

Polyserositis revealing a signet ring cells gastric adenocarcinoma in a 27 years old male patient: A case report.

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Abstract

Gastric cancer remains one of the most common and deadly cancers worldwide, especially among old males. It is rare in the younger population (< 30 years old). We describe the case of a 27 years old male patient, presenting to the emergency department, with exsudative polyserositis, initially misdiagnosed and treated as a multifocal tuberculosis with no clinical improvement, later revealing a metastatic signet ring cells gastric adenocarcinoma.

Introduction

Gastric cancer is the 5th most common neoplasm and the 3rd most deadly cancer with an estimated 783000 deaths [1]. Over one million cases of gastric cancer are diagnosed each year around the world, especially among old males (60–70 years old) [1]. Early diagnosis and treatment have shown to improve survival rate although very non satisfying in the metastatic stage [2].

Gastric adenocarcinomas are primarily classified as cardia and non-cardia based on their anatomic site. Cancers of the gastric cardia arise in the region adjoining the esophageal-gastric junction and thus share epidemiological characteristics with esophageal adenocarcinoma (smoking, alcohol, obesity, gastroesophageal reflux...). Non-cardia cancer, also known as distal stomach cancer, arises in the lower portion of the stomach, and *Helicobacter Pylori* infection represents it's most important risk factor [1–4]. Although non-cardia cancer is more common than cardia cancer, the incidence of the latter has increased 7 times these past decades [3]. Gastric cancer is common among old patients. However, only a few cases have been reported in the younger population [4].

We hereby describe the case of a 27 years old male patient, presenting to the emergency department with exsudative polyserositis (bilateral pleural effusion and ascites), initially misdiagnosed and treated as a multifocal tuberculosis with no clinical improvement. Patient was admitted in the infectious diseases department for further investigations, later revealing a metastatic gastric signet ring cells adenocarcinoma.

Observation

It's a 27 years old male patient, with no medical history, who started complaining, 10 months prior to his admission, of epigastric pain, dyspepsia and post-prandial nausea and vomiting, for which he received a simple symptomatic treatment. Seven months later, patient presented a dry cough, a mild abdominal distension and bilateral basithoracic pain along with his initial symptoms, which made him consult his doctor.

A chest X-ray was performed and showed bilateral pleural effusion. The patient then received antibacillary treatment for 45 days (documents to support the diagnosis of a multifocal tuberculosis couldn't be found). Even though he received his treatment correctly, the patient noticed no clinical improvement (frequent dry cough, important abdominal distention, significant weight loss, and shortness

of breath), which made him stop all medication and present to the emerging department. The initial diagnosis of a multifocal tuberculosis was questioned because of this clinical outcome, hence his admission in the infectious diseases department for further investigations.

Clinical examination showed a pale patient with stable hemodynamics and mild dyspnea. Weight: 58 kgs .Urines were dark colored, and a Labstix test performed on a urine sample showed proteinuria (+) and hematuria (++) . We also brought out a bilateral pleural effusion syndrome (inferior half of the right lung and inferior 1/3rd of the left lung), Ascites (abdominal distention and dullness to percussion), bilateral lower limb edema, and no palpable lymph node.

An EKG was performed and showed a sinus tachycardia and no electrical signs of heart failure. Blood and urine tests results are summarized in Table 1, ascites and pleural effusion puncture tests results are summarized in Table 2.

Table 1
Blood and urine test results.

Hemoglobin :	14.5 g/dl
White blood cells (WBC) :	5000 c/mm ³
Absolute neutrophil count (ANC) :	3150 c/mm ³
Platelets :	393000 c/mm ³
Lymphocytes :	1305 c/mm ³
Prothrombin ratio (PR) :	90%
Serum total protein :	66g/L
Serum albumin :	42g/l
Urea :	0.33g/l
Creatinine :	8mg/l
Na ⁺ :	142 mmol/l
K ⁺ :	4.3mmol/l
C-reactive protein :	4.4 mg/l
AST/GOT :	61 UI/L
ALT /GPT :	28 UI/L
GGT :	108 UI/L
Alkaline Phosphatase :	79 UI /L
LDH :	290 UI/L
24 hour urine protein test :	40mg/24h
Cytobacteriological urine test :	-Red blood cells : 40 000 c/mm ³ -White blood cells : 18 000 c/mm ³ -Sterile culture
three acid-fast bacillus smears in sputum	negatives

Table 2
Ascites and pleural effusion puncture results

Tests results	Ascites puncture	Pleural effusion puncture
Proteins	29.74g/L	44g/L
White blood cells	490	320
Neutrophil count	20%	20%
Lymphocytes	80%	80%
Red blood cells	7200	6720
Adenosine deaminase (ADA)	7.8	8.8
GeneXpert™ MTB /RIF (Cepheid)	Negative	Negative
Direct examination	Negative	Negative
Culture	Sterile	Sterile
Mycobacterium Tuberculosis	Absent	Absent

An esophago-gastro-duodenoscopy (EDG) was performed to explore his digestive discomfort, and showed a tumor in the greater curvature of the stomach invading the cardia. Tumor biopsy and histological examination only revealed sub-acute inflammation stigmata. A second EDG with biopsy showed an undifferentiated gastric adenocarcinoma with signet ring cells components. Figure 1 and Fig. 2. A fragment of the tumor biopsy was saved for direct examination and culture of *Mycobacterium tuberculosis* in a Löwenstein Jensen Medium, which came back negative. For cancer staging, the patient underwent a CT-scan examination which showed a circumferential gastric wall thickening with important ascites and bilateral pleural effusion, making it a metastatic stage IV gastric adenocarcinoma.

Patient was programmed to undergo neo-adjuvant chemotherapy (XELOX protocol): oxaliplatin + capecitabine, but unfortunately died a few days later before he could receive any treatment.

Discussion

Gastric cancer is common among old patients and very rare in the young population (< 30 years old) [5, 6]. Non-cardia gastric cancer incidence has decreased over the past five decades thanks to better food hygiene and preservation, Helicobacter Pylori eradication and the systematic mass screening in some countries [2, 7]. However, cardia gastric cancer incidence is increasing [8]. We underline a higher incidence levels in Japan, China, Latin America versus lower incidence levels in North African countries, which may suggest the role of geographic location in the incidence of gastric cancer [2]. Gastric adenocarcinoma is the most common histological type of gastric cancer (95%). Signet ring cells adenocarcinoma is a very rare and exceptional entity in the subjects younger than 30 years old [1, 5].

Histological classification of gastric carcinoma has been largely based on Lauren's criteria [9], in which gastric cancer is classified into two major histological subtypes: Intestinal type commonly seen among old patients, and diffuse type, which was the case of our patient, commonly seen among young patients and generally associated with poor prognosis [4, 9]. Gastric cancer in young patients is more aggressive, and often diagnosed at a late metastatic stage, it is more common among females versus males [4, 6], as opposed to gastric cancer in the older population where it is more common among males. [7, 10, 11]. Our patient presented a gastric cancer located in the greater curvature of the stomach with cardiac invasion. Cardiac location is more common in the young population compared to old subjects (33%) and represents a poor prognosis risk factor [10, 12]. Siwert et al defined 3 types of cardia gastric cancer [13], our patient is a Siwert type 3.

Gastric adenocarcinomas are often misdiagnosed due to the lack of clear symptoms and low frequency in the young population [4, 6, 7, 14]. Gastrointestinal tract related symptoms such as epigastric pain, dyspepsia and vomiting must be explored regardless of the patient's age [15]. Our patient initially had the same symptoms before developing an exsudative polyserositis, which was misdiagnosed and treated as multifocal tuberculosis. We would like to point out the importance of a thorough follow up with patients who receive antibacillary treatment, and the lack of clinical improvement should help practitioners question their diagnosis and conduct further investigations.

Gastric cancer metastasis are primarily represented by lymph nodes, liver, spleen, pleura, lungs, and peritoneum [16], peritoneal metastasis are more common in the young subjects [7]. Our patient had bilateral pleural effusion and ascites probably metastatic (Exsudative effusion with 80% lymphocytes in the cell count) although we couldn't confirm their origin.

Conclusion

This case sheds the light on gastric cancer in the young subject, often unknown in this population, and diagnosed at a late metastatic stage, which is usually associated with a poor prognosis. Symptoms such as dyspepsia, nausea, vomiting, epigastric pain, deserve to be explored regardless of the age, in order to avoid misdiagnosing one of the most common and deadliest malignancies worldwide.

Declarations

Funding

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Conflicts of interest

The authors declare no conflict of interest

Ethics approval

Not applicable

Consent to participate

Informed consent to participate was obtained from the patient legal gradients after his death.

Consent for publication

Informed consent for publication was obtained from the patient legal gradients after his death

Availability of data and material

All data generated or analysed during this study are included in this published article

Code availability

Not applicable

Author contributions

All authors contributed to the study conception and design. The first draft of the manuscript was written by Talibi Alaoui Zahid and all authors commented on previous versions of the manuscript All authors read and approved the final manuscript.

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Figures

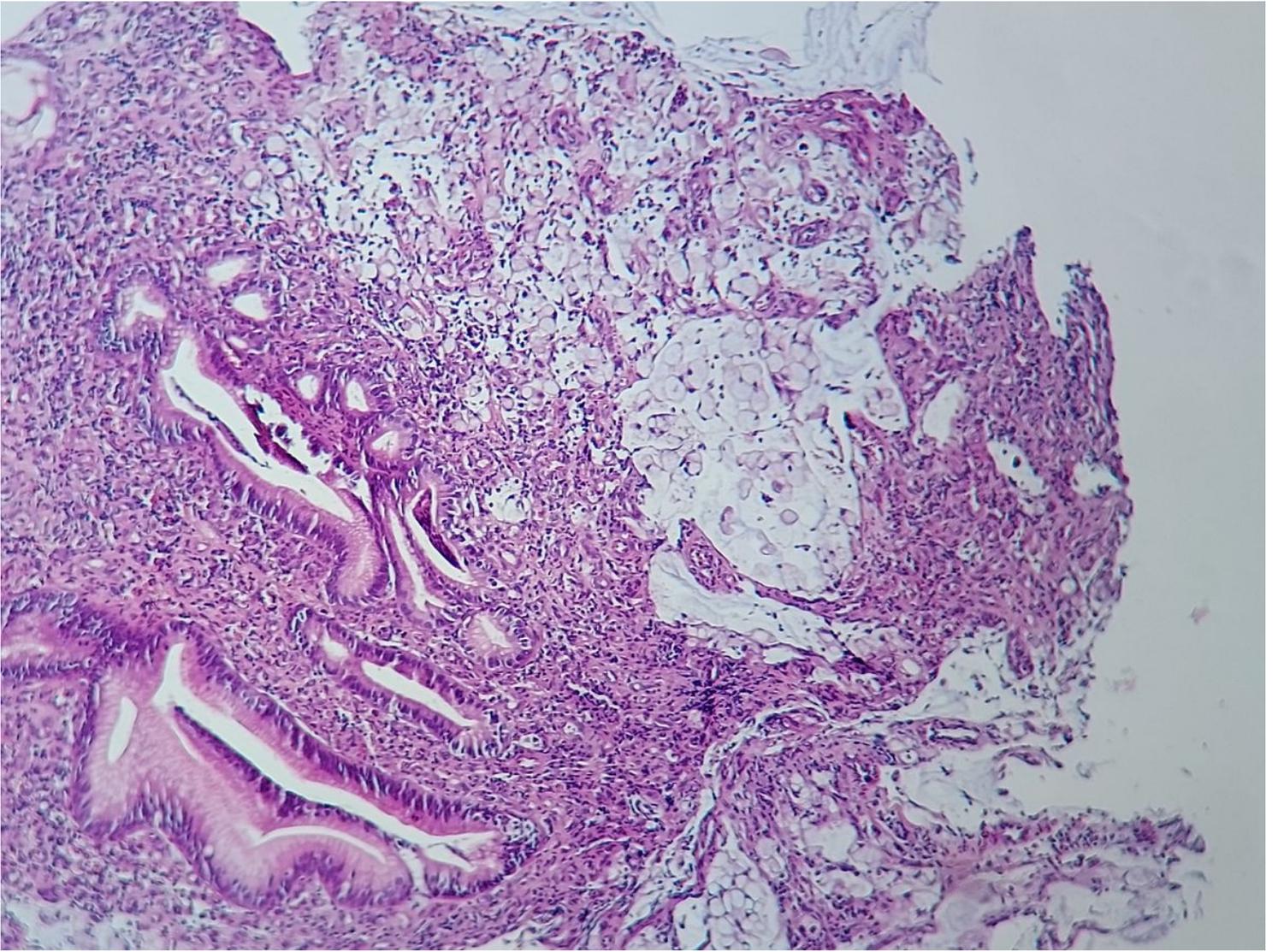


Figure 1

A low magnification (10x) pathology image: gastric mucosa is the site of an infiltrating carcinomatous proliferation arranged in clusters, strings and isolated cells.

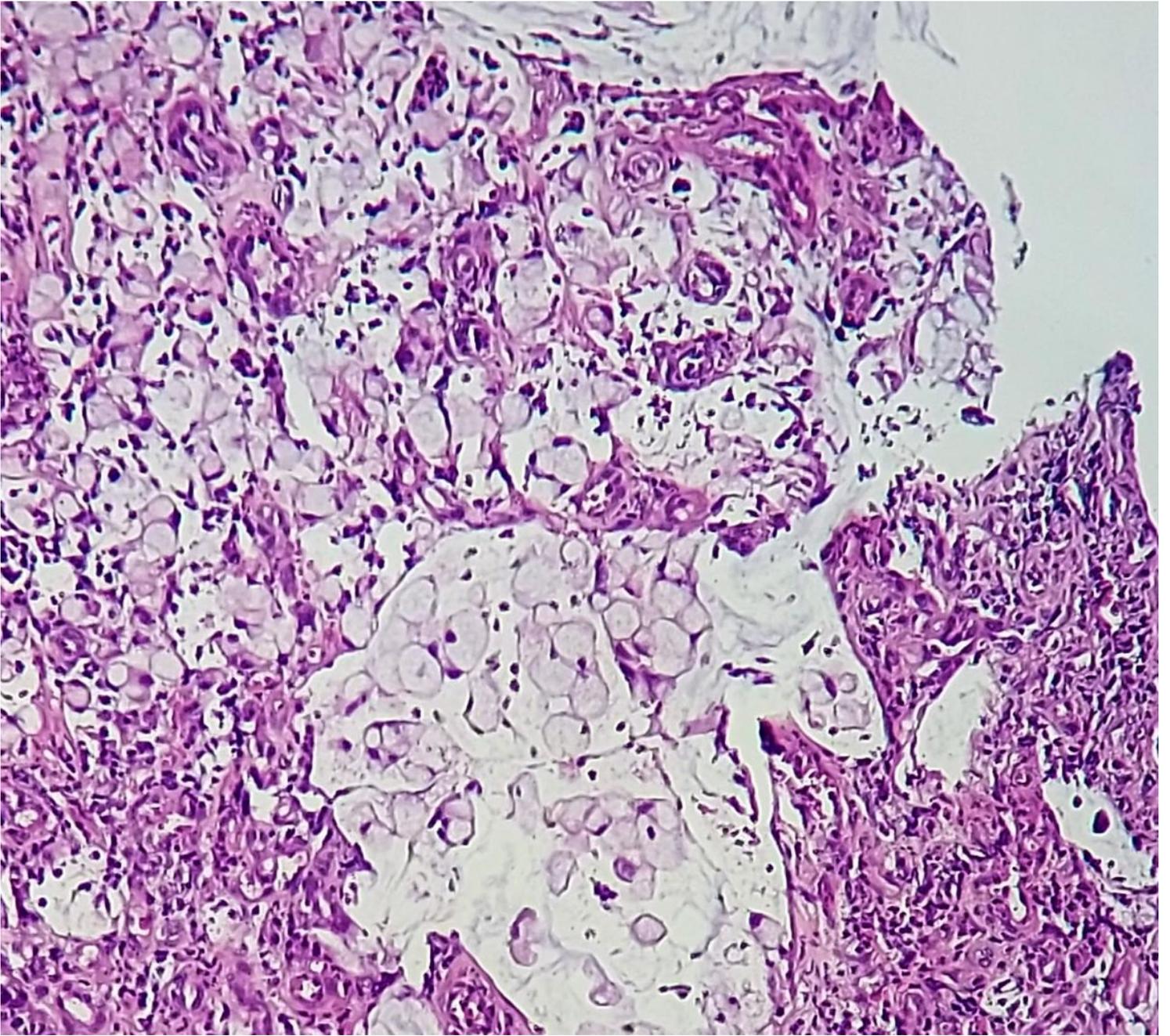


Figure 2

A high magnification (40x) pathology image: tumor cells are of medium size, provided with anisokaryotic nuclei, hyperchromatic, with irregular outlines, eccentric in places and seat of abnormal mitosis. The cytoplasm is abundant in vacuolar eosinophils including signet ring cell appearance.

Supplementary Files

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