

# World Journal of *Gastrointestinal Surgery*

*World J Gastrointest Surg* 2023 August 27; 15(8): 1559-1840



**MINIREVIEWS**

- 1559 Impact of tumour rupture risk on the oncological rationale for the surgical treatment choice of gastrointestinal stromal tumours  
*Peparini N*
- 1564 Prevention and treatment of hepatic encephalopathy during the perioperative period of transjugular intrahepatic portosystemic shunt  
*Wang LJ, Yao X, Qi Q, Qin JP*
- 1574 Vascular complications of chronic pancreatitis and its management  
*Walia D, Saraya A, Gunjan D*
- 1591 Historical changes in surgical strategy and complication management for hepatic cystic echinococcosis  
*A JD, Chai JP, Jia SL, A XR*

**ORIGINAL ARTICLE****Basic Study**

- 1600 High spindle and kinetochore-associated complex subunit-3 expression predicts poor prognosis and correlates with adverse immune infiltration in hepatocellular carcinoma  
*Zheng LL, Wang YR, Liu ZR, Wang ZH, Tao CC, Xiao YG, Zhang K, Wu AK, Li HY, Wu JX, Xiao T, Rong WQ*

**Case Control Study**

- 1615 Post-transplant biliary complications using liver grafts from deceased donors older than 70 years: Retrospective case-control study  
*Jimenez-Romero C, Justo-Alonso I, del Pozo-Elso P, Marcacuzco-Quinto A, Martín-Arriscado-Arroba C, Manrique-Municio A, Calvo-Pulido J, García-Sesma A, San Román R, Caso-Maestro O*

- 1629 Goldilocks principle of minimally invasive surgery for gastric subepithelial tumors  
*Chang WJ, Tsao LC, Yen HH, Yang CW, Chang HC, Kor CT, Wu SC, Lin KH*

**Retrospective Cohort Study**

- 1641 Prognosis after splenectomy plus pericardial devascularization *vs* transjugular intrahepatic portosystemic shunt for esophagogastric variceal bleeding  
*Qi WL, Wen J, Wen TF, Peng W, Zhang XY, Shen JY, Li X, Li C*
- 1652 Initial suction drainage decreases severe postoperative complications after pancreatic trauma: A cohort study  
*Li KW, Wang K, Hu YP, Yang C, Deng YX, Wang XY, Liu YX, Li WQ, Ding WW*

**Retrospective Study**

- 1663** Radiation therapy prior to a pancreaticoduodenectomy for adenocarcinoma is associated with longer operative times and higher blood loss  
*Aploks K, Kim M, Stroever S, Ostapenko A, Sim YB, Sooriyakumar A, Rahimi-Ardabily A, Seshadri R, Dong XD*
- 1673** Prognostic significance of preoperative lymphocyte to monocyte ratio in patients with signet ring gastric cancer  
*Liu HL, Feng X, Tang MM, Zhou HY, Peng H, Ge J, Liu T*
- 1684** Clinical efficacy of total laparoscopic splenectomy for portal hypertension and its influence on hepatic hemodynamics and liver function  
*Qi RZ, Li ZW, Chang ZY, Chang WH, Zhao WL, Pang C, Zhang Y, Hu XL, Liang F*
- 1693** Accurate resection of hilar cholangiocarcinoma using eOrganmap 3D reconstruction and full quantization technique  
*Cui DP, Fan S, Guo YX, Zhao QW, Qiao YX, Fei JD*
- 1703** Regional differences in islet amyloid deposition in the residual pancreas with new-onset diabetes secondary to pancreatic ductal adenocarcinoma  
*Wang R, Liu Y, Liang Y, Zhou L, Chen MJ, Liu XB, Tan CL, Chen YH*
- 1712** Risk factors and their interactive effects on severe acute pancreatitis complicated with acute gastrointestinal injury  
*Chen JH, Zhang MF, Du WC, Zhang YA*
- 1719** Effects of ultrasound monitoring of gastric residual volume on feeding complications, caloric intake and prognosis of patients with severe mechanical ventilation  
*Xu XY, Xue HP, Yuan MJ, Jin YR, Huang CX*
- 1728** Enhanced recovery nursing and mental health education on postoperative recovery and mental health of laparoscopic liver resection  
*Li DX, Ye W, Yang YL, Zhang L, Qian XJ, Jiang PH*
- 1739** Changing trends in gastric and colorectal cancer among surgical patients over 85 years old: A multicenter retrospective study, 2001–2021  
*Chen K, Li M, Xu R, Zheng PP, Chen MD, Zhu L, Wang WB, Wang ZG*

**Observational Study**

- 1751** Knowledge, attitude, and practice of monitoring early gastric cancer after endoscopic submucosal dissection  
*Yang XY, Wang C, Hong YP, Zhu TT, Qian LJ, Hu YB, Teng LH, Ding J*
- 1761** Anti-reflux effects of a novel esophagogastric asymmetric anastomosis technique after laparoscopic proximal gastrectomy  
*Pang LQ, Zhang J, Shi F, Pang C, Zhang CW, Liu YL, Zhao Y, Qian Y, Li XW, Kong D, Wu SN, Zhou JF, Xie CX, Chen S*
- 1774** Prognostic scores in primary biliary cholangitis patients with advanced disease  
*Feng J, Xu JM, Fu HY, Xie N, Bao WM, Tang YM*

**SYSTEMATIC REVIEWS**

- 1784 Maternal choledochal cysts in pregnancy: A systematic review of case reports and case series  
*Augustin G, Romic I, Miličić I, Mikuš M, Herman M*
- 1799 Intraoperative pancreas stump perfusion assessment during pancreaticoduodenectomy: A systematic scoping review  
*Robertson FP, Spiers HVM, Lim WB, Loveday B, Roberts K, Pandanaboyana S*
- 1808 Comparison between upfront surgery and neoadjuvant chemotherapy in patients with locally advanced gastric cancer: A systematic review  
*Fiflis S, Papakonstantinou M, Giakoustidis A, Christodoulidis G, Louri E, Papadopoulos VN, Giakoustidis D*

**CASE REPORT**

- 1819 Long-term survival of patients with hepatocellular carcinoma with hepatic, pulmonary, peritoneal and rare colon metastasis: A case report  
*Gong YQ, Lu TL, Chen CW*
- 1825 Donor hepatic artery reconstruction based on human embryology: A case report  
*Zhang HZ, Lu JH, Shi ZY, Guo YR, Shao WH, Meng FX, Zhang R, Zhang AH, Xu J*
- 1831 Outpatient hybrid endoscopic submucosal dissection with SOUTEN for early gastric cancer, followed by endoscopic suturing of the mucosal defect: A case report  
*Ito R, Miwa K, Matano Y*

**LETTER TO THE EDITOR**

- 1838 Is endoscopic mucosal resection-precutting superior to conventional methods for removing sessile colorectal polyps?  
*Yang QY, Zhao Q, Hu JW*

**ABOUT COVER**

Editorial Board Member of *World Journal of Gastrointestinal Surgery*, Raja Kalayarasan, MS, DNB, MCh, FRCS (Ed), Additional Professor & Head, Department of Surgical Gastroenterology, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry 605006, India. kalayarasanraja@yahoo.com

**AIMS AND SCOPE**

The primary aim of *World Journal of Gastrointestinal Surgery* (*WJGS, World J Gastrointest Surg*) is to provide scholars and readers from various fields of gastrointestinal surgery with a platform to publish high-quality basic and clinical research articles and communicate their research findings online.

*WJGS* mainly publishes articles reporting research results and findings obtained in the field of gastrointestinal surgery and covering a wide range of topics including biliary tract surgical procedures, biliopancreatic diversion, colectomy, esophagectomy, esophagostomy, pancreas transplantation, and pancreatectomy, *etc.*

**INDEXING/ABSTRACTING**

The *WJGS* is now abstracted and indexed in Science Citation Index Expanded (SCIE, also known as SciSearch®), Current Contents/Clinical Medicine, Journal Citation Reports/Science Edition, PubMed, PubMed Central, Reference Citation Analysis, China National Knowledge Infrastructure, China Science and Technology Journal Database, and Superstar Journals Database. The 2023 Edition of Journal Citation Reports® cites the 2022 impact factor (IF) for *WJGS* as 2.0; IF without journal self cites: 1.9; 5-year IF: 2.2; Journal Citation Indicator: 0.52; Ranking: 113 among 212 journals in surgery; Quartile category: Q3; Ranking: 81 among 93 journals in gastroenterology and hepatology; and Quartile category: Q4.

**RESPONSIBLE EDITORS FOR THIS ISSUE**

Production Editor: *Rui-Rui Wu*, Production Department Director: *Xiang Li*; Editorial Office Director: *Jia-Ru Fan*.

**NAME OF JOURNAL**

*World Journal of Gastrointestinal Surgery*

**ISSN**

ISSN 1948-9366 (online)

**LAUNCH DATE**

November 30, 2009

**FREQUENCY**

Monthly

**EDITORS-IN-CHIEF**

Peter Schemmer

**EDITORIAL BOARD MEMBERS**

<https://www.wjgnet.com/1948-9366/editorialboard.htm>

**PUBLICATION DATE**

August 27, 2023

**COPYRIGHT**

© 2023 Baishideng Publishing Group Inc

**INSTRUCTIONS TO AUTHORS**

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

**GUIDELINES FOR ETHICS DOCUMENTS**

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

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

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

**PUBLICATION ETHICS**

<https://www.wjgnet.com/bpg/GerInfo/288>

**PUBLICATION MISCONDUCT**

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

**ARTICLE PROCESSING CHARGE**

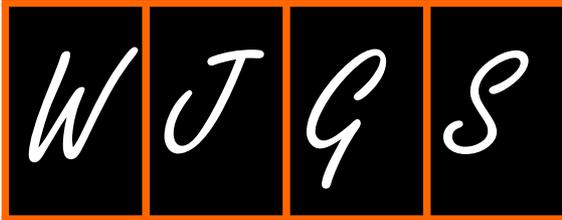
<https://www.wjgnet.com/bpg/gerinfo/242>

**STEPS FOR SUBMITTING MANUSCRIPTS**

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

**ONLINE SUBMISSION**

<https://www.f6publishing.com>



## Long-term survival of patients with hepatocellular carcinoma with hepatic, pulmonary, peritoneal and rare colon metastasis: A case report

Yong-Qiang Gong, Tai-Liang Lu, Chao-Wu Chen

**Specialty type:** Gastroenterology and hepatology

**Provenance and peer review:**

Unsolicited article; Externally peer reviewed.

**Peer-review model:** Single blind

**Peer-review report's scientific quality classification**

Grade A (Excellent): A

Grade B (Very good): 0

Grade C (Good): C

Grade D (Fair): 0

Grade E (Poor): 0

**P-Reviewer:** Dias E, Portugal; Sun J, China

**Received:** March 11, 2023

**Peer-review started:** March 11, 2023

**First decision:** May 16, 2023

**Revised:** June 5, 2023

**Accepted:** July 7, 2023

**Article in press:** July 7, 2023

**Published online:** August 27, 2023



**Yong-Qiang Gong, Tai-Liang Lu**, Department of Gastrointestinal Surgery, Hunan Provincial People's Hospital, The First Affiliated Hospital of Hunan Normal University, Changsha 410005, Hunan Province, China

**Chao-Wu Chen**, Department of Gastrointestinal Surgery, Hunan Provincial People's Hospital, Changsha 410005, Hunan Province, China

**Corresponding author:** Chao-Wu Chen, MD, PhD, Doctor, Department of Gastrointestinal Surgery, Hunan Provincial People's Hospital, No. 61 Jiefang West Road, Furong District, Changsha 410005, Hunan Province, China. [chenchaowu0@163.com](mailto:chenchaowu0@163.com)

### Abstract

#### BACKGROUND

Hepatocellular carcinoma (HCC) is a highly malignant cancer that often metastasizes and has a poor prognosis. Gastrointestinal tract metastases are rare, and colon metastases are even rarer. The long-term survival of patients with multiple intrahepatic and extrahepatic metastases, especially to the colon, has not been previously reported.

#### CASE SUMMARY

We present an atypical clinical case of a patient with liver, right lung, peritoneal, and colon metastases diagnosed successively following hepatic resection for primary HCC. Comprehensive treatment, including partial liver, lung and colon resection, palliative management such as systemic chemotherapy, trans-arterial chemoembolization, targeted therapy with sorafenib, and cryotherapy were attempted. Despite his early metastases, the patient remained relatively healthy for 8 years after diagnosis.

#### CONCLUSION

This case indicates that comprehensive treatment is beneficial for certain patients with metastatic HCC. Clinicians should be alert as to the possibility of rare site metastatic tumors that may be easily misdiagnosed as primary tumors.

**Key Words:** Hepatocellular carcinoma; Multiple metastasis; Rare colon metastasis; Comprehensive treatments; Long-term survival; Case report

**Core Tip:** Hepatocellular carcinoma (HCC) is a highly malignant cancer worldwide, which often metastasizes, but unusually to the gastrointestinal tract and particularly rare to the colon. We presented an atypical clinical case of a patient with liver, right lung, peritoneal and colon metastases diagnosed successively following hepatic resection for primary HCC. Despite his early metastases, the patient remained relatively healthy for 8 years. This case indicates that comprehensive treatment is beneficial for certain patients with metastatic HCC. Furthermore, clinicians should be alert as to the possibility of rare site metastatic tumors that may be easily misdiagnosed as primary tumors. We believe this article will be very useful to anyone who is interested in this field.

**Citation:** Gong YQ, Lu TL, Chen CW. Long-term survival of patients with hepatocellular carcinoma with hepatic, pulmonary, peritoneal and rare colon metastasis: A case report. *World J Gastrointest Surg* 2023; 15(8): 1819-1824

**URL:** <https://www.wjgnet.com/1948-9366/full/v15/i8/1819.htm>

**DOI:** <https://dx.doi.org/10.4240/wjgs.v15.i8.1819>

## INTRODUCTION

Hepatocellular carcinoma (HCC) is one of the most common malignant cancers, with a high metastatic and invasive potential and a low survival rate[1]. While patients with HCC often present with intrahepatic lung and bone metastasis, digestive tract metastases are rare[2,3]. There are many therapeutic approaches for treating HCC that can be widely classified by their ability to cure or control the tumor. Liver transplant, hepatic resection, and ablative therapies are performed with curative intent, while the majority of locoregional therapies, systemic chemotherapies and sorafenib are considered palliative. Although numerous treatment strategies for metastatic HCC have been evaluated, there has been no significant reduction in HCC mortality. Here we report a case of a long-term survival from primary HCC with early successive liver, lung, peritoneal, and colon metastases following comprehensive treatments.

## CASE PRESENTATION

### Chief complaints

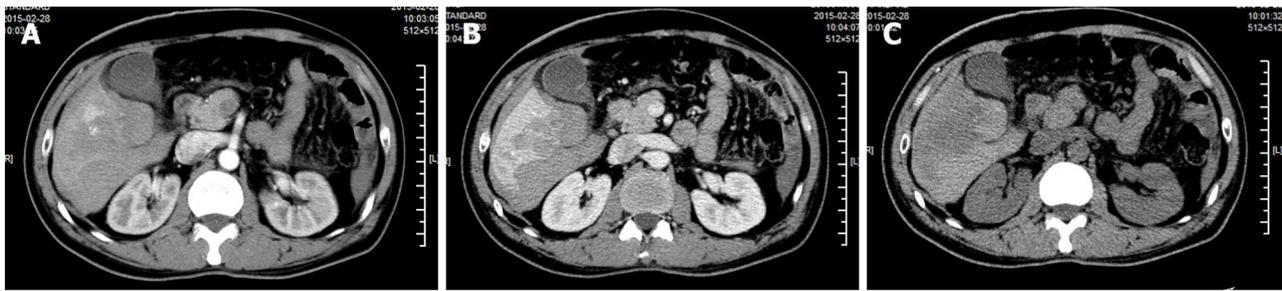
A 47-year-old male was transferred to our hospital who had received comprehensive treatment for HCC for 4 years and was complaining of hematochezia for 20 d.

### History of present illness

The patient was admitted to a local hospital in February 2015 for upper abdominal pain. Computer tomography (CT) revealed several circular low-density shadows with a maximum size of 4.1 cm × 4.5 cm in the right lobe of the liver (Figure 1). Liver cancer with rupture and hemorrhage was suspected, and no evidence of metachronous metastases were observed. A partial right hepatic lobe resection and cholecystectomy was performed on March 5, 2015. The patient also underwent abdominal and pelvic exploration as well as a priming wash. Operative pathology confirmed a moderately differentiated HCC.

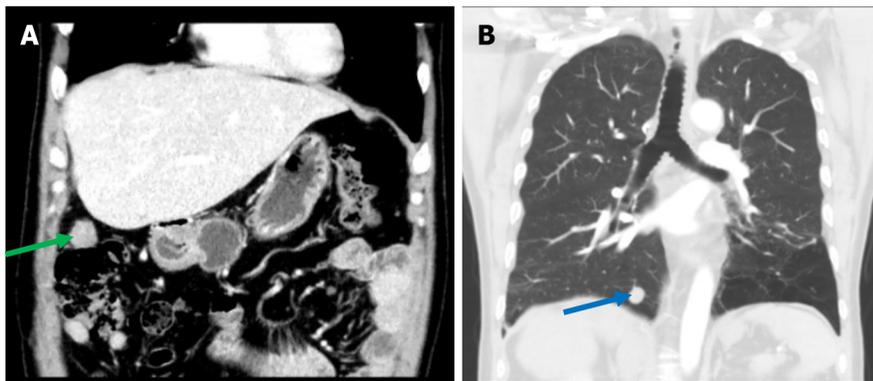
The patient was admitted to our hospital for regular follow up 1 mo later. CT showed a small hepatic nodule in his quadrate lobe, suggesting a possible metastasis. He underwent trans-arterial chemoembolization (TACE) for recurrent HCC in the liver on May 13, 2015. The patient recovered well, and no abnormalities were observed at until 1-year follow up in May 2016, when a CT scan found a metastatic tumor in the lower lobe of his right lung and a 2.5 cm × 2.0 cm mass in his peritoneal soft tissue (Figure 2). Based on the Barcelona Clinic Liver Cancer staging system, the patient was started on palliative sorafenib 0.4 g *per os* twice daily on May 17, 2016. The patient's AFP level gradually increased from 2015 to 2017, peaking at 99 ng/ml. The multiple disciplinary team (MDT) suggested the patient undergo surgical resection of his peritoneal and pulmonary metastases. The peritoneal metastases were resected on January 23rd, 2017, and a partial lobectomy was performed on March 27, 2017. A postoperative biopsy confirmed pathologic change within the metastatic deposits (Figure 3). The patient's postoperative AFP decreased to 20-30 ng/mL. His coagulation and liver function remained normal throughout treatment.

Seven months later, in November 2017, a CT scan observed a lesion in the patient's ascending colon and multiple small flaky low-density nodules in his liver. The patient underwent a colonoscopy, and biopsy histology was consistent with metastatic HCC (Figure 4). Immunohistochemical results were Hepatocyte (+), Glypican-3 (+), CD34 (indicating vascularization), CDX2 (-), CK7 (-), and CK20 (-). Magnetic resonance imaging and an abdominal ultrasound suggested recurrent HCC. The patient consequently underwent TACE for multifocal HCC recurrence in his liver. Given concern for the patient's overall condition, a MDT meeting was held and systemic treatment was recommended. The patient was admitted to an anti-programmed death 1 (PD-1) clinical trial in our hospital. The patient received SHR-1210 200mg, *i.v.* gtt on day 1+ and apatinib mesylate 250 mg, *per os* on days 1-14, a series that was repeated every 2 wk from July 10, 2018



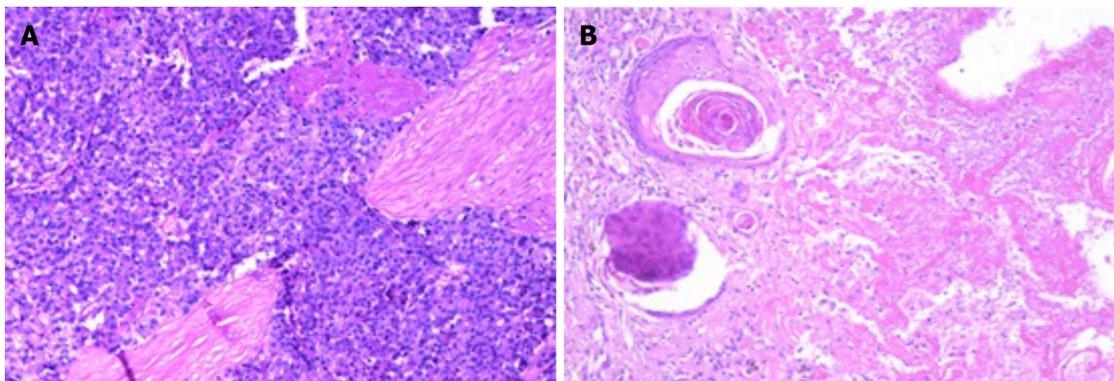
DOI: 10.4240/wjgs.v15.i8.1819 Copyright ©The Author(s) 2023.

**Figure 1** Abdominal computer tomography showing several heterogenous lesions in the right lobe of the liver. A: Arterial phase; B: Venous phase; C: Plain scan.



DOI: 10.4240/wjgs.v15.i8.1819 Copyright ©The Author(s) 2023.

**Figure 2** An abdominal computer tomography showed a 2.0 cm × 1.6 cm nodular soft tissue density lesion in the right upper peritoneum (green arrow), and thoracic computer tomography showed a nodular lesion about 1.6 cm in diameter in the basal segment of the right lower lung (blue arrow). A: An abdominal computer tomography; B: Thoracic computer tomography.



DOI: 10.4240/wjgs.v15.i8.1819 Copyright ©The Author(s) 2023.

**Figure 3** Pathology of the peritoneal mass and pulmonary lesion, which were consistent with metastatic hepatocellular carcinoma. A: Peritoneal mass; B: Pulmonary lesion.

to March 6, 2019. During this period, the patient's AFP levels fluctuated between 25 and 100 ng/mL.

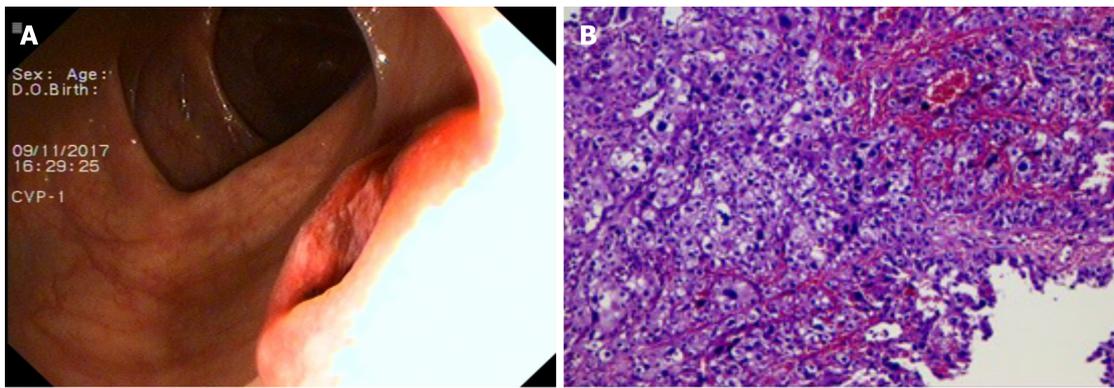
The patient complained of hematochezia for over 20 d. Considering the possibility of colon mass rupture and bleeding, the patient was withdrawn from anti-PD-1 immunotherapy until March 17, 2019.

### History of past illness

Hepatitis B diagnosed in 2009.

### Personal and family history

The patient denied any special personal or family history.



DOI: 10.4240/wjgs.v15.i8.1819 Copyright ©The Author(s) 2023.

**Figure 4** Colonoscopy found a mass in the ascending colon and the biopsy confirmed metastatic hepatocellular carcinoma in the ascending colon. A: Colonoscopy; B: Biopsy.

### Physical examination

A flat and soft abdomen with several visible surgical scars on the epigastrium.

### Laboratory examinations

Alpha-fetoprotein (AFP) level was 34 ng/mL (reference range 0-20 ng/mL).

### Imaging examinations

A 2015 CT scan revealed multiple circular low-density shadows with a maximum size of 4.1 cm × 4.5 cm in the right lobe of the liver (Figure 1). A May 2016 CT scan showed a metastatic tumor in right lower lobe of lung (Figure 2A) and a 2.5 cm × 2.0 cm mass in the peritoneal soft tissue (Figure 2B). Operative pathology of the peritoneal mass (Figure 3A) and pulmonary lesion (Figure 3B) confirmed pathologic change in the metastatic HCC. In November 2017, a CT scan found a lesion in the ascending colon and multiple small flaky low-density nodules in the liver. A colonoscopy was performed to biopsy the mass in the ascending colon (Figure 4A), which confirmed metastatic HCC in the ascending colon (Figure 4B).

---

## FINAL DIAGNOSIS

HCC with hepatic, pulmonary, peritoneal, and colon metastases.

---

## TREATMENT

The patient was withdrawn from anti-PD-1 immunotherapy on March 17, 2019, because of hematochezia, which was thought to be from a ruptured mass in his colon. A CT scan revealed increased size of the mass in the ascending colon wall. The MDT recommended a colectomy, and a radical resection of the right colon was performed on May 26, 2019, with pathology consistent with metastatic HCC. The patient recovered well postoperatively, and no abnormalities or metastases were observed over the proceeding 4-years of follow-up.

---

## OUTCOME AND FOLLOW-UP

After comprehensive treatment, including partial surgical resection of his liver, lung, and colon, and palliative management such as systemic chemotherapy, TACE, targeted therapy with sorafenib, and cryotherapy, the patient is still alive and relatively healthy 8 years after being diagnosed with HCC.

---

## DISCUSSION

HCC, a major subtype of primary liver cancer, is the third most common cause of cancer-related death worldwide, leading to over 600000 deaths annually[4]. While a significant amount of research has been performed into possible HCC treatments, it still carries an extremely dismal prognosis due to its late diagnosis and its high risk of recurrence and drug resistance. HCC always metastasizes *via* intrahepatic blood vessels, direct infiltration, or the lymphatic system, and thus typically affecting the liver, lung, bone, lymphatics and brain[5]. Metastases to the digestive tract, in particular the colon

are very rare. The patient underwent abdominal and pelvic exploration and irrigation for liver cancer with rupture and hemorrhage. It is worth considering whether the colon metastases occurred *via* normal intestinal metastasis or abdominal implantation. We do not rule out the risk of intraperitoneal implantation, but consider the possibility of metastasis through the normal intestinal pathway to be more likely. First, the patient had successive liver, lung, and peritoneal metastases, with intestinal metastases occurring 2 years later. If the colonic metastases were due to peritoneal implantation, they would have occurred almost simultaneously with the abdominal metastasis. Further, the colonic metastases grew within the intestinal cavity rather than infiltrating it, as shown on imaging and colonoscopy. It is hard to distinguish metastatic carcinoma of the colon from primary colon cancer because the metastases have few specific clinical manifestations. Clinicians should therefore be vigilant to the possibility of rare metastatic tumor sites, such as the colon in the case of our patient, which may avoid misdiagnosis or delayed treatment.

There are many treatments for HCC, which include liver transplantation, surgical resection, locoregional therapy (*e.g.*, TACE), and systemic therapy (*e.g.*, multikinase inhibitor sorafenib). Among the therapies mentioned above, liver transplantation and surgical resection remain the gold standard curative treatments for HCC. Locoregional and systemic therapies are usually considered controlling but not curative, or a means for decreasing tumor size or bridging the patient to surgery. It has been reported that patients treated with TACE have a considerably longer overall survival than the best supportive care in a randomized controlled study[6]. For patients with advanced HCC who are not surgical candidates or who have failed locoregional therapy, the multikinase inhibitor sorafenib may be considered[7]. An expanding body of evidence suggests that cytoreductive surgery can prolong the survival of patients with various metastatic malignancies and improve their quality of life[8,9]. Thus, despite their poor outcomes, the comprehensive treatment of patients with HCC and hepatic or extrahepatic metastases may improve their prognosis[10,11]. The comprehensive use of cytoreductive surgery, regional chemotherapy and other interventions contribute to lowering cancer burden, alleviating the symptoms and improving the quality of life of patients with metastatic HCC. However, patients with advanced HCC require a comprehensive assessment of multiple indicators. A specific preoperative assessment is therefore performed to identify appropriate treatment decisions. The postoperative pathological biopsy of this patient confirmed a moderately differentiated HCC. However, he developed liver, lung, peritoneum, and colon metastases at an early stage, classifying his diagnosis as advanced malignant HCC. According to the National Cancer Institute's SEER database, the average five-year survival rate of HCC patients in the United States is 19.6%, but can be as low as 2.5% for those with advanced metastatic disease. Although this patient had a moderately differentiated HCC, an 8-year effective survival period should still be considered a longer than expected survival.

There are several deficiencies and omissions in this case. The absence of a well-developed PET-CT to most objectively identify the patient's systemic lesions and metastases is a major weakness of this work. Further, it is a great pity that postoperative adjuvant therapy was administered earlier to this patient despite his high risk of recurrence.

---

## CONCLUSION

In conclusion, this case describes a patient with atypical HCC with multiple extrahepatic metastases who survived for 8 years following comprehensive treatment. The primary HCC and metastatic tumors in his liver, lung, peritoneum, and colon were surgically removed. This may indicate that reducing the tumor burden may delay disease progression, thus improving quality of life. This report highlights the role of comprehensive treatment for certain patients with advanced stage HCC. It also supports the early recognition of rare metastatic sites and can provide instruction for the treatment of HCC.

---

## FOOTNOTES

**Author contributions:** Gong YQ collected the literature and wrote the manuscript. Lu TL supervised the manuscript. Chen CW conceived the idea and drafted the manuscript. All authors have read and approve the final manuscript.

**Informed consent statement:** Informed consent statement was obtained from the patient and his family for publication of this report and any accompany images.

**Conflict-of-interest statement:** The authors declare no conflicts 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 NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <https://creativecommons.org/licenses/by-nc/4.0/>

**Country/Territory of origin:** China

**ORCID number:** Yong-Qiang Gong 0000-0002-9215-8790; Tai-Liang Lu 0000-0002-2156-5460; Chao-Wu Chen 0000-0001-5912-9050.

**S-Editor:** Yan JP

**L-Editor:** A

**P-Editor:** Yan JP

---

## REFERENCES

---

- 1 **Llovet JM**, Castet F, Heikenwalder M, Maini MK, Mazzaferro V, Pinato DJ, Pikarsky E, Zhu AX, Finn RS. Immunotherapies for hepatocellular carcinoma. *Nat Rev Clin Oncol* 2022; **19**: 151-172 [PMID: 34764464 DOI: 10.1038/s41571-021-00573-2]
- 2 **Wu W**, He X, Andayani D, Yang L, Ye J, Li Y, Chen Y, Li L. Pattern of distant extrahepatic metastases in primary liver cancer: a SEER based study. *J Cancer* 2017; **8**: 2312-2318 [PMID: 28819435 DOI: 10.7150/jca.19056]
- 3 **Hu C**, Yang J, Huang Z, Liu C, Lin Y, Tong Y, Fan Z, Chen B, Wang C, Zhao CL. Diagnostic and prognostic nomograms for bone metastasis in hepatocellular carcinoma. *BMC Cancer* 2020; **20**: 494 [PMID: 32487048 DOI: 10.1186/s12885-020-06995-y]
- 4 **Siegel RL**, Miller KD, Jemal A. Cancer statistics, 2016. *CA Cancer J Clin* 2016; **66**: 7-30 [PMID: 26742998 DOI: 10.3322/caac.21332]
- 5 **Chen W**, Zheng R, Baade PD, Zhang S, Zeng H, Bray F, Jemal A, Yu XQ, He J. Cancer statistics in China, 2015. *CA Cancer J Clin* 2016; **66**: 115-132 [PMID: 26808342 DOI: 10.3322/caac.21338]
- 6 **Chen S**, Wu Z, Shi F, Mai Q, Wang L, Wang F, Zhuang W, Chen X, Chen H, Xu B, Lai J, Guo W. Lenvatinib plus TACE with or without pembrolizumab for the treatment of initially unresectable hepatocellular carcinoma harbouring PD-L1 expression: a retrospective study. *J Cancer Res Clin Oncol* 2022; **148**: 2115-2125 [PMID: 34453221 DOI: 10.1007/s00432-021-03767-4]
- 7 **Forner A**, Reig M, Bruix J. Hepatocellular carcinoma. *Lancet* 2018; **391**: 1301-1314 [PMID: 29307467 DOI: 10.1016/S0140-6736(18)30010-2]
- 8 **Grotz TE**, Fournier KF, Mansfield PF. Patient Selection for Cytoreductive Surgery. *Surg Oncol Clin N Am* 2018; **27**: 443-462 [PMID: 29935682 DOI: 10.1016/j.soc.2018.02.012]
- 9 **Alzahrani N**, Ung L, Valle SJ, Liauw W, Morris DL. Synchronous liver resection with cytoreductive surgery for the treatment of liver and peritoneal metastases from colon cancer: results from an Australian centre. *ANZ J Surg* 2017; **87**: E167-E172 [PMID: 26178318 DOI: 10.1111/ans.13231]
- 10 **Llovet JM**, Kelley RK, Villanueva A, Singal AG, Pikarsky E, Roayaie S, Lencioni R, Koike K, Zucman-Rossi J, Finn RS. Hepatocellular carcinoma. *Nat Rev Dis Primers* 2021; **7**: 6 [PMID: 33479224 DOI: 10.1038/s41572-020-00240-3]
- 11 **Yang JD**, Heimbach JK. New advances in the diagnosis and management of hepatocellular carcinoma. *BMJ* 2020; **371**: m3544 [PMID: 33106289 DOI: 10.1136/bmj.m3544]



Published by **Baishideng Publishing Group Inc**  
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA  
**Telephone:** +1-925-3991568  
**E-mail:** [bpgoffice@wjgnet.com](mailto:bpgoffice@wjgnet.com)  
**Help Desk:** <https://www.f6publishing.com/helpdesk>  
<https://www.wjgnet.com>

