

# World Journal of *Clinical Cases*

*World J Clin Cases* 2019 December 6; 7(23): 3915-4171



**REVIEW**

- 3915** Overview of organic anion transporters and organic anion transporter polypeptides and their roles in the liver  
*Li TT, An JX, Xu JY, Tuo BG*

**ORIGINAL ARTICLE****Observational Study**

- 3934** Value of early diagnosis of sepsis complicated with acute kidney injury by renal contrast-enhanced ultrasound  
*Wang XY, Pang YP, Jiang T, Wang S, Li JT, Shi BM, Yu C*
- 3945** Value of elastography point quantification in improving the diagnostic accuracy of early diabetic kidney disease  
*Liu QY, Duan Q, Fu XH, Fu LQ, Xia HW, Wan YL*
- 3957** Resection of recurrent third branchial cleft fistulas assisted by flexible pharyngotomy  
*Ding XQ, Zhu X, Li L, Feng X, Huang ZC*
- 3964** Therapeutic efficacy of acupuncture combined with neuromuscular joint facilitation in treatment of hemiplegic shoulder pain  
*Wei YH, Du DC, Jiang K*
- 3971** Comparison of intra-articular injection of parecoxib *vs* oral administration of celecoxib for the clinical efficacy in the treatment of early knee osteoarthritis  
*Lu L, Xie Y, Gan K, Huang XW*

**Retrospective Study**

- 3980** Celiomesenteric trunk: New classification based on multidetector computed tomography angiographic findings and probable embryological mechanisms  
*Tang W, Shi J, Kuang LQ, Tang SY, Wang Y*

**Prospective Study**

- 3990** Interaction of arylsulfatases A and B with maspin: A possible explanation for dysregulation of tumor cell metabolism and invasive potential of colorectal cancer  
*Kovacs Z, Jung I, Szalman K, Baniás L, Bara TJ, Gurzu S*

**CASE REPORT**

- 4004** Recuperation of severe tumoral calcinosis in a dialysis patient: A case report  
*Westermann L, Isbell LK, Breitenfeldt MK, Arnold F, Röthele E, Schneider J, Widmeier E*

- 4011** Robotic wedge resection of a rare gastric perivascular epithelioid cell tumor: A case report  
*Marano A, Maione F, Woo Y, Pellegrino L, Geretto P, Sasia D, Fortunato M, Orcioni GF, Priotto R, Fasoli R, Borghi F*
- 4020** Primary parahiatal hernias: A case report and review of the literature  
*Preda SD, Pătrașcu Ș, Ungureanu BS, Cristian D, Bințișan V, Nica CM, Calu V, Strâmbu V, Sapalidis K, Șurlin VM*
- 4029** Diagnosis of Laron syndrome using monoplex-polymerase chain reaction technology with a whole-genome amplification template: A case report  
*Neumann A, Alcántara-Ortigoza MÁ, González-del Ángel A, Camargo-Diaz F, López-Bayghen E*
- 4036** *In-vitro* proliferation assay with recycled ascitic cancer cells in malignant pleural mesothelioma: A case report  
*Anayama T, Taguchi M, Tatenuma T, Okada H, Miyazaki R, Hirohashi K, Kume M, Matsusaki K, Orihashi K*
- 4044** Distant metastasis in choroidal melanoma with spontaneous corneal perforation and intratumoral calcification: A case report  
*Wang TW, Liu HW, Bee YS*
- 4052** Secondary Parkinson disease caused by breast cancer during pregnancy: A case report  
*Li L*
- 4057** Pulmonary embolism and deep vein thrombosis caused by nitrous oxide abuse: A case report  
*Sun W, Liao JP, Hu Y, Zhang W, Ma J, Wang GF*
- 4063** Micronodular thymic tumor with lymphoid stroma: A case report and review of the literature  
*Wang B, Li K, Song QK, Wang XH, Yang L, Zhang HL, Zhong DR*
- 4075** Diffuse large B cell lymphoma with bilateral adrenal and hypothalamic involvement: A case report and literature review  
*An P, Chen K, Yang GQ, Dou JT, Chen YL, Jin XY, Wang XL, Mu YM, Wang QS*
- 4084** Urethral pressure profilometry in artificial urinary sphincter implantation: A case report  
*Meng LF, Liu XD, Wang M, Zhang W, Zhang YG*
- 4091** Hydroxyurea-induced cutaneous squamous cell carcinoma: A case report  
*Xu Y, Liu J*
- 4098** Recurrent hypotension induced by sacubitril/valsartan in cardiomyopathy secondary to Duchenne muscular dystrophy: A case report  
*Li JM, Chen H*
- 4106** Complete duodenal obstruction induced by groove pancreatitis: A case report  
*Wang YL, Tong CH, Yu JH, Chen ZL, Fu H, Yang JH, Zhu X, Lu BC*

- 4111** Radiological aspects of giant hepatocellular adenoma of the left liver: A case report  
*Zheng LP, Hu CD, Wang J, Chen XJ, Shen YY*
- 4119** Mixed serous-neuroendocrine neoplasm of the pancreas: A case report and review of the literature  
*Xu YM, Li ZW, Wu HY, Fan XS, Sun Q*
- 4130** Rigid esophagoscopy combined with angle endoscopy for treatment of superior mediastinal foreign bodies penetrating into the esophagus caused by neck trauma: A case report  
*Wang D, Gao CB*
- 4137** Left armpit subcutaneous metastasis of gastric cancer: A case report  
*He FJ, Zhang P, Wang MJ, Chen Y, Zhuang W*
- 4144** Bouveret syndrome: A case report  
*Wang F, Du ZQ, Chen YL, Chen TM, Wang Y, Zhou XR*
- 4150** Fatal complications in a patient with severe multi-space infections in the oral and maxillofacial head and neck regions: A case report  
*Dai TG, Ran HB, Qiu YX, Xu B, Cheng JQ, Liu YK*
- 4157** Management of massive fistula bleeding after endoscopic ultrasound-guided pancreatic pseudocyst drainage using hemostatic forceps: A case report  
*Ge N, Sun SY*
- 4163** Pure squamous cell carcinoma of the gallbladder locally invading the liver and abdominal cavity: A case report and review of the literature  
*Jin S, Zhang L, Wei YF, Zhang HJ, Wang CY, Zou H, Hu JM, Jiang JF, Pang LJ*



**ABOUT COVER**

Editorial Board Member of *World Journal of Clinical Cases*, Consolato M Sergi, FRCP (C), MD, PhD, Professor, Department of Lab Medicine and Pathology, University of Alberta, Edmonton T6G 2B7, Canada

**AIMS AND SCOPE**

The primary aim of *World Journal of Clinical Cases* (WJCC, *World J Clin Cases*) is to provide scholars and readers from various fields of clinical medicine with a platform to publish high-quality clinical research articles and communicate their research findings online.

WJCC mainly publishes articles reporting research results and findings obtained in the field of clinical medicine and covering a wide range of topics, including case control studies, retrospective cohort studies, retrospective studies, clinical trials studies, observational studies, prospective studies, randomized controlled trials, randomized clinical trials, systematic reviews, meta-analysis, and case reports.

**INDEXING/ABSTRACTING**

The WJCC is now indexed in PubMed, PubMed Central, Science Citation Index Expanded (also known as SciSearch®), and Journal Citation Reports/Science Edition. The 2019 Edition of Journal Citation Reports cites the 2018 impact factor for WJCC as 1.153 (5-year impact factor: N/A), ranking WJCC as 99 among 160 journals in Medicine, General and Internal (quartile in category Q3).

**RESPONSIBLE EDITORS FOR THIS ISSUE**

Responsible Electronic Editor: *Yan-Xia Xing*

Proofing Production Department Director: *Xiang Li*

**NAME OF JOURNAL**

*World Journal of Clinical Cases*

**ISSN**

ISSN 2307-8960 (online)

**LAUNCH DATE**

April 16, 2013

**FREQUENCY**

Semimonthly

**EDITORS-IN-CHIEF**

Dennis A Bloomfield, Bao-Gan Peng, Sandro Vento

**EDITORIAL BOARD MEMBERS**

<https://www.wjnet.com/2307-8960/editorialboard.htm>

**EDITORIAL OFFICE**

Jin-Lei Wang, Director

**PUBLICATION DATE**

December 6, 2019

**COPYRIGHT**

© 2019 Baishideng Publishing Group Inc

**INSTRUCTIONS TO AUTHORS**

<https://www.wjnet.com/bpg/gerinfo/204>

**GUIDELINES FOR ETHICS DOCUMENTS**

<https://www.wjnet.com/bpg/GerInfo/287>

**GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH**

<https://www.wjnet.com/bpg/gerinfo/240>

**PUBLICATION MISCONDUCT**

<https://www.wjnet.com/bpg/gerinfo/208>

**ARTICLE PROCESSING CHARGE**

<https://www.wjnet.com/bpg/gerinfo/242>

**STEPS FOR SUBMITTING MANUSCRIPTS**

<https://www.wjnet.com/bpg/GerInfo/239>

**ONLINE SUBMISSION**

<https://www.f6publishing.com>



## Left armpit subcutaneous metastasis of gastric cancer: A case report

Feng-Jun He, Peng Zhang, Mo-Jin Wang, Yi Chen, Wen Zhuang

**ORCID number:** Feng-Jun He (0000-0003-0724-9581); Peng Zhang (0000-0002-8770-710X); Mo-Jin Wang (0000-0002-1592-8798); Yi Chen (0000-0003-4885-6097); Wen Zhuang (0000-0003-3553-6465).

**Author contributions:** He FJ reviewed the literature and contributed to manuscript drafting; Zhang P analyzed and interpreted the imaging findings; Zhuang W, Wang MJ, and Chen Y were responsible for the revision of the manuscript for important intellectual content; all authors issued final approval for the version to be submitted.

**Informed consent statement:** Written informed consent was obtained from the patient for publication of this report and any accompanying images.

**Conflict-of-interest statement:** The authors declare that they have no conflict of interest.

**CARE Checklist (2016) statement:** The authors have read the CARE Checklist (2016), and the manuscript was prepared and revised according to the CARE Checklist (2016).

**Open-Access:** This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works

**Feng-Jun He, Peng Zhang, Mo-Jin Wang, Yi Chen, Wen Zhuang,** Department of Gastrointestinal Surgery, West China Hospital Sichuan University, Chengdu 610041, Sichuan Province, China

**Corresponding author:** Wen Zhuang, MD, PhD, Chief Physician, Department of Gastrointestinal Surgery, West China Hospital Sichuan University, No. 37, Guoxue Lane, Wuhou District, Chengdu 610041, Sichuan Province, China. [zhuangwen1966@163.com](mailto:zhuangwen1966@163.com)  
**Telephone:** +86-18980601497  
**Fax:** +86-28-85422708

### Abstract

#### BACKGROUND

Gastric cancer is the third most lethal malignant tumor worldwide. Metastasis has always been a major cause of poor prognosis. Epidemiological evidence shows that the most common sites for metastasis of gastric carcinoma are the liver (48%), peritoneum (32%), lung (15%), and bone (12%); however, subcutaneous metastasis is rare and occurs in approximately 0.8% of cases. We report a rare case of armpit subcutaneous metastasis of gastric cancer. The best surgical window was missed, as a result of lacking attention of the mass.

#### CASE SUMMARY

A 69-year-old man who had previously undergone radical gastrectomy and received eight cycles of oral chemotherapy for gastric cancer showed a rapidly growing mass in his left armpit; within just 3 mo, the mass grew to a size of 6.9 cm × 4.4 cm × 5.7 cm. Color Doppler ultrasonography and Positron emission tomography/computed tomography prompted the possibility of metastasis of the malignancy. Fine needle aspiration biopsy guided by color Doppler ultrasound showed the presence of cancer cells in the mass. Immunohistochemical examination showed CDX-2 (+), PCK (+), CK20 (+), CK7 (-), and TTF (-), which supported the metastasis of gastric cancer. Considering the risk of resection, the patient did not undergo surgical treatment.

#### CONCLUSION

The case indicates that unidentified subcutaneous masses in patients with a history of gastric cancer should be carefully evaluated.

**Key words:** Stomach neoplasms; Neoplasm metastasis; Subcutaneous; Case report; Cancer therapy; Skin neoplasms

©The Author(s) 2019. Published by Baishideng Publishing Group Inc. All rights reserved.

on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>

**Manuscript source:** Unsolicited manuscript

**Received:** September 26, 2019

**Peer-review started:** September 26, 2019

**First decision:** October 24, 2019

**Revised:** November 1, 2019

**Accepted:** November 14, 2019

**Article in press:** November 14, 2019

**Published online:** December 6, 2019

**P-Reviewer:** Aydin M, Corvino A, Fiori E

**S-Editor:** Dou Y

**L-Editor:** Wang TQ

**E-Editor:** Li X



**Core tip:** Epidemiological evidence shows that the most common metastasis sites of gastric carcinoma are the liver (48%), peritoneum (32%), lung (15%), and bone (12%); however, subcutaneous metastasis is rare and occurs in approximately 0.8% of cases. The recurrence and metastasis of malignant tumors still contribute to more than 90% of cancer mortalities. For the uncertainty of mechanism of metastasis and metastatic sites, and the limitations of monitoring methods, early detection of metastatic lesions of gastric cancer is difficult. This case demonstrates more sensitive and applicable monitoring methods and early attention may improve the early diagnosis rate.

**Citation:** He FJ, Zhang P, Wang MJ, Chen Y, Zhuang W. Left armpit subcutaneous metastasis of gastric cancer: A case report. *World J Clin Cases* 2019; 7(23): 4137-4143

**URL:** <https://www.wjgnet.com/2307-8960/full/v7/i23/4137.htm>

**DOI:** <https://dx.doi.org/10.12998/wjcc.v7.i23.4137>

## INTRODUCTION

Gastric cancer is prevalent worldwide, with an average of approximately 990000 new cases per year from 182 countries and 30 world regions<sup>[1]</sup>. The highest incidence is observed in Eastern Asia<sup>[2,3]</sup>. According to the Eindhoven Cancer Registry statistics, between 1995 and 2012, about 40% of gastric cancer patients had one metastasis at least<sup>[4]</sup>. The most common metastasis sites of gastric carcinoma are the liver (48%), peritoneum (32%), lung (15%), and bone (12%); however, relevant data indicated that the incidence of subcutaneous metastasis of gastric cancer is about 0.8%<sup>[5,6]</sup>. Today, there is no data referring to the left armpit metastasis of gastric carcinoma. Here we report the case of a patient with stage III gastric carcinoma who underwent curative intent resection (R0) and D2 lymph node dissection and received eight cycles of chemotherapy post-surgery. However, left armpit subcutaneous metastasis occurred in the fifth year after surgery. We report the case to promote the exploration and monitoring of unusual rare metastatic sites of advanced gastric cancer, and provide clinical evidence for the diagnosis and treatment of metastasis of gastric cancer.

## CASE PRESENTATION

### Chief complaints

A 69-year-old man was re-admitted to West China Hospital of Sichuan University due to an asymptomatic lump in his left armpit for 3 mo (Figure 1).

### History of present illness

The patient had a history of gastric neoplasms. Five years ago, he had undergone curative gastrectomy, followed by eight cycles of oral chemotherapy.

### History of past illness

The patient had a free previous medical history.

### Physical examination

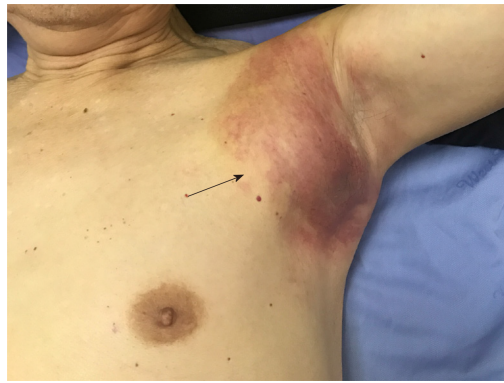
Physical examination after admission showed that the patient's body temperature was 36 °C, heart rate was 106 bpm, respiratory rate was 20 breaths per minute, and blood pressure was 140/68 mmHg. A mass of approximately 7.0 cm × 4.5 cm × 5.7 cm mass was observed in the left armpit of the patient. The skin of the mass was reddish, and the temperature was high. There was no skin ulceration or itching. The patient experienced no pain when the mass was pressed. The mass was hard, fixed, and had an unclear boundary.

### Laboratory examinations

Blood analysis did not reveal raised levels of tumor markers. Prothrombin and partial thromboplastin times were normal and serum C-reactive protein level had increased to 4.5 mg/dL (normal range: < 0.8 mg/dL).

### Imaging examinations

Initial color Doppler ultrasound imaging of the left axillary lump showed a heterogeneous echo pattern sized approximately 4.2 cm × 2.4 cm × 3.8 cm, with an



**Figure 1** Left armpit subcutaneous metastasis arising from primary gastric cancer.

unclear boundary and irregular shape. There was linear blood flow signal observed in the mass. Several abnormally enlarged lymph nodes were observed around the mass. After three months, color Doppler examination revealed that the mass grew to a size of 6.9 cm × 4.4 cm × 5.7 cm (Figure 2). A chest computed tomography (CT) scan revealed a 3.9 cm × 5.7 cm soft tissue lump in the left armpit.

#### **Further diagnostic work-up**

Fine needle aspiration biopsy of the mass guided by color Doppler ultrasound found cancer cells in the mass. Immunohistochemical examination showed that the mass was CDX2-positive, PCK-positive, CK20-positive, CK7-negative, and TTF-negative; this confirmed gastric cancer metastasis (Figure 3).

#### **Positron emission tomography/CT (PET/CT) identification of the distant metastasis**

PET/CT examination showed a soft tissue mass sized approximately 6.2 cm × 5.5 cm in the left axilla. The internal density was uneven, and 18F-fludeoxyglucose uptake was abnormally high. The maximum SUV was 11.13 (Figure 4).

---

## **MULTIDISCIPLINARY EXPERT CONSULTATION**

---

**Wen Zhuang, MD, PhD, Professor and Chief Physician, West China Hospital of Sichuan University**

The patient should undergo surgical resection of the left axillary tumor and adjuvant radiotherapy, chemotherapy, or targeted therapy.

**Jie Chen, MD, PhD, Professor, Department of Breast Surgery, West China Hospital of Sichuan University**

The patient should undergo surgical treatment of the left mass in his left armpit and total excision of the lesion. If necessary, we will assist in the operation.

**Zhi-Xing Chen MD, PhD, Associate Professor, Department of Plastic Surgery, West China Hospital of Sichuan University**

Surgical resection of the left axillary subcutaneous tumor may require skin grafting.

---

## **FINAL DIAGNOSIS**

---

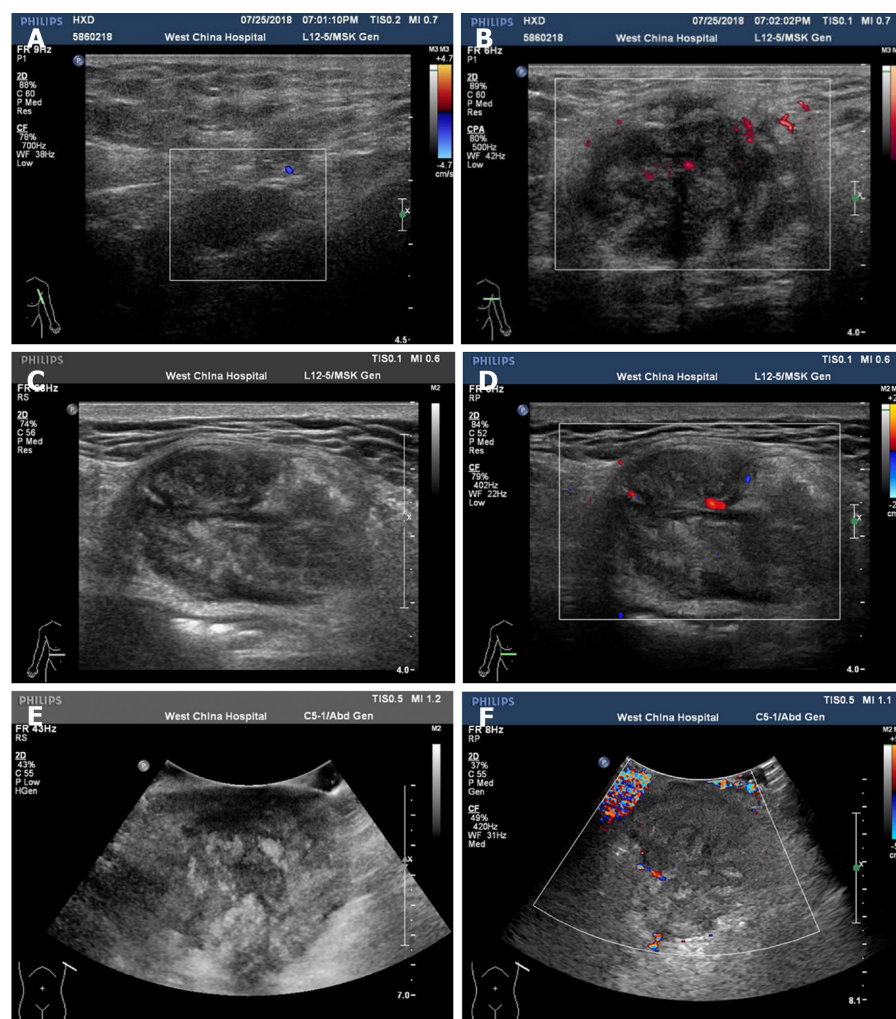
Left axillary subcutaneous metastasis of gastric cancer.

---

## **TREATMENT**

---

Due to the adhesion between the large subcutaneous mass of the left axilla and surrounding tissues and severe local inflammation, skin grafting might be required after operation. We asked plastic surgery experts to assist in the operation of tumor resection. However, considering the risk of resection, the patient did not agree to undergo surgical treatment.



**Figure 2** Color Doppler ultrasound images. A and B: Initial color Doppler ultrasound images of the left axillary lump; C-F: Color Doppler ultrasound images of the left axillary lump after three months.

## OUTCOME AND FOLLOW-UP

After discharge, the patient was lost to follow-up. However, through telephonic communication, we know that he is on long-term medication and is alive.

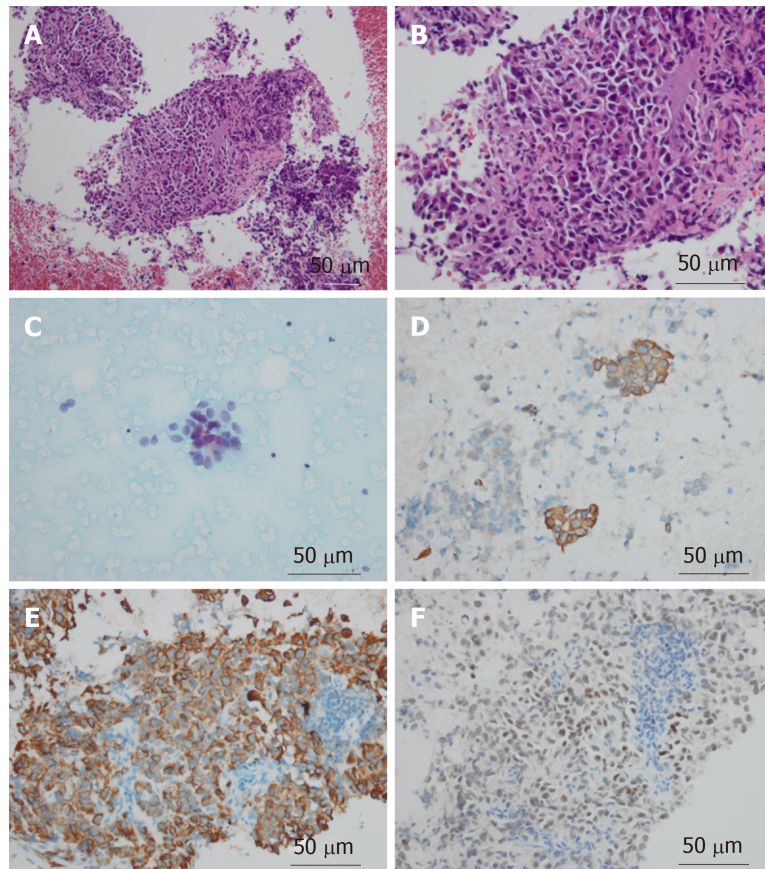
## DISCUSSION

Epidemiological studies on metastasis of gastric cancer are rare. Currently, the TNM system is used to stage malignant tumors, and cancer registries often only use “M0” and “M1” to indicate the absence or presence of distant metastasis. Therefore, there is a lack of information regarding specific distant metastasis sites<sup>[5]</sup>.

The five-year cumulative risk of relapse (restricted to patients who undergo R0 resections and excluding in-hospital deaths) for patients with pathological stage T3 tumors is 83% for D1 dissection and 72% for D2 dissection<sup>[7]</sup>. Although considered a “localized tumor”, gastric cancer may show locoregional metastasis and this can be the most important signal of negative prognosis<sup>[8-10]</sup>.

Metastasis is mostly driven by the acquisition of genetic and/or epigenetic alterations within tumor cells and the formation of the tumor microenvironment<sup>[11]</sup>. Metastasis of malignant tumors can occur at an early stage of primary tumorigenesis<sup>[12]</sup>. If metastasis of cancer cells occurs before clinical detection, surgical resection may not prevent recurrence, invasion, and further metastasis. In our case, the patient was followed regularly and monitored through dynamic imaging, and no sign of recurrence was observed. However, in the fifth year, he was diagnosed with distant subcutaneous metastasis. Because of mild clinical manifestations and metastasis into a rare site, the lump was not considered severe. Consequently, we missed the best surgical window.





**Figure 3** Pathological images of the axillary mass. A-C: Stomach tumor cells were detected by cell smear (A: HE staining,  $\times 200$ ; B: HE staining,  $\times 400$ ; C: HE staining,  $\times 400$ ); D-F: The tumor cells were positive for CK20 (D), PCK (E), and CDX-2 (F) (immunohistochemical staining,  $\times 400$ ).

Currently, ultrasound and color Doppler are the preferred non-invasive imaging modalities of choice allowing to diagnose superficial masses, which can not only differentiate the nature of masses, but also provide detailed information about vascular anatomy<sup>[13-15]</sup>. Color Doppler, in particular, is highly specific in the identification of benign and malignant nodules of the skin and subcutaneous tissue<sup>[16,17]</sup>. In addition, high-resolution ultrasound may contribute to the differential diagnosis of skin and subcutaneous lesions<sup>[17]</sup>.

Treatment of even well-confined tumors can become difficult due to repeated changes in molecular phenotypes<sup>[18]</sup>, immune evasion<sup>[19]</sup>, and drug resistance<sup>[20]</sup>. Through a long-term observation, it has been shown that some types of malignant tumors metastasize only to specific target organs<sup>[20]</sup>. Cutaneous or subcutaneous tissues may not provide a better growth microenvironment than the liver or peritoneum. However, several cases of subcutaneous metastasis of gastric cancer, including scalp metastasis and mandibular metastasis and so like, have been reported in succession<sup>[21,22]</sup>. Here we report a rare case that provides clinical evidence for studying the specific metastatic sites of gastric cancer.

## CONCLUSION

We should pay enough attention to any local mass developing in patients with a history of gastric cancer. We believe that in the future more sensitive, specific, and inexpensive techniques, such as nanoparticles<sup>[23]</sup> and liquid biopsy, would contribute to the detection of metastasis<sup>[24]</sup>.

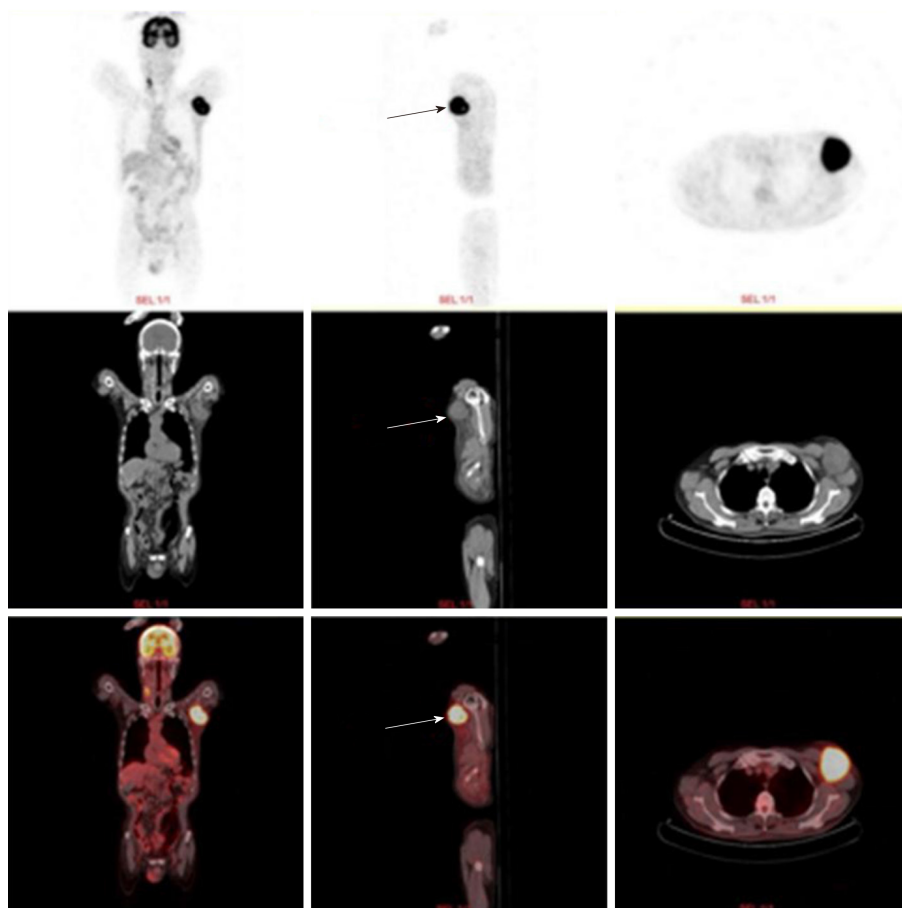


Figure 4 Positron emission tomography computed tomography examination showed that a 6.2 cm × 5.5 cm soft tissue mass was visible in the left axilla (arrow).

## REFERENCES

- 1 Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *Int J Cancer* 2010; **127**: 2893-2917 [PMID: [21351269](#) DOI: [10.1002/ijc.25516](#)]
- 2 Jemal A, Bray F, Center MM, Ferlay J, Ward E, Forman D. Global cancer statistics. *CA Cancer J Clin* 2011; **61**: 69-90 [PMID: [21296855](#) DOI: [10.3322/caac.20107](#)]
- 3 Forman D, Burley VJ. Gastric cancer: global pattern of the disease and an overview of environmental risk factors. *Best Pract Res Clin Gastroenterol* 2006; **20**: 633-649 [PMID: [16997150](#) DOI: [10.1016/j.bpg.2006.04.008](#)]
- 4 Thomassen I, van Gestel YR, van Ramshorst B, Luyer MD, Bosscha K, Nienhuijs SW, Lemmens VE, de Hingh IH. Peritoneal carcinomatosis of gastric origin: a population-based study on incidence, survival and risk factors. *Int J Cancer* 2014; **134**: 622-628 [PMID: [23832847](#) DOI: [10.1002/ijc.28373](#)]
- 5 Riihimäki M, Hemminki A, Sundquist K, Sundquist J, Hemminki K. Metastatic spread in patients with gastric cancer. *Oncotarget* 2016; **7**: 52307-52316 [PMID: [27447571](#) DOI: [10.18632/oncotarget.10740](#)]
- 6 Hu SC, Chen GS, Wu CS, Chai CY, Chen WT, Lan CC. Rates of cutaneous metastases from different internal malignancies: experience from a Taiwanese medical center. *J Am Acad Dermatol* 2009; **60**: 379-387 [PMID: [19056145](#) DOI: [10.1016/j.jaad.2008.10.007](#)]
- 7 Bonenkamp JJ, Hermans J, Sasako M, van de Velde CJ, Welvaart K, Songun I, Meyer S, Plukker JT, Van Elk P, Obertop H, Gouma DJ, van Lanschot JJ, Taat CW, de Graaf PW, von Meyenfeldt MF, Tilanus H; Dutch Gastric Cancer Group. Extended lymph-node dissection for gastric cancer. *N Engl J Med* 1999; **340**: 908-914 [PMID: [10089184](#) DOI: [10.1056/NEJM199903253401202](#)]
- 8 Imano M, Yasuda A, Itoh T, Satou T, Peng YF, Kato H, Shinkai M, Tsubaki M, Chiba Y, Yasuda T, Imamoto H, Nishida S, Takeyama Y, Okuno K, Furukawa H, Shiozaki H. Phase II study of single intraperitoneal chemotherapy followed by systemic chemotherapy for gastric cancer with peritoneal metastasis. *J Gastrointest Surg* 2012; **16**: 2190-2196 [PMID: [23099736](#) DOI: [10.1007/s11605-012-2059-3](#)]
- 9 Ishigami H, Kitayama J, Kaisaki S, Hidemura A, Kato M, Otani K, Kamei T, Soma D, Miyato H, Yamashita H, Nagawa H. Phase II study of weekly intravenous and intraperitoneal paclitaxel combined with S-1 for advanced gastric cancer with peritoneal metastasis. *Ann Oncol* 2010; **21**: 67-70 [PMID: [19605503](#) DOI: [10.1093/annonc/mdp260](#)]
- 10 Ishigami H, Kitayama J, Kaisaki S, Yamaguchi H, Yamashita H, Emoto S, Nagawa H. Phase I study of biweekly intravenous paclitaxel plus intraperitoneal cisplatin and paclitaxel for gastric cancer with peritoneal metastasis. *Oncology* 2010; **79**: 269-272 [PMID: [21372602](#) DOI: [10.1159/000323272](#)]
- 11 Valastyan S, Weinberg RA. Tumor metastasis: molecular insights and evolving paradigms. *Cell* 2011; **147**: 275-292 [PMID: [22000009](#) DOI: [10.1016/j.cell.2011.09.024](#)]



- 12 **Turajlic S**, Swanton C. Metastasis as an evolutionary process. *Science* 2016; **352**: 169-175 [PMID: 27124450 DOI: 10.1126/science.aaf2784]
- 13 **Corvino A**, Catalano O, Corvino F, Sandomenico F, Setola SV, Petrillo A. Superficial temporal artery pseudoaneurysm: what is the role of ultrasound? *J Ultrasound* 2016; **19**: 197-201 [PMID: 27635165 DOI: 10.1007/s40477-016-0211-8]
- 14 **Corvino A**, Corvino F, Catalano O, Sandomenico F, Petrillo A. The Tail and the String Sign: New Sonographic Features of Subcutaneous Melanoma Metastasis. *Ultrasound Med Biol* 2017; **43**: 370-374 [PMID: 27743725 DOI: 10.1016/j.ultrasmedbio.2016.09.008]
- 15 **Corvino A**, Sandomenico F, Setola SV, Corvino F, Pinto F, Catalano O. Added value of contrast-enhanced ultrasound (CEUS) with Sonovue® in the diagnosis of inferior epigastric artery pseudoaneurysm: report of a case and review of literature. *J Ultrasound* 2019; **22**: 485-489 [PMID: 31327113 DOI: 10.1007/s40477-019-00398-x]
- 16 **Giovagnorio F**, Andreoli C, De Cicco ML. Color Doppler sonography of focal lesions of the skin and subcutaneous tissue. *J Ultrasound Med* 1999; **18**: 89-93 [PMID: 10206814 DOI: 10.7863/jum.1999.18.2.89]
- 17 **Catalano O**, Roldán FA, Varelli C, Bard R, Corvino A, Wortsman X. Skin cancer: findings and role of high-resolution ultrasound. *J Ultrasound* 2019; **22**: 423-431 [PMID: 31069756 DOI: 10.1007/s40477-019-00379-0]
- 18 **Nakamura J**, Okuyama K, Sato H, Yoda Y, Kai K, Noshiro H. Repeated changes of the molecular subtype in gastric metastasis from breast cancer: A case report. *Mol Clin Oncol* 2016; **4**: 695-698 [PMID: 27123264 DOI: 10.3892/mco.2016.795]
- 19 **Hanahan D**, Weinberg RA. Hallmarks of cancer: the next generation. *Cell* 2011; **144**: 646-674 [PMID: 21376230 DOI: 10.1016/j.cell.2011.02.013]
- 20 **Fidler IJ**. The pathogenesis of cancer metastasis: the 'seed and soil' hypothesis revisited. *Nat Rev Cancer* 2003; **3**: 453-458 [PMID: 12778135 DOI: 10.1038/nrc1098]
- 21 **Kawai S**, Nishida T, Hayashi Y, Ezaki H, Yamada T, Shinzaki S, Miyazaki M, Nakai K, Yakushijin T, Watabe K, Iijima H, Tsujii M, Nishida K, Takehara T. Choroidal and cutaneous metastasis from gastric adenocarcinoma. *World J Gastroenterol* 2013; **19**: 1485-1488 [PMID: 23538460 DOI: 10.3748/wjg.v19.i9.1485]
- 22 **Kirchberger MC**. Unusual presentation of a cutaneous metastasis in the face arising from gastric cancer: a case report. *SAGE Open Med Case Rep* 2018; **6**: 2050313X18795080 [PMID: 30214808 DOI: 10.1177/2050313X18795080]
- 23 **Li R**, Liu B, Gao J. The application of nanoparticles in diagnosis and theranostics of gastric cancer. *Cancer Lett* 2017; **386**: 123-130 [PMID: 27845158 DOI: 10.1016/j.canlet.2016.10.032]
- 24 **Pantel K**, Alix-Panabières C. Liquid biopsy and minimal residual disease - latest advances and implications for cure. *Nat Rev Clin Oncol* 2019; **16**: 409-424 [PMID: 30796368 DOI: 10.1038/s41571-019-0187-3]



Published By Baishideng Publishing Group Inc  
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA  
Telephone: +1-925-2238242  
E-mail: [bpgoffice@wjgnet.com](mailto:bpgoffice@wjgnet.com)  
Help Desk: <https://www.f6publishing.com/helpdesk>  
<https://www.wjgnet.com>

