



Case Report

Advanced diffuse gastric adenocarcinoma in young Syrian woman. A case report

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ABSTRACT

Introduction: Gastric cancer is a deadly disease with vague early symptoms. Its occurrence and prognosis in young patients have demonstrated significant variation and delay in detection, which is the most critical variable in disease prognosis.

Case presentation: We report a rare case of a 27-year-old Syrian female with metastasis diffuse gastric cancer with delayed diagnosis and poor prognosis without relevant history. She presented with two years of fatigue, loss of appetite, and postprandial abdominal pain, which has worsened over the past two months, vomiting, weight loss, and ascites. Gastroduodenoscopy showed superficial ulcers, with a positive *Helicobacter Pylori* infection. The computerized tomography (CT) scan revealed extensive thickening of the stomach, ascites, and Sister Mary Joseph nodule. The nodule tissue morphology coupled with immunostaining showed a poorly differentiated adenocarcinoma metastatic from the stomach. She was referred to a specialized oncology hospital for follow-up and palliative treatment.

Clinical discussion: Gastric adenocarcinoma affects people in their fifties and sixties, and rarely in their twenties. Risk factors include diet, smoking, alcoholism, long-term use of proton pump inhibitors, *Helicobacter pylori* infection, pernicious anemia, and a genetic and family history of malignancies. Diagnosis at an early stage is essential in predicting prognosis. The diffuse gastric cancer spreads along the wall rather than into the lumen. The challenge is to detect tumors.

Conclusion: Gastric diffuse cancer screening and surveillance programs have yet to be defined. It is still unclear who should be screened when the screening should begin, and how the screening should take place.

1. Introduction

Gastric cancer is still a major cause of death in the world, accounting for over one million new cases in 2020 and an estimated 769,000 deaths, ranking fifth in incidence and fourth in mortality. Men have a two-fold higher rate than women [1]. Recent notable findings include an increase in diffuse gastric cancer incidence among young adults (aged 50 years) [1], while it is exceedingly unusual in people under the age of 30; it rises quickly and continuously to reach the greatest rates in the oldest age groups [2]. For young patients, the prognosis of stomach cancer is still unclear, as clinicopathological aspects differ between young and old patients. It is assumed that younger individuals have a worse prognosis due to delayed diagnosis and more aggressive tumor behavior [3]. We present a rare case of a 27-year-old Syrian female with metastases diffuse gastric cancer. The gastroduodenoscopy, which was performed

twice, was unable to pinpoint the origin of the symptoms, and the CT scan was postponed until her final appointment when symptoms of metastases developed. The umbilical nodule biopsy and immunostaining determined the tumor's primary site. Despite the undeniable advantage of gastroduodenoscopy techniques in identifying cancer and precancerous lesions, gastroduodenoscopy had failed to diagnose this case despite biopsies and histological evaluation. As the diffuse type of gastric cancer spreads along the gastric wall rather than into the gastric lumen. The real challenge is to detect diffuse gastric cancer early which necessitates a different approach to the diagnosis of such cases. It is vital to follow academic approaches in the investigation and patient management, particularly in the presence of gastrointestinal warning symptoms is required, as failure may result in a delay in diagnosis and, as a result, a poor prognosis. This case report has been reported in line with the SCARE criteria 2020 [4].

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2. Case presentation

A 27-year-old non-smoker Syrian woman presented to the hospital's outpatient clinic with two years of fatigue, loss of appetite, and post-prandial abdominal pain. She has visited several clinics over the previous two years without receiving a definite diagnosis. The symptoms have worsened over the past two months, with the development of vomiting, weight loss, and ascites. Her weight was 44 kg and her tall was 158 cm, thus her body mass index was ($BMI = 17.6 \text{ kg/m}^2$). No past surgical or familial history. Her past medications were esomeprazole and ondansetron. The clinical examination revealed an enlargement of the abdomen with positive shifting dullness and, additionally, a Sister Mary Joseph sign, which is a 2 cm palpable umbilical nodule, Fig. 1; no palpable hepatomegaly or splenomegaly. Laboratory tests revealed a slight increase in the urea of 54 mg/dl, an elevation in the erythrocyte sedimentation rate (ESR), and hemoglobin levels slightly decreased at 10.2 g/dl. An ascites sample was drawn after an abdominal ultrasound revealed several hypo-echoic epigastric nodules. The serum ascites albumin gradient (SAAG) was equal to 1, adenosine deaminase (ADA) was negative, and ascites revealed the presence of a large number of lymphocytes and macrophages, as well as a large number of reactive mesothelial and atypical cells. The gastroduodenoscopy revealed several superficial ulcers, snakeskin appearance, and areas of erythema Fig. 2. The biopsies revealed *Helicobacter pylori* infection. This matched the findings of a gastroduodenoscopy and biopsies performed a year ago. A CT scan of the chest, abdomen, and pelvis showed extensive thickening of the stomach, infiltration of the adjoining omentum, abundant ascites, and a Sister Mary Joseph nodule Fig. 3. The morphology of tissues taken from Sister Mary Joseph nodule coupled with Immunostaining showed a poorly differentiated adenocarcinoma metastatic from the stomach, as malignant cells were positive for CK20, and negative for CK7 (see Figs. 4a and b), while each synaptophysin, CD20, and Ttf1 were negative. These findings give the tumor stage IV according to the American Joint Committee on Cancer (AJCC) 8th edition [5]. She was referred to a tumor-treatment specialized hospital for chemotherapy, or chemotherapy combined with radiotherapy and/or immunotherapy as palliative therapy to ease symptoms and enhance the quality of life.

3. Discussion

Gastric adenocarcinoma mostly affects people in their fifties and sixties [2], and rarely occurs in the twentieth [6]. The risk factors for gastric adenocarcinoma are many, such as diet (salty foods, smoked meat, chili peppers, and a lack of fresh fruits and vegetables). Also, smoking and alcoholism, long-term use of proton pump inhibitors, and pernicious anemia are among the risk factors. Other risk factors are



Fig. 1. Sister Mary Joseph sign.

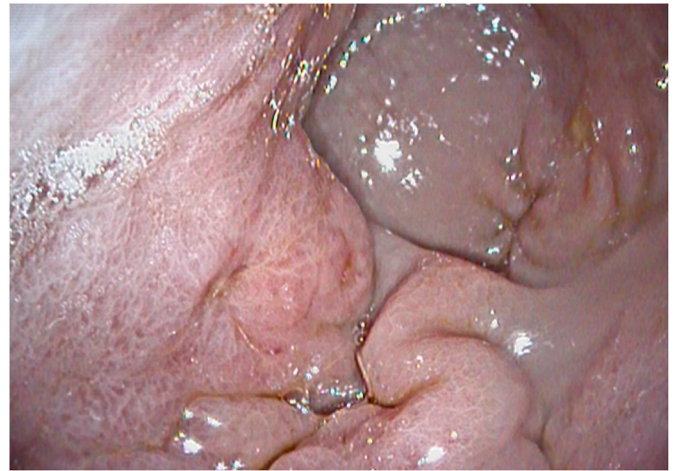


Fig. 2. Gastroduodenoscopy which revealed several superficial ulcers, snake-skin appearance, with areas of erythema.



Fig. 3. Abdomen CT scan showed extensive thickening of the stomach wall, sister Mary Joseph sign, and abundant ascites.

genetic and family history of cancers such as hereditary nonpolyposis colorectal cancer (Lynch syndromes I & II) and familial adenomatous polyposis (FAP) [7], and none of them appear to be true in our case based on the history. *Helicobacter Pylori* infection is the most potentially recognized risk factor for gastric adenocarcinoma; however, even after decades of infection, the only an insignificant proportion of infected subjects develop adenocarcinoma [8], and there is insufficient evidence to suggest the optimal age to begin eradication therapy [9,10], knowing that *Helicobacter pylori* infection eradication is difficult in Syria [11,12]. Early detection of a gastric tumor is critical in determining prognosis, and each of the following indicates metastatic gastric cancer: weight loss, anemia, Virchow nodes (left supraclavicular), Irish node (anterior axillary), and periumbilical (Sister Mary Joseph nodule). The patient had a sister Mary Joseph nodule which is a name given to a rare metastatic malignant umbilical nodule, as only 1–3% of cases of

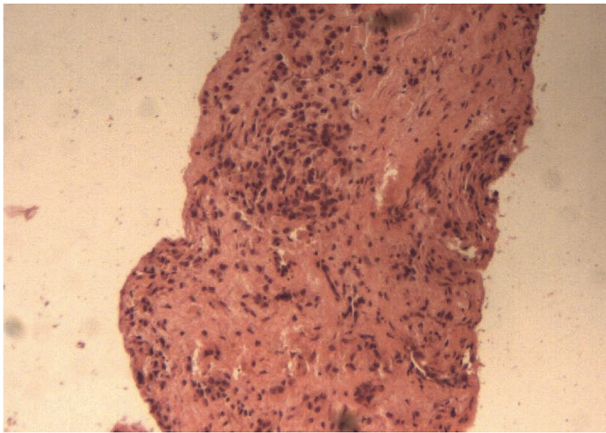


Fig. 4a. Histological imaging which revealed atypical cells infiltration.

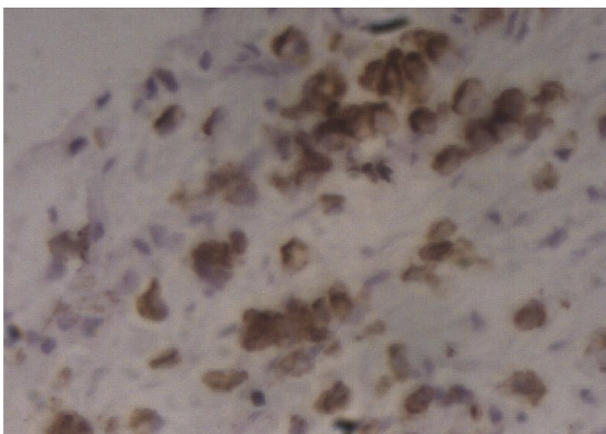


Fig. 4b. Immunostaining showed a adenocarcinoma metastatic from the stomach. Malignant cells were positive for CK20 negative for CK7.

abdominal-pelvic malignancy metastasizing to the umbilicus [13]. The primary neoplasm may be gastrointestinal (35–65%), genitourinary tract (12–35%) [14], or other sites such as the liver, pancreas, gall-bladder lung, breast, kidney, testicles, and prostate in up to 30% of patients [14], also the source of the primary neoplasm may not be discovered [14]. The differential diagnoses of periumbilical mass included primary umbilical neoplasm, metastasis, umbilical and para-umbilical hernia, umbilical endometriosis, keloid, omphalith, pyoderma gangrenosum, and foreign body. The clinical history and clinical examination, laboratory and radiographic studies help to determine the diagnosis [15]. The involvement of gastrointestinal symptoms in young patients may misguide clinicians during the diagnostic process, as was the case with our patient. She presented with fatigue, loss of appetite, and postprandial abdominal pain, these early symptoms at this age may not be related to gastric cancer, then she suffered from postprandial vomiting and weight loss. Even though the patient had seen several doctors, and despite the appearance of the Sister Mary Joseph nodule during the last few months, this didn't help in diagnosing her case. This may be due to a lack of diagnostic capabilities as the computerized tomography (CT) scan was postponed until her most recent visit [16]. The best strategy for reducing gastric cancer mortality is screening and surveillance programs, which have yet to be defined due to a lack of standardized recommendations, which raises many relevant concerns taking into account its natural history, global variability, and diagnostic tools. It is still unclear who should be screened when the screening should begin, and how the screening should take place [17,18]. Hereditary diffuse gastric cancer consensus guidelines for CDH1 mutation

testing included: (1)two family gastric cancer, irrespective of age, with at least one confirmed diffuse gastric cancer; (2)diffuse gastric cancer in an individual under the age of 40; and (3)personal or family history of diffuse gastric cancer and lobular breast cancer, with one diagnosed before the age of 50 [19]. Due to the lack of genetic counseling in our case, we advise the patient's relatives to have a gastroduodenoscopy for follow-up. The ideal age for screening individuals from affected families is unknown, and prophylactic total gastrectomy is advised for any individual with an appropriate family tree who has been shown to have a germline CDH1 mutation and is often advised between the ages of 20 and 30. There are no reliable screening tests that allow early diagnosis of diffuse gastric cancers in mutation carriers, as lesions are hidden beneath an intact surface epithelium and become viewable only late in the disease process.

Ethical approval

This case report did not require review by the Ethics Committee of Damascus Hospital, Damascus, Syria.

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Author contribution

Marouf Alhalabi established the conceptualization, wrote the main manuscript text, prepared (Figures). Marouf Mouhammad Alhalabi, Saddam Alsayd and Mazen Albattah. Edited and revised. All authors had reviewed and approved the final manuscript.

Registration of research studies

This is case report and didn't required a research registration.

Guarantor

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Consent

Written informed consent was obtained from patient. It was clearly stated that only clinical information will be shared in research, without mentioning any personal details at any part of the article.

Provenance and peer review

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Declaration of competing interest

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