


Fig. 1. Macroscopic image of the umbilical fossa. An induration of 15 × 10 mm in size that accompanied redness was present (arrows).

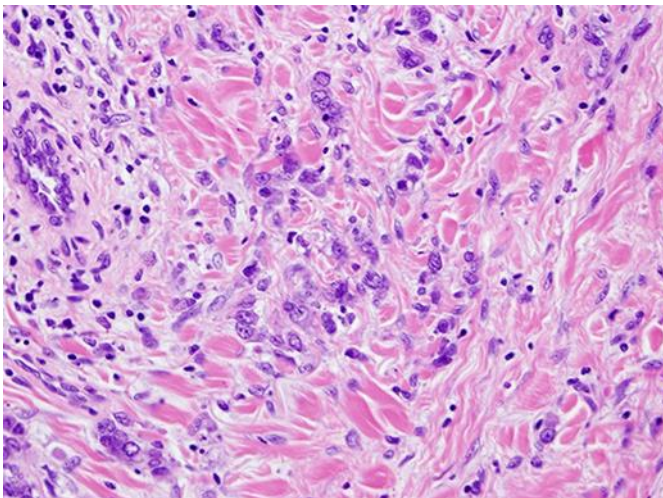


Fig. 2. Skin tissue biopsy image of the umbilical fossa. Irregularly shaped nuclei of atypical cells with a nucleolus indicate poorly differentiated adenocarcinoma. Original magnification ×200.

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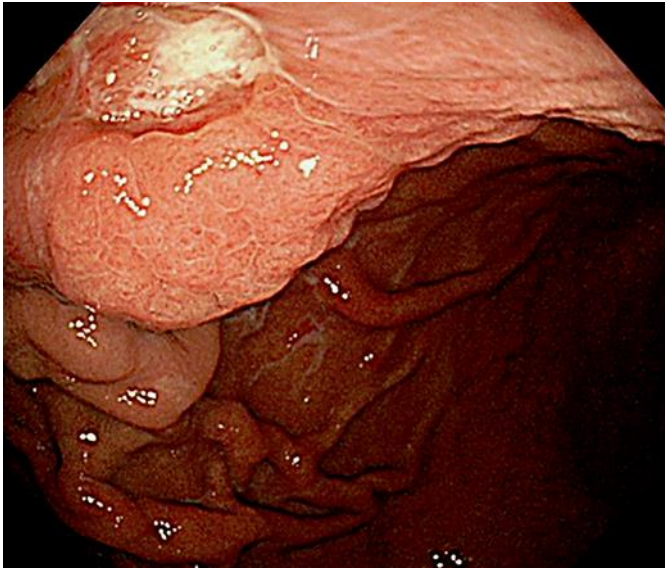


Fig. 3. Upper gastrointestinal endoscopic image. Borrmann type IV advanced gastric cancer was present in the anterior wall of the gastric corpus.

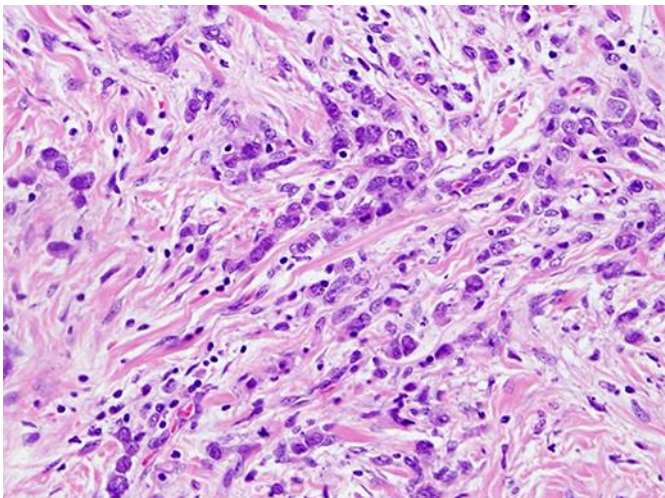


Fig. 4. Tissue biopsy image of Borrmann type IV advanced gastric cancer. In the histopathological biopsy of gastric cancer, poorly differentiated adenocarcinoma, which was similar to an umbilical mass, was detected. Original magnification $\times 200$.

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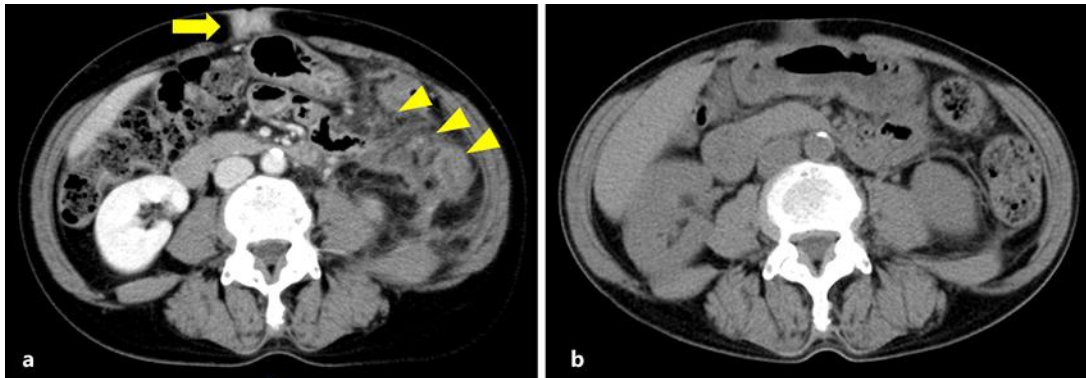


Fig. 5. **a** Contrast-enhanced computed tomography (CT) image of the abdomen. A high-density node in the umbilical area (arrow) and elevated peritoneal concentration reflecting peritoneal dissemination (arrowheads) were observed. **b** Plain CT image of the abdomen. After the start of chemotherapy, the umbilical node was reduced and peritoneal dissemination was improved.