

# World Journal of *Clinical Cases*

*World J Clin Cases* 2022 March 16; 10(8): 2363-2659



**OPINION REVIEW**

- 2363 eHealth, telehealth, and telemedicine in the management of the COVID-19 pandemic and beyond: Lessons learned and future perspectives  
*Giocalone A, Marin L, Febbi M, Franchi T, Tovani-Palone MR*

**MINIREVIEWS**

- 2369 Developing natural marine products for treating liver diseases  
*Wei Q, Guo JS*

**ORIGINAL ARTICLE****Case Control Study**

- 2382 Analysis of bacterial spectrum, activin A, and CD64 in chronic obstructive pulmonary disease patients complicated with pulmonary infections  
*Fei ZY, Wang J, Liang J, Zhou X, Guo M*

**Retrospective Cohort Study**

- 2393 Computed tomography perfusion imaging evaluation of angiogenesis in patients with pancreatic adenocarcinoma  
*Liu W, Yin B, Liang ZH, Yu Y, Lu N*

**Retrospective Study**

- 2404 Epidemiological features and dynamic changes in blood biochemical indices for COVID-19 patients in Hebi  
*Nie XB, Shi BS, Zhang L, Niu WL, Xue T, Li LQ, Wei XY, Wang YD, Chen WD, Hou RF*

**Clinical Trials Study**

- 2420 Identification and predictive analysis for participants at ultra-high risk of psychosis: A comparison of three psychometric diagnostic interviews  
*Wang P, Yan CD, Dong XJ, Geng L, Xu C, Nie Y, Zhang S*

- 2429 Prognostic significance of peritoneal metastasis from colorectal cancer treated with first-line triplet chemotherapy  
*Bazarbashi S, Alghabban A, Aseafan M, Aljubran AH, Alzahrani A, Elhassan TA*

**Observational Study**

- 2439 Effect of intraoperative cell rescue on bleeding related indexes after cesarean section  
*Yu YF, Cao YD*

**Prospective Study**

- 2447 Effectiveness of the combination of workshops and flipped classroom model to improve tube fixation training for nursing students  
*Wang YC, Cheng HL, Deng YM, Li BQ, Zhou XZ*

**META-ANALYSIS**

- 2457 Mortality in patients with COVID-19 requiring extracorporeal membrane oxygenation: A meta-analysis  
*Zhang Y, Wang L, Fang ZX, Chen J, Zheng JL, Yao M, Chen WY*

**CASE REPORT**

- 2468 Escitalopram-induced hepatitis: A case report  
*Wabont G, Ferret L, Houdre N, Lepied A, Bene J, Cousein E*
- 2474 Fatal community-acquired bloodstream infection caused by *Klebsiella variicola*: A case report  
*Long DL, Wang YH, Wang JL, Mu SJ, Chen L, Shi XQ, Li JQ*
- 2484 Endoscopic extraction of a submucosal esophageal foreign body piercing into the thoracic aorta: A case report  
*Chen ZC, Chen GQ, Chen XC, Zheng CY, Cao WD, Deng GH*
- 2491 Severe tinnitus and migraine headache in a 37-year-old woman treated with trastuzumab for breast cancer: A case report  
*Liu YZ, Jiang H, Zhao YH, Zhang Q, Hao SC, Bao LP, Wu W, Jia ZB, Jiang HC*
- 2497 Metastatic urothelial carcinoma harboring *ERBB2/3* mutations dramatically respond to chemotherapy plus anti-PD-1 antibody: A case report  
*Yan FF, Jiang Q, Ru B, Fei XJ, Ruan J, Zhang XC*
- 2504 Retroperitoneal congenital epidermoid cyst misdiagnosed as a solid pseudopapillary tumor of the pancreas: A case report  
*Ma J, Zhang YM, Zhou CP, Zhu L*
- 2510 Immunoglobulin G4-related kidney disease involving the renal pelvis and perirenal fat: A case report  
*He JW, Zou QM, Pan J, Wang SS, Xiang ST*
- 2516 Fluoroscopic removal of fractured, retained, embedded Z self-expanding metal stent using a guidewire lasso technique: A case report  
*Bi YH, Ren JZ, Li JD, Han XW*
- 2522 Treatment and five-year follow-up of type A insulin resistance syndrome: A case report  
*Chen YH, Chen QQ, Wang CL*
- 2529 Effective response to crizotinib of concurrent *KIF5B-MET* and *MET-CDR2*-rearranged non-small cell lung cancer: A case report  
*Liu LF, Deng JY, Lizaso A, Lin J, Sun S*

- 2537** Idarucizumab reverses dabigatran-induced anticoagulation in treatment of gastric bleeding: A case report  
*Jia Y, Wang SH, Cui NJ, Liu QX, Wang W, Li X, Gu YM, Zhu Y*
- 2543** Immunoglobulin G4-related disease involving multiple systems: A case report  
*An YQ, Ma N, Liu Y*
- 2550** Daptomycin and linezolid for severe methicillin-resistant *Staphylococcus aureus* psoas abscess and bacteremia: A case report and review of the literature  
*Hong XB, Yu ZL, Fu HB, Cai ZH, Chen J*
- 2559** Isolated scaphoid dislocation: A case report and review of literature  
*Liu SD, Yin BS, Han F, Jiang HJ, Qu W*
- 2569** Dual biologic therapy with ocrelizumab for multiple sclerosis and vedolizumab for Crohn's disease: A case report and review of literature  
*Au M, Mitrev N, Leong RW, Kariyawasam V*
- 2577** Cardiac rehabilitation in a heart failure patient after left ventricular assist device insertion and subsequent heart transplantation: A case report  
*Yang TW, Song S, Lee HW, Lee BJ*
- 2584** Large retroperitoneal atypical spindle cell lipomatous tumor, an extremely rare neoplasm: A case report  
*Bae JM, Jung CY, Yun WS, Choi JH*
- 2591** Hepatocellular carcinoma effective stereotactic body radiotherapy using Gold Anchor and the Synchrony system: Two case reports and review of literature  
*Masuda S, Tsukiyama T, Minagawa Y, Koizumi K, Kako M, Kinbara T, Haruki U*
- 2604** Mantle cell lymphoma with endobronchial involvement: A case report  
*Ding YZ, Tang DQ, Zhao XJ*
- 2610** Fatal systemic emphysematous infection caused by *Klebsiella pneumoniae*: A case report  
*Zhang JQ, He CC, Yuan B, Liu R, Qi YJ, Wang ZX, He XN, Li YM*
- 2616** Takotsubo cardiomyopathy misdiagnosed as acute myocardial infarction under the Chest Pain Center model: A case report  
*Meng LP, Zhang P*
- 2622** Cystic teratoma of the parotid gland: A case report  
*Liu HS, Zhang QY, Duan JF, Li G, Zhang J, Sun PF*
- 2629** Silver dressing in the management of an infant's urachal anomaly infected with methicillin-resistant *Staphylococcus aureus*: A case report  
*Shi ZY, Hou SL, Li XW*
- 2637** Drain-site hernia after laparoscopic rectal resection: A case report and review of literature  
*Su J, Deng C, Yin HM*

**2644** Synchronized early gastric cancer occurred in a patient with serrated polyposis syndrome: A case report

*Ning YZ, Liu GY, Rao XL, Ma YC, Rong L*

**2650** Large cystic-solid pulmonary hamartoma: A case report

*Guo XW, Jia XD, Ji AD, Zhang DQ, Jia DZ, Zhang Q, Shao Q, Liu Y*

**LETTER TO THE EDITOR**

**2657** COVID-19 pandemic and nurse teaching: Our experience

*Molina Ruiz JC, Guerrero Orriach JL, Bravo Arcas ML, Montilla Sans A, Escano Gonzalez R*

**ABOUT COVER**

Editorial Board Member of *World Journal of Clinical Cases*, Nicolae Gica, Doctor, PhD, Assistant Professor, Chief Doctor, Surgeon, Department of Obstetrics and Gynecology Surgery, Carol Davila University of Medicine and Pharmacy, Bucharest 063377, Romania. [gica.nicolae@umfcd.ro](mailto:gica.nicolae@umfcd.ro)

**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 Science Citation Index Expanded (also known as SciSearch®), Journal Citation Reports/Science Edition, Scopus, PubMed, and PubMed Central. The 2021 Edition of Journal Citation Reports® cites the 2020 impact factor (IF) for *WJCC* as 1.337; IF without journal self cites: 1.301; 5-year IF: 1.742; Journal Citation Indicator: 0.33; Ranking: 119 among 169 journals in medicine, general and internal; and Quartile category: Q3. The *WJCC*'s CiteScore for 2020 is 0.8 and Scopus CiteScore rank 2020: General Medicine is 493/793.

**RESPONSIBLE EDITORS FOR THIS ISSUE**

Production Editor: *Hua-Ge Yan*, Production Department Director: *Xu Guo*, Editorial Office Director: *Jin-Lei Wang*.

**NAME OF JOURNAL**

*World Journal of Clinical Cases*

**ISSN**

ISSN 2307-8960 (online)

**LAUNCH DATE**

April 16, 2013

**FREQUENCY**

Thrice Monthly

**EDITORS-IN-CHIEF**

Bao-Gan Peng, Jerzy Tadeusz Chudek, George Kontogeorgos, Maurizio Serati, Ja Hyeon Ku

**EDITORIAL BOARD MEMBERS**

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

**PUBLICATION DATE**

March 16, 2022

**COPYRIGHT**

© 2022 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>

## Synchronized early gastric cancer occurred in a patient with serrated polyposis syndrome: A case report

Ying-Ze Ning, Guan-Yi Liu, Xiao-Long Rao, Yong-Chen Ma, Long Rong

**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): 0  
Grade B (Very good): 0  
Grade C (Good): 0  
Grade D (Fair): D, D  
Grade E (Poor): 0

**P-Reviewer:** Lu WS, Muguruma N

**Received:** October 25, 2021

**Peer-review started:** October 25, 2021

**First decision:** December 17, 2021

**Revised:** December 28, 2021

**Accepted:** February 10, 2022

**Article in press:** February 10, 2022

**Published online:** March 16, 2022



**Ying-Ze Ning, Guan-Yi Liu, Xiao-Long Rao, Yong-Chen Ma, Long Rong**, Department of Endoscopy Center, Peking University First Hospital, Beijing 100032, China

**Corresponding author:** Long Rong, MD, Chief Doctor, Professor, Department of Endoscopy Center, Peking University First Hospital, No. 8 Xishiku Street, Xicheng District, Beijing 100032, China. [ronglong8@sina.com](mailto:ronglong8@sina.com)

### Abstract

#### BACKGROUND

Serrated polyposis syndrome (SPS) is a relatively rare disease that is characterized by multiple serrated lesions/polyps. Very little is known regarding the extra-colonic cancers associated with SPS. The genetic basis of the process remains unknown.

#### CASE SUMMARY

A 67-year-old male patient initially presented with belching and abdominal distension for a year as well as diarrhea for over 2 mo. The patient underwent colonoscopy and was diagnosed with serrated polyposis syndrome. Half a year later, a gastroscopy was performed during the postoperative re-examination to screen for other lesions of the upper gastrointestinal tract. An elevated lesion was detected in the anterior wall of the gastric antrum. Curative *en bloc* resection of the lesion was achieved *via* endoscopic submucosal dissection. The pathological result was high-grade dysplasia with focal intramucosal carcinoma. Exome sequencing was performed for the patient and five gastric cancer-associated variants (methyl-entetrahydrofolate reductase, metaxin 1, coiled-coil domain containing 6, glutamate ionotropic receptor delta type subunit 1, and aldehyde dehydrogenase 1) were identified.

#### CONCLUSION

This paper reports a case that presented with both SPS and early gastric cancer. Genetic mutations that were potentially responsible for this condition were sought by exome sequencing.

**Key Words:** Serrated polyposis syndrome; Early gastric cancer; Gene mutation; Endoscopy; Exome sequencing; Case report

©The Author(s) 2022. Published by Baishideng Publishing Group Inc. All rights reserved.

**Core Tip:** Serrated polyposis syndrome (SPS) is a relatively rare disease. Very little is known regarding the extracolonic cancers associated with SPS. The genetic basis of the process remains unknown. Here, we report a case that presented with SPS and synchronized early gastric cancer. Genetic mutations that were potentially responsible for this condition were sought by exome sequencing.

**Citation:** Ning YZ, Liu GY, Rao XL, Ma YC, Rong L. Synchronized early gastric cancer occurred in a patient with serrated polyposis syndrome: A case report. *World J Clin Cases* 2022; 10(8): 2644-2649

**URL:** <https://www.wjgnet.com/2307-8960/full/v10/i8/2644.htm>

**DOI:** <https://dx.doi.org/10.12998/wjcc.v10.i8.2644>

## INTRODUCTION

Serrated polyposis syndrome (SPS), previously known as hyperplastic polyposis, is a relatively rare disease that is characterized by multiple serrated lesions/polyps (SL/Ps), mainly in the proximal colon [1]. An increasing body of evidence suggests that patients with SPS have an increased risk of colorectal cancer (CRC) but the genetic basis of the process remains unknown [2]. Also, very little is known regarding the extracolonic cancers associated with SPS. To understand the molecular basis of SPS, it is important to identify the corresponding disease-causing genes. Because whole-exome sequencing can almost cover the entirety of protein-coding regions in the genome, which contains approximately 85% of disease-relevant mutations, it can serve as a powerful tool for cost-effective disease mechanistic research [3].

This paper reports a patient with SPS and synchronized early gastric cancer (GC) treated with endoscopic submucosal dissection (ESD), along with some potential causative mutations found in exome sequencing.

## CASE PRESENTATION

### Chief complaints

A 67-year-old male patient initially presented with belching and abdominal distension for a year as well as diarrhea for over 2 mo.

### History of present illness

The patient had no history of present symptoms.

### History of past illness

The patient had a history of hypertension that was well controlled with medication.

### Personal and family history

No personal or family history of SPS or cancers was reported.

### Physical examination

Physical examination was unremarkable.

### Laboratory examinations

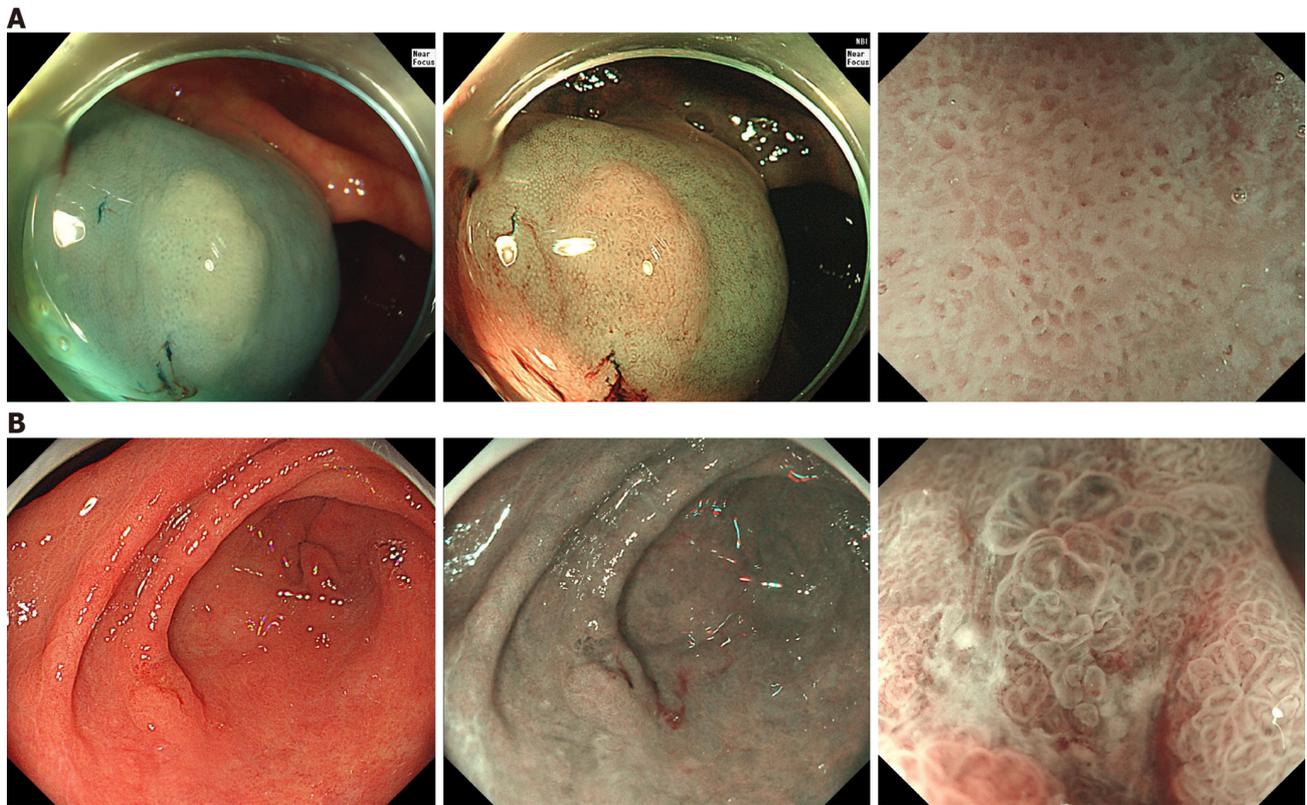
Since the patient was *Helicobacter pylori* negative, the diagnosis of *H. pylori* infection-related GC was excluded.

### Imaging examinations

The patient underwent colonoscopy and found multiple flat and sessile polyps located throughout different segments of the colon and ranging from 5 to 20 mm in diameter. More than 10 polyps were removed and pathological examination confirmed most polyps to be sessile serrated lesions (SSLs) and 4 as tubular adenoma, all without severe dysplasia (Figure 1A). The diagnosis of SPS was established. Half a year later, a gastroscopy was performed during the postoperative re-examination to screen for other lesions of the upper gastrointestinal tract. An elevated lesion was detected in the anterior wall of the gastric antrum (Figure 1B).

### Methods of genetic analysis

Total genome DNA from peripheral blood was extracted using the cetrimonium bromide/sodium



DOI: 10.12998/wjcc.v10.i8.2644 Copyright © The Author(s) 2022.

**Figure 1** Narrow-band imaging magnified observation. A: The first colonoscopy removed over 10 polyps and the diagnosis of serrated polyposis syndrome was established. A flat polyp with a size of 1.0 cm × 0.8 cm was observed in the ascending colon. The surface of the polyp was cloudy and the boundary was not clear. Type II open-shape pit pattern was seen by narrow-band imaging magnified observation after indigo carmine acetic acid staining; B: An elevated lesion was detected in the anterior wall of the gastric antrum at the gastroscopy. Upon white light endoscopy, a type IIc lesion approximately 1.2 cm × 1.0 cm in size could be seen in the anterior wall of the gastric antrum, with a small amount of white fur attached to the surface. Narrow-band imaging magnified observation showed the dividing line and the enlarged and irregular gland. No obvious abnormal blood vessels were found.

dodecyl sulfate method. Gene libraries were constructed and paired-end sequencing was performed using the Illumina® HiSeq platform. Statistics was mapped with a reference genome using Burrows-Wheeler Alignment software (parameters: mem-t4-k32-M) and the duplicates were removed by Picard. Individual single nucleotide polymorphism (SNP) variations were detected using the Genome Analysis Toolkit. Subsequently, annotation of the detected SNPs was performed using SnpEff.

### Results of genetic analyses

To explore the molecular characteristics of the patient, sequencing analysis was performed. Exome sequencing identified 3111 nonsynonymous single nucleotide variants in the exon region. These genes were filtered by the mutation data in ClinVar, COSMIC v90 and previous genome-wide association study reports. Five GC-associated variants (methylenetetrahydrofolate reductase [MTHFR], metaxin 1 [MTX1], coiled-coil domain containing 6 [CCDC6], glutamate ionotropic receptor delta type subunit 1 [GRID1], and aldehyde dehydrogenase 1 [ALDH2]) were identified, as shown in Table 1. Additionally, a cross check for genes that has been reported as causative of SPS or relating to the serrated pathway was performed. The BRAF V600E and KRAS G12D mutations, common hotspot mutations in SPS, were not found.

## FINAL DIAGNOSIS

The pathological result of the lesion in the gastric antrum was high-grade dysplasia with focal intramucosal carcinoma.

Table 1 Details of five gastric cancer-associated variants

Gene	Chr	Mutation	SIFT/Polyphen_2/MT	Pathways
MTHFR	1	exon5:c.C788T:p.A263V	D/D/P	Folate metabolism
		exon5:c.C665T:p.A222V		
MTX1	1	exon1:c.T187A:p.S63T	-	Metabolism of proteins
CCDC6	10	exon9:c.C1408A:p.P470T	D/D/P	DNA damage response, Cell cycle, Apoptosis
GRID1	10	exon11:c.G1585A:p.V529I	D/D/D	Peptide ligand-binding receptors
ALDH2	12	exon11:c.G1369A:p.E457K	D/D/P	Ethanol degradation, Cytochrome P450
		exon12:c.G1510A:p.E504K		

Chr: Chromosome; D: Deleterious; P: Possibly deleterious.

## TREATMENT

Curative *en bloc* resection of the lesion was achieved *via* endoscopic submucosal dissection (ESD).

## OUTCOME AND FOLLOW-UP

The lesion in gastric antrum was considered to be curatively resected. No recurrence was observed on her last esophagogastroduodenoscopy surveillance 1 year after surgery.

## DISCUSSION

SL/Ps include hyperplastic polyps, traditional serrated adenoma, and SSLs. SPS was redefined by World Health Organization (WHO) in 2019 and its diagnosis is based on the cumulative number of serrated lesions in a patient who meets one of the two following WHO criteria:  $\geq 5$  SL/Ps proximal to the rectum, all  $\geq 5$  mm in size and including  $\geq 2$  Larger than 10 mm; or  $> 20$  SL/Ps of any size distributed throughout the colon, with  $\geq 5$  proximal to the rectum[1]. The true prevalence of SPS is likely under-recognized and not diagnosed because of the need to keep track of the cumulative lifetime number of SL/Ps in a patient[4]. To monitor for risk of malignant progression, endoscopic surveillance is recommended for all patients every 1 year to 3 years[5]; however, suitable monitoring schedules remain controversial.

SL/Ps are currently recognized as the precursors of CRC and SPS has been considered a high-risk condition for CRC. However, there are only a few reported cases of SPS patients having extracolonic malignancies and the association between SPS and extracolonic cancer risk in various studies are not consistent. In their American cohort, Jaspersen *et al*[6] found 12 of 51 SPS patients (24%) had a history of extracolonic tumors, but none were found to have gastric lesions. Hazewinkel *et al*[7] reported 9 of 105 SPS patients (8.6%) from five medical centers in Europe, which did not significantly differ from the expected number of the general population, but the cancer-specific risk was not estimated. A Korean study[8] reported the diagnosis of stomach cancer in 2 of 30 SPS patients (6.7%) *via* esophagogastroduodenoscopy, suggesting that Asian patients with SPS require screening of the upper gastrointestinal tract. The lack of data makes it difficult to determine whether patients with SPS are at increased risk of extracolonic cancers or whether these tumors were unrelated to SPS.

In the present case, the stomach lesion was detected in the postoperative re-examination 6 mo after the diagnosis of SPS. As gastroscopy was not performed when the sessile serrated lesions were removed from the colon, the condition of any GC at that time cannot be confirmed. This emphasizes the importance of upper gastrointestinal tract screening in SPS patients.

To date, some molecular signatures of the serrated pathway of CRC formation have been described, including BRAF and KRAS mutations, microsatellite instability and CpG island methylator phenotype. However, the molecular processes of tumorigenesis are still largely unknown, let alone the molecular characteristics of synchronized cancers. Having sequenced the exosome of the patient's peripheral blood, five variants (MTHFR, MTX1, CCDC6, GRID1, and ALDH2), which are reportedly related to GC, were identified. MTHFR encodes a key enzyme in the folate metabolism pathway, with MTHFR polymorphisms having a functional impact on metabolism[9]. ALDH2, encoding tissue alcohol metabolizing enzymes, can influence acetaldehyde levels in the stomach, which increase the risk of GC through a variety of mechanisms[10]. MTX1 encodes metaxin-1, a mitochondrial protein involved in

tumor necrosis factor-induced cell death[11]. MTX1 is overexpressed in GC tissue compared with paired normal tissues, and patients with higher MTX1 expression experience a poorer prognosis[12]. CCDC6, which is recognized as the target gene of microRNA-149-5p (miR-149-5p) and miR-19b-3p[13], inhibits cell proliferation and the epithelial-mesenchymal transition and facilitates cell apoptosis[14]. Although the glutamate receptor GRID1 exclusively functions in the central nervous system, recent evidence suggests that GRID1 may also be involved in multiple kinds of malignant processes during the progression of cancer[15]. As the annotation information of SPS-related genes is limited, we could only first identify the mutations that are reportedly closely related to GC. Considering the characteristics of this patient, these five mutations are presumably associated with both GC and SPS. The mechanism by which these genes affect the pathogenesis of GC and SPS remains to be determined.

Here, exome sequencing was performed for a patient with SPS and synchronized early GC. Although a single patient is not sufficient to identify potential genetic characteristics of SPS, the findings still add to the body of knowledge on the molecular mechanism underpinning SPS with synchronized GC. Further validation experiments using resected specimen are necessary to clarify the effect of mutations on GC and SPS.

---

## CONCLUSION

In conclusion, this paper reports a case that presented with both SPS and early GC. Genetic mutations that were potentially responsible for this condition were identified by exome sequencing. Further studies are needed regarding the extracolonic cancer risk of SPS patients.

---

## FOOTNOTES

**Author contributions:** Ning YZ wrote the manuscript; Liu GY and Rao XL collected the data; Ma YC analyzed the data; Rong L designed the research study; all authors have read and approved the final manuscript.

**Informed consent statement:** Written informed consent was obtained from the patient.

**Conflict-of-interest statement:** The authors declare that they have 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:** Ying-Ze Ning 0000-0002-7164-2698; Guan-yi Liu 0000-0002-4663-5277; Xiao-Long Rao 0000-0002-9277-7524; Yong-chen Ma 0000-0003-3047-3688; Long Rong 0000-0002-3635-4682.

**S-Editor:** Ma YJ

**L-Editor:** Filipodia

**P-Editor:** Ma YJ

---

## REFERENCES

- 1 Nagtegaal ID, Odze RD, Klimstra D, Paradis V, Rugge M, Schirmacher P, Washington KM, Carneiro F, Cree IA; WHO Classification of Tumours Editorial Board. The 2019 WHO classification of tumours of the digestive system. *Histopathology* 2020; **76**: 182-188 [PMID: 31433515 DOI: 10.1111/his.13975]
- 2 Fousekis FS, Mitselos IV, Christodoulou DK. Diagnosis, epidemiology and management of serrated polyposis syndrome: a comprehensive review of the literature. *Am J Transl Res* 2021; **13**: 5786-5795 [PMID: 34306326]
- 3 Koepfel F, Bobard A, Lefebvre C, Pedrero M, Deloger M, Boursin Y, Richon C, Chen-Min-Tao R, Robert G, Meurice G, Rouleau E, Michiels S, Massard C, Scoazec JY, Solary E, Soria JC, André F, Lacroix L. Added Value of Whole-Exome and Transcriptome Sequencing for Clinical Molecular Screenings of Advanced Cancer Patients With Solid Tumors. *Cancer J* 2018; **24**: 153-162 [PMID: 30119077 DOI: 10.1097/PPO.0000000000000322]
- 4 van Herwaarden YJ, Verstegen MH, Dura P, Kievit W, Drenth JP, Dekker E, IJspeert JE, Hoogerbrugge N, Nagengast FM, Nagtegaal ID, Bisseling TM. Low prevalence of serrated polyposis syndrome in screening populations: a systematic

- review. *Endoscopy* 2015; **47**: 1043-1049 [PMID: 26126164 DOI: 10.1055/s-0034-1392411]
- 5 **Syngal S**, Brand RE, Church JM, Giardiello FM, Hampel HL, Burt RW; American College of Gastroenterology. ACG clinical guideline: Genetic testing and management of hereditary gastrointestinal cancer syndromes. *Am J Gastroenterol* 2015; **110**: 223-62; quiz 263 [PMID: 25645574 DOI: 10.1038/ajg.2014.435]
  - 6 **Jasperson KW**, Kanth P, Kirchoff AC, Huismann D, Gammon A, Kohlmann W, Burt RW, Samadder NJ. Serrated polyposis: colonic phenotype, extracolonic features, and familial risk in a large cohort. *Dis Colon Rectum* 2013; **56**: 1211-1216 [PMID: 24104994 DOI: 10.1097/DCR.0b013e3182a11cca]
  - 7 **Hazewinkel Y**, Reitsma JB, Nagengast FM, Vasen HF, van Os TA, van Leerdam ME, Koornstra JJ, Dekker E. Extracolonic cancer risk in patients with serrated polyposis syndrome and their first-degree relatives. *Fam Cancer* 2013; **12**: 669-673 [PMID: 23591707 DOI: 10.1007/s10689-013-9643-x]
  - 8 **Kim ER**, Jeon J, Lee JH, Lee YJ, Hong SN, Chang DK, Kim YH. Clinical characteristics of patients with serrated polyposis syndrome in Korea: comparison with Western patients. *Intest Res* 2017; **15**: 402-410 [PMID: 28670238 DOI: 10.5217/ir.2017.15.3.402]
  - 9 **Petrone I**, Bernardo PS, Dos Santos EC, Abdelhay E. *MTHFR* C677T and A1298C Polymorphisms in Breast Cancer, Gliomas and Gastric Cancer: A Review. *Genes (Basel)* 2021; **12** [PMID: 33920562 DOI: 10.3390/genes12040587]
  - 10 **Na HK**, Lee JY. Molecular Basis of Alcohol-Related Gastric and Colon Cancer. *Int J Mol Sci* 2017; **18** [PMID: 28538665 DOI: 10.3390/ijms18061116]
  - 11 **Wang X**, Ono K, Kim SO, Kravchenko V, Lin SC, Han J. Metaxin is required for tumor necrosis factor-induced cell death. *EMBO Rep* 2001; **2**: 628-633 [PMID: 11454742 DOI: 10.1093/embo-reports/kve135]
  - 12 **Sung H**, Hu N, Yang HH, Giffen CA, Zhu B, Song L, Su H, Wang C, Parisi DM, Goldstein AM, Taylor PR, Hyland PL. Association of high-evidence gastric cancer susceptibility loci and somatic gene expression levels with survival. *Carcinogenesis* 2017; **38**: 1119-1128 [PMID: 29028942 DOI: 10.1093/carcin/bgx090]
  - 13 **Jin D**, Huang K, Peng L, Xu P, Dang Y, Yang J, Chen M, Zhu X, Wei S, Yan J, Zhang G. Circular RNA circDNA2 upregulates *CCDC6* expression to promote the progression of gastric cancer via miR-149-5p suppression. *Mol Ther Nucleic Acids* 2021; **26**: 360-373 [PMID: 34552818 DOI: 10.1016/j.omtn.2021.05.021]
  - 14 **Tang Y**, Yang J, Wang Y, Tang Z, Liu S, Tang Y. MiR-19b-3p facilitates the proliferation and epithelial-mesenchymal transition, and inhibits the apoptosis of intrahepatic cholangiocarcinoma by suppressing coiled-coil domain containing 6. *Arch Biochem Biophys* 2020; **686**: 108367 [PMID: 32315652 DOI: 10.1016/j.abb.2020.108367]
  - 15 **Wang H**, Ma X, Liu J, Wan Y, Jiang Y, Xia Y, Cheng W. Prognostic value of an autophagy-related gene expression signature for endometrial cancer patients. *Cancer Cell Int* 2020; **20**: 306 [PMID: 32684843 DOI: 10.1186/s12935-020-01413-6]



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>

