Metastatic tumor of the spermatic cord from gastric cancer: A case report and review of the literature

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Abstract

Background Gastric cancer is one of the most common carcinoma in the worldwide. Its common metastatic sites include liver, peritoneum, but metastasizing to male genital system including spermatic cord is very rare. Case presentation we report a case of gastric cancer metastatic to right spermatic cord one year after radical gastrectomy, and histopathological examination revealed an adenocarcinoma. The resection of right inguinal tumor and orchiectomy was performed. Pathological analysis showed an adenocarcinoma which was consistent with the gastric primary tumor. Discussion We searched a total of 47 cases of stomach cancer with metastasis to male genital system from several databases before December 2016. After statistical analyzing, we found that the average age of these patients was 57 years old, more than half (51.1%) of these patients are metastatic to right side of genital system, the most frequent metastatic site was spermatic cord, while the mechanisms of metastasis from primary malignant neoplasm was still unknown. The main histopathological type of metastatic carcinoma was adenocarcinoma (34 cases), and the prognosis of patients was really poor. Conclusions Metastasis of male genital system from stomach cancer is rare so that it’s easy to be misdiagnosed. The clinician should collect medical history detailedly and consider the possibility of metastasis when receiving a patient with an inguinal or scrotal mass who has a history of gastrointestinal tract cancer.
Case report

Introduction

Background

Gastric cancer is one of the most common malignant neoplasms in the world [1, 2]. Its main routes of metastasis include direct extension, transperitoneal seeding, lymphatic and hematogenous routes [1]. The common sites of metastasis and recurrence are liver, peritoneum, bone marrow, lymph nodes, lungs, ovaries and so on [2]. But it is really rare that metastasizing to male genital system like spermatic cord. We report a patient who was found metastatic to right spermatic cord one year after radical gastrectomy because of a diagnosis of stomach cancer.

Case presentation

The patient was a 49-year-old man, with a chief complaint of finding a palpable mass in his right inguinal region without any discomfort for 7 months. Two months before coming to our outpatient department, the patient was aware that the mass increased in size gradually and with tenderness. He went to other hospital and received 125I implantation in the mass. The mass became smaller not obviously so he came to our hospital for further treatment. The patient had a past medical history of gastric adenocarcinoma and had undergone radical gastrectomy one year previously.

During physical examination, an oval mass was palpated in the right inguinal region, approximately 3.5*3 centimeter in diameter, hard, with tenderness, ill-defined with epididymis and testis. The CT scan revealed a 33*30 millimeter size mass in the right inguinal canal (Figure 1). The total-body bone scan showed nothing abnormal. The level of tumor maker, such as cancer antigen 12-5 (CA 12-5) was 172.40 U/ml, and cancer antigen 199 (CA 199) was 1870.84U/ml. Both of them were rose significantly, while carcinoembryonic antigen (CEA), alpha-fetoprotein (AFP) and beta-human chorionic gonadotrophin (β-HCG) were normal.

The operation was performed successfully, spermatic cord at the internal inguinal ring including the resection of the tumor, the right and testicle (Figure 2a, shows the right

Figure 1 | The Computed Tomography (CT): The arrows show a 33*30 millimeter size mass in the right inguinal canal.
inguinal tumor and the testicle). The histopathological examination revealed an adenocarcinoma and considering the history of stomach cancer, it is coincident that metastasis from primary gastric tumor (Figure 2b). The patient recovered well after surgery, but refused to receive any chemotherapy or radiotherapy. Half a year later, the patient was lost to follow-up.

![Figure 2](image)

**Figure 2** | The resection of the tumor, the right spermatic cord at the internal inguinal ring and testicle was performed and the arrow shows the right inguinal tumor (a), and the histopathological examination revealed an adenocarcinoma (b).

**Discussion**

Literatures about gastric cancer metastatic to male reproductive system are limited. We searched and collected a total of 47 cases (including our case) before December 2016[1-8]. After statistical analyzing, we found that, the age of onset of these patients was between 21 to 87 years old and the average age was 57 years old. 24 cases (51.1%) had right side genital system metastasis, 15 cases (31.9%) had left side and 8 cases (17.0%) had bilateral metastasis. The most frequent metastatic site was spermatic cord (18 cases), followed by testicle (6 cases), epididymis (4cases), and scrotal soft tissue (2 cases). The rest of patients had more than one metastatic site in genital system. The histopathological types of metastatic carcinoma were the same with gastric primary tumor’s, including adenocarcinoma (34 cases), mucinous adenocarcinoma (5 cases), signet-ring cell carcinoma (3 cases), poorly differentiated adenocarcinoma with signet-ring cell carcinoma (3 cases), mucinous adenocarcinoma with signet-ring cell carcinoma (2 cases). Because of lacking of some patients’ follow-up data, the survival time couldn’t be calculated accurately. It was reported that the median survival time of these patients was 12.0 months which meant that the prognosis of such patients was unfavorable, and adjuvant chemoradiotherapy might prolong the survival time [1, 2, 9].

The high peak age of gastric cancer was more than 50 years old, and the incidence of male was about double of female’s. The ovarian metastasis from a gastric cancer of female was called Krukenberg tumor [3, 8]. Some specialists called it male’s Krukenberg tumor that metastas-
sis to male genital system from stomach cancer.

Malignant neoplasms of male genital tract, primary or secondary, were infrequent [10]. The most common original site was gastrointestinal tract, followed by pancreas, prostate and kidneys [11]. The mechanisms of metastasis were still unclear. Some literatures had referred to several probable routes. The hematogenous and lymphatic routes were supposed to be the most possible metastatic way. The transperitoneal seeding was also been proposed [2, 10-12]. However, none of these routes had been proved. We considered that, the metastasis of gastric cancer to male genital system, was the result of multi-factors or multi-routes. However, the actual metastatic mechanism still remains to be confirmed.

**Conclusions**

It is really rare that metastasis of genital system from stomach cancer in male patients. The clinician should take thorough physical or imagiological examination including genital systems to avoid misdiagnosis when receiving a male patient who comes with a groin or scrotal mass, having a medical history of gastrointestinal cancer. The differential diagnosis of metastatic tumor should be considered and the proper comprehensive treatment should be adopted as soon as possible.

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**References**


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