

World Journal of *Gastrointestinal Surgery*

World J Gastrointest Surg 2023 March 27; 15(3): 307-494



MINIREVIEWS

- 307 Surgical management of acute pancreatitis: Historical perspectives, challenges, and current management approaches
Alzerwi N
- 323 Current trends in perioperative treatment of resectable gastric cancer
Yıldız İ, Özer L, Şenocak Taşçı E, Bayoglu İV, Aytac E
- 338 Vascular injury during laparoscopic cholecystectomy: An often-overlooked complication
Pesce A, Fabbri N, Feo CV

ORIGINAL ARTICLE**Basic Study**

- 346 Differential expression and significance of 5-hydroxymethylcytosine modification in hepatitis B virus carriers and patients with liver cirrhosis and liver cancer
Li YC, Hu WY, Li CH, Zhang LL, Xu XW, Li J, Luo HX

Retrospective Cohort Study

- 362 Compliance with enhanced recovery after surgery predicts long-term outcome after hepatectomy for cholangiocarcinoma
Jongkatkorn C, Luvira V, Suwanprinya C, Piampatipan K, Leeratanakachorn N, Tipwaratorn T, Titapun A, Srisuk T, Theeragul S, Jarearnrat A, Thanasukarn V, Pugkhem A, Khuntikeo N, Pairojkul C, Kamsa-Ard S, Bhudhisawadi V
- 374 Pain management in patients with hepatocellular carcinoma after transcatheter arterial chemoembolisation: A retrospective study
Guan Y, Tian Y, Fan YW

Retrospective Study

- 387 Risk factors and prediction model for inpatient surgical site infection after elective abdominal surgery
Zhang J, Xue F, Liu SD, Liu D, Wu YH, Zhao D, Liu ZM, Ma WX, Han RL, Shan L, Duan XL
- 398 Percutaneous management in hepatic alveolar echinococcosis: A sum of single center experiences and a brief overview of the literature
Eren S, Aydın S, Kantarci M, Kızılgöz V, Levent A, Şenbil DC, Akhan O
- 408 Clinical features of acute esophageal mucosal lesions and reflux esophagitis Los Angeles classification grade D: A retrospective study
Ichita C, Sasaki A, Shimizu S
- 420 Positive correlation between latent Epstein-Barr virus infection and severity of illness in inflammatory bowel disease patients
Wei HT, Xue XW, Ling Q, Wang PY, Zhou WX

Clinical Trials Study

- 430 Efficacy and outcome of extensive intraoperative peritoneal lavage plus surgery *vs* surgery alone with advanced gastric cancer patients

Song ED, Xia HB, Zhang LX, Ma J, Luo PQ, Yang LZ, Xiang BH, Zhou BC, Chen L, Sheng H, Fang Y, Han WX, Wei ZJ, Xu AM

Randomized Controlled Trial

- 440 Endoscopic mucosal resection with double band ligation versus endoscopic submucosal dissection for small rectal neuroendocrine tumors

Huang JL, Gan RY, Chen ZH, Gao RY, Li DF, Wang LS, Yao J

SYSTEMATIC REVIEWS

- 450 Preoperative risk modelling for oesophagectomy: A systematic review

Grantham JP, Hii A, Shenfine J

META-ANALYSIS

- 471 Effect of music therapy on chemotherapy-induced nausea and vomiting in gastrointestinal cancer: A systematic review and meta-analysis

Zhong FP, Zhong J, Zhong MY

CASE REPORT

- 480 Immunotherapy in combination with chemotherapy for Peutz-Jeghers syndrome with advanced cervical cancer: A case report

Hu XC, Gan CX, Zheng HM, Wu XP, Pan WS

- 488 Xanthogranulomatous inflammation requiring small bowel anastomosis revision: A case report

Wang W, Korah M, Bessoff KE, Shen J, Forrester JD

ABOUT COVER

Editorial Board Member of *World Journal of Gastrointestinal Surgery*, Valeriu Marin Şrlin, MD, Professor, Surgical Oncologist, Department of Surgery, University of Medicine and Pharmacy of Craiova, Craiova 200391, Dolj, Romania. vsurlin@gmail.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 2022 Edition of Journal Citation Reports® cites the 2021 impact factor (IF) for *WJGS* as 2.505; IF without journal self cites: 2.473; 5-year IF: 3.099; Journal Citation Indicator: 0.49; Ranking: 104 among 211 journals in surgery; Quartile category: Q2; 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

March 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>



Xanthogranulomatous inflammation requiring small bowel anastomosis revision: A case report

William Wang, Maria Korah, Kovi E Bessoff, Jeanne Shen, Joseph D Forrester

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): B

Grade C (Good): 0

Grade D (Fair): 0

Grade E (Poor): 0

P-Reviewer: Dayan D, Israel; Zhao K, China

Received: November 26, 2022

Peer-review started: November 26, 2022

First decision: January 3, 2023

Revised: January 15, 2023

Accepted: February 16, 2023

Article in press: February 16, 2023

Published online: March 27, 2023



William Wang, Department of Biology, Stanford University, Stanford, CA 94305, United States

William Wang, Department of Bioengineering, Stanford University, Stanford, CA 94305, United States

Maria Korah, Kovi E Bessoff, Joseph D Forrester, Division of General Surgery, Department of Surgery, Stanford University, Stanford, CA 94305, United States

Jeanne Shen, Center for Artificial Intelligence in Medicine and Imaging, Stanford University, Palo Alto, CA 94304, United States

Jeanne Shen, Department of Pathology, Stanford University School of Medicine, Stanford, CA 94305, United States

Corresponding author: Joseph D Forrester, FACS, MD, MSc, Assistant Professor, Attending Doctor, Director, Surgeon, Division of General Surgery, Department of Surgery, Stanford University, 300 Pasteur Drive, H3591, Stanford, CA 94305, United States. jdf1@stanford.edu

Abstract

BACKGROUND

Xanthogranulomatous inflammation (XGI) is an uncommon process involving an accumulation of inflammatory cells, commonly lipid-laden macrophages. XGI has been described to occur throughout the body but only rarely in the lower gastrointestinal tract. We describe a case of XGI contributing to chronic obstructive symptoms in the terminal ileum, in which the patient had an initial diagnostic laparoscopy, continued to have symptoms, then proceeded to have the definitive treatment. To our knowledge, this is the first report of XGI associated with a prior small bowel anastomosis.

CASE SUMMARY

We report the case of a 42-year-old female who presented with intermittent epigastric pain and subjective fevers. She had undergone a laparoscopic small bowel resection for Meckel's diverticulum five years prior. Her workup was notable for computed tomography scan demonstrating mild inflammation and surrounding stranding at the level of the prior anastomosis. She underwent a laparotomy, resection of the prior anastomosis and re-anastomosis, with final histopathological examination findings consistent with mural XGI.

CONCLUSION

XGI can occur at the site of a prior bowel anastomosis and cause chronic obstructive symptoms.

Key Words: Xanthogranulomatous inflammation; Chronic obstructive symptoms; Terminal ileum; Bowel anastomosis; Bowel resection; Case report

©The Author(s) 2023. Published by Baishideng Publishing Group Inc. All rights reserved.

Core Tip: Xanthogranulomatous inflammation (XGI) is an uncommon inflammatory condition characterized by foamy histiocytes and other inflammatory cells. We report a rare case of XGI that occurred in the terminal ileum. Moreover, this is the first reported case of XGI associated with a prior bowel anastomosis. This case enhances our understanding of XGI and provides more insight into the pathophysiology of the condition.

Citation: Wang W, Korah M, Besoff KE, Shen J, Forrester JD. Xanthogranulomatous inflammation requiring small bowel anastomosis revision: A case report. *World J Gastrointest Surg* 2023; 15(3): 488-494

URL: <https://www.wjgnet.com/1948-9366/full/v15/i3/488.htm>

DOI: <https://dx.doi.org/10.4240/wjgs.v15.i3.488>

INTRODUCTION

Xanthogranulomatous inflammation (XGI) is a rare benign condition involving an inflammatory response that can occur in multiple areas throughout the body[1,2]. Clinical presentations and imaging are generally nonspecific since XGI symptoms can vary depending on the organ system; as such, histopathological examination is necessary for a definitive diagnosis[3,4].

Though XGI is a benign process, it is important to consider this diagnosis in the differential for atypical masses because XGI can be challenging to distinguish from cancer, which may lead to avoidable radical treatments[1,3,5]. Therefore, a better understanding of the characteristics of XGI is urgently needed.

Herein, we present a case of a 42-year-old female with XGI at a prior small bowel anastomosis. While XGI has been reported in many organs[1,6], only a few cases of XGI in the lower gastrointestinal (GI) tract have been reported[1,7]. In addition, there have been no cases reported for XGI associated with a bowel anastomosis.

CASE PRESENTATION

Chief complaints

Intermittent mid-epigastric abdominal pain.

History of present illness

A 42-year-old female started having intermittent recurrent mid-epigastric abdominal pain episodes that resulted in multiple emergency department (ED) visits. Six months prior, she had presented to the ED with two days of intermittent epigastric pain and subjective fevers. At that time, she had no nausea or vomiting, her last bowel movement was the day prior to presentation, and she was passing flatus. On exam, she was hemodynamically stable with a benign physical exam. Her abdomen was soft, slightly distended, with moderate tenderness to palpation in the epigastric region, with no evidence of peritonitis. Her white blood cell count was 8.0 K/ μ L. She had a computed tomography (CT) scan of her abdomen and pelvis (AP) without contrast demonstrating her prior bowel anastomosis was focally dilated, with abnormal surrounding inflammatory stranding, along with mesenteric swirling around the anastomosis which raised suspicion for possible obstruction due to internal hernia. She underwent a diagnostic laparoscopy where an adhesive band of omentum to the prior small bowel anastomosis was lysed. All bowel was viable.

Following that surgery, her epigastric pain recurred, along with some nausea and vomiting. She had *Helicobacter pylori* (*H. pylori*) serum and stool antigen and antibody tests that were negative, and an abdominal radiograph demonstrated non-obstructive bowel gas pattern. Esophagogastroduodenoscopy (EGD) demonstrated a few localized non-bleeding erosions in the gastric antrum, with no stigmata of recent bleeding. A CT AP with intravenous contrast given after premedication demonstrated no acute pathologies that could explain her ongoing abdominal pain. She was discharged after she started tolerating oral intake and her pain improved. At a postoperative clinic visit a week later, her pain had

completely resolved, and she was tolerating a regular diet without issues.

Unfortunately, her symptoms returned months later and led to multiple ED visits. During these episodes, she had no nausea or vomiting and no particular precipitating factors. She had been having dark stools, which had resolved after stopping ibuprofen, and otherwise had normal stools and flatus. Her recurrent symptoms prompted a thorough outpatient work-up.

History of past illness

Her past history was notable for depression, anxiety, iron deficiency anemia, cystitis, infectious mononucleosis, *H. pylori* infection, an unprovoked pulmonary embolism for which she had previously been on warfarin for a year, and prior Epstein-Barr virus (EBV) infection. Five years prior, she had a laparoscopic small bowel resection with a stapled side-to-side anastomosis for Meckel's diverticulum. She also had a history of left ovarian cyst removal and bilateral inguinal hernia repairs. Three years prior, she had a colonoscopy and EGD performed for bright red blood per rectum, heartburn, epigastric and lower abdominal pain, nausea, and bilious emesis. These studies demonstrated very small internal hemorrhoids and erosive gastropathy but were otherwise normal.

Personal and family history

The patient had never smoked, had used methamphetamine previously but quit 13 years prior, and drank one glass of wine a week. Her family history was notable for diabetes and stroke in her parents. She was allergic to penicillins, iodinated contrast media, and fish-containing products.

Physical examination

Her vital signs during her ED visits were within normal limits. Her abdominal exam was unremarkable at office visits when she was not experiencing an abdominal pain episode, but during her symptomatic episodes, she had mid-epigastric tenderness to palpation with no rebound or guarding.

Laboratory examinations

During each ED visit, she was noted to have mild leukocytosis (11.8-15.9 K/ μ L), with otherwise overall unremarkable laboratory findings.

Imaging examinations

During one ED visit, a CT AP demonstrated mild inflammation and surrounding stranding at the level of the prior anastomosis (Figure 1A and B), along with small bowel fecalization (Figure 1C) concerning for possible infectious or inflammatory enteritis with nonspecific prominent mesenteric nodes.

FINAL DIAGNOSIS

The patient underwent a lower double-balloon enteroscopy, where neither a double nor single enteroscope could be advanced beyond the terminal ileum (TI), though the examined colon and visualized approximately 3 cm of TI appeared normal (Figure 2).

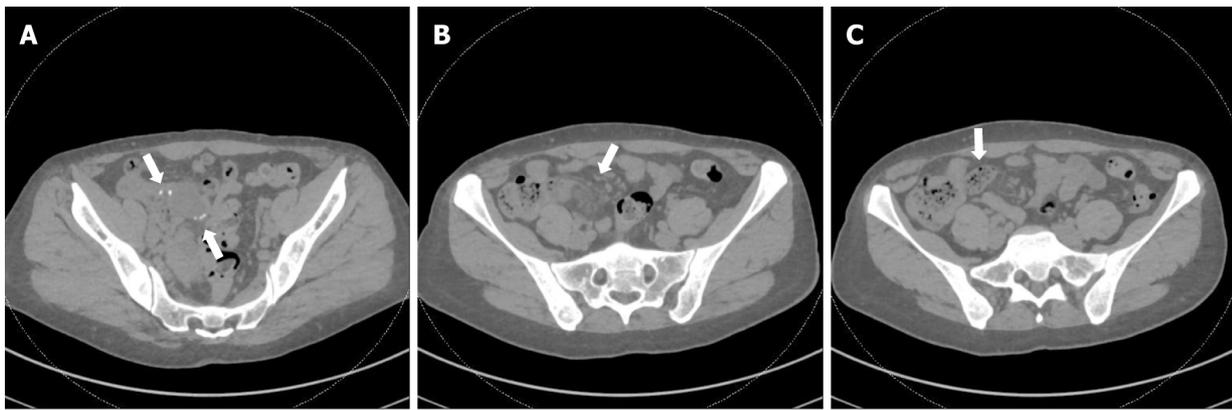
TREATMENT

Given that she failed nonoperative attempts to access her possible stricture, she underwent a laparotomy, resection of her prior small bowel anastomosis, and had a handsewn re-anastomosis.

Histopathologic examination of the resected small bowel segment demonstrated a 7.5 cm \times 5.3 cm \times 4 cm portion of small bowel, with smooth, tan-brown serosa and tan-green mucosa with normal appearing folds (Figure 3). The prior anastomosis site was tan-pink with puckered area of mucosa. There was a cystic cavity abutting the prior anastomosis, which was tan-yellow with copious yellow-tan, viscous purulent cystic material, suggesting significant chronic inflammation underlying the anastomosis site. Microscopic analysis revealed significant infiltration by foamy macrophages, lymphocytes, and plasma cells with no neoplastic cells concerning for carcinoma (Figures 4 and 5). Overall, the histopathological examination findings were consistent with mural XGI.

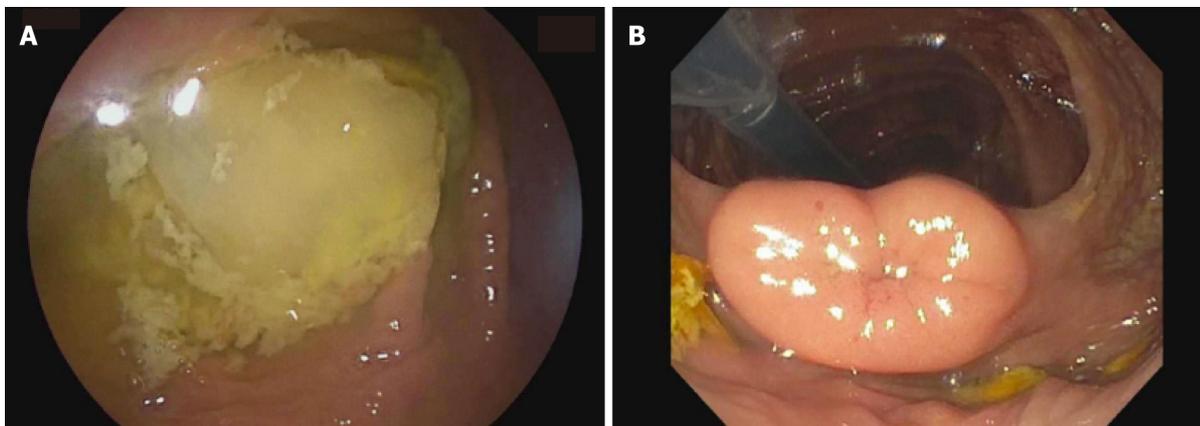
OUTCOME AND FOLLOW-UP

Postoperatively, she developed ileus that self-resolved and was discharged eight days after surgery. At her postoperative clinic visit three weeks later, she was tolerating oral intake, having normal bowel movements, and only having some incisional pain with no obstructive symptoms. Eight months after that follow-up, she developed an incisional hernia that was repaired with mesh. At an outpatient



DOI: 10.4240/wjgs.v15.i3.488 Copyright ©The Author(s) 2023.

Figure 1 Computed tomography scan of her abdomen and pelvis without contrast. A: Prior anastomotic suture line is visualized (arrows) and appeared intact; B: Mild surrounding inflammatory stranding (arrow) seen near the prior anastomosis; C: Fecalization (arrow) noted in small bowel adjacent to anastomosis.



DOI: 10.4240/wjgs.v15.i3.488 Copyright ©The Author(s) 2023.

Figure 2 Double balloon enteroscopy. A: The entire examined colon appeared normal, including the cecum; B: The ileocecal valve. The terminal ileum (TI) was only marginally intubated and could not be advanced further. The visualized portion of the TI (approximately 3 cm) appeared normal.

follow-up clinic visit two weeks after the hernia repair surgery, she had some incisional pain but continued to have no obstructive symptoms.

DISCUSSION

XGI is a rare inflammatory process that requires histopathological examination for definitive diagnosis. Specifically, XGI usually presents, as it did in our patient, with yellow lesions on gross pathologic examination and is histologically defined by foamy histiocytes and various inflammatory cells, including activated plasma cells, lymphocytes, and sometimes multinucleated giant cells[6,8].

Although XGI has been reported in many organs, the majority of reported cases of XGI have been in the gallbladder, followed by occasional cases in the kidney and less commonly in the GI tract or other organs, such as the female genital tract or the head and neck[1,6]. Only a few cases of XGI in the lower GI tract have been reported[1,7]. In one, a patient presented with chronic abdominal pain mimicking appendiceal cancer on abdominal CT[1]. In that case, laparoscopic hemicolectomy revealed several golden-yellow and brown lesions, and histology confirmed XGI in the TI[1]. Interestingly, pathogenesis was attributed to chronic inflammation caused by microscopic perforations from a possible fish bone [1]. In another report, a patient presented with abdominal pain with ultrasound findings concerning for acute appendicitis. Diagnostic laparoscopy and midline laparotomy revealed an ileocecal mass concerning for invasive cancer. The mass was resected *via* hemicolectomy followed by a primary side-to-side anastomosis and was revealed to be XGI upon histologic examination. In that case presentation, no clear pathogenesis was established[7].



Figure 3 Gross specimen. Gross examination revealed a 7 cm long region of cystically dilated small intestine immediately adjacent to the anastomosis, which was filled with abundant intraluminal pus.

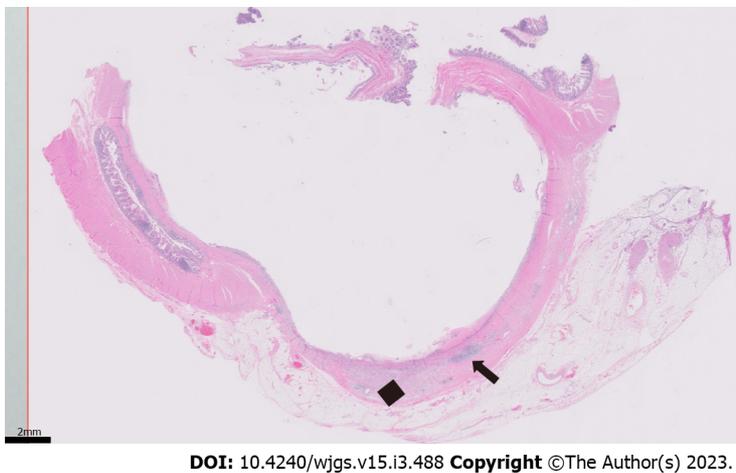
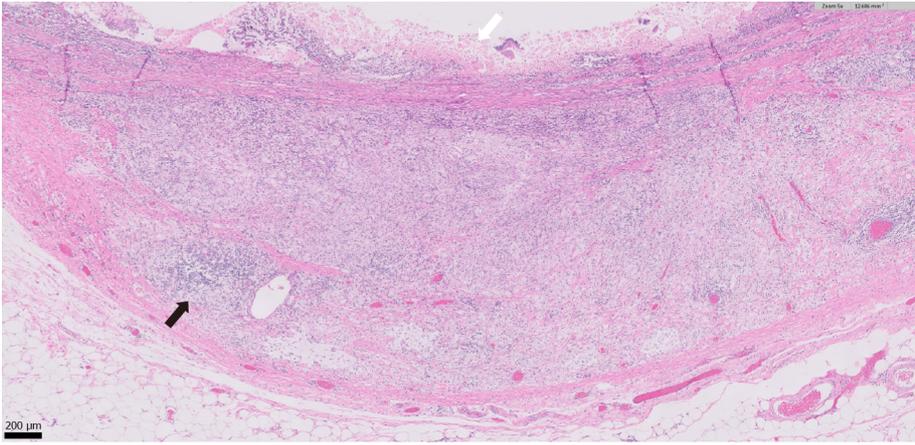


Figure 4 Low-magnification section of the specimen. Microscopic (0.5 × objective magnification) cross section of the cystically dilated small intestine with mucosal ulceration (diffusely involving the luminal surface) and chronic inflammation (arrow), fibrosis, and xanthogranulomatous inflammation (black diamond) of the underlying wall.

The exact pathophysiology of XGI is currently unknown, and various theories have been proposed, including abscess, hemorrhage, and necrosis, which may instigate the XGI response[2]. Chronic infection, abnormal lipid transport, and immunological disorders may also play a role[9]. Furthermore, recurrent inflammation due to a foreign body and obstruction has also been hypothesized and may have played a role in our patient[1,9].

Our patient's XGI lesion was in the TI, and it is especially unique because the lesion was associated with a prior anastomosis. Though the exact mechanism by which this patient's XGI developed is unclear, she had multiple risk factors that may have acted as triggers that elicited this response. For example, as described earlier, foreign body has been hypothesized to play a role in the development of XGI by causing microperforations leading to chronic inflammation and tissue damage[1]. In this patient's case, the anastomosis itself may have triggered a foreign body response that led to XGI.

To our knowledge, there are no other cases where a stapled anastomosis was associated with XGI. However, it is possible the patient's immune system reacted to the staples in such a way as to trigger XGI. This unusual reaction to the foreign body may be related to the patient's prior EBV infection, which can impact the immune system, lead to inflammation, and trigger several autoimmune diseases [10,11]. It is unknown if performing a hand-sewn anastomosis initially could have prevented this. In fact, meta-analyses comparing both anastomosis techniques in emergency laparotomy and colorectal surgery have generally demonstrated little significant difference in outcomes[12,13]. However, further studies are needed to understand specific variations in foreign body responses that may be triggered by the two different techniques[12,13].



DOI: 10.4240/wjgs.v15.i3.488 Copyright ©The Author(s) 2023.

Figure 5 High-magnification section of the specimen. Higher magnification (5 × objective magnification) image showing mucosal ulceration (white arrow) with abundant infiltration of the underlying small intestinal wall by collections of foamy, lipid-laden histiocytes (xanthogranulomatous inflammation), along with lymphocytes and plasma cells (example highlighted by black arrow).

Another potential explanation for our patient's XGI is that an obstructive process triggered it, perhaps from stricture at the anastomosis independent of the XGI lesion. Obstruction is recognized as a cause of xanthogranulomatous appendicitis, pyelonephritis, and cholecystitis[9]. On the other hand, the large inflammatory XGI mass may have formed as a response to another process, and the lesion then may have then led to this patient's obstructive symptoms rather than the XGI lesion being a consequence of obstruction.

CONCLUSION

In conclusion, XGI is an uncommon inflammatory condition characterized by foamy histiocytes and other inflammatory cells. XGI occurs very rarely in the lower GI tract, and we describe such a case in the TI. To our knowledge, this is the first case report describing XGI associated with a prior anastomosis. This case is also an example where repeated pain and obstructive symptoms may necessitate anastomosis revision for definitive diagnosis and clinical resolution.

FOOTNOTES

Author contributions: Wang W and Korah M contributed to manuscript writing and editing; Forrester JD was in charge of conceptualization, manuscript preparation and the patient case; Shen J contributed the gross and histopathologic images and descriptions; Wang W, Korah M, Bessoff KE, Shen J, and Forrester JD contributed to analysis; All authors have read and approved the final manuscript.

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

Conflict-of-interest statement: All the authors report no relevant conflicts of interest for this article.

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

ORCID number: William Wang 0000-0002-0878-1257; Maria Korah 0000-0001-9328-3908; Kovi E Bessoff 0000-0002-5626-4027; Jeanne Shen 0000-0002-1519-0308; Joseph D Forrester 0000-0002-8558-6180.

S-Editor: Li L

L-Editor: A

P-Editor: Li L

REFERENCES

- 1 **Yoon JS**, Jeon YC, Kim TY, Han DS, Sohn JH, Nam KW, Nam YS, Pyo JY. Xanthogranulomatous inflammation in terminal ileum presenting as an appendiceal mass: case report and review of the literature. *Clin Endosc* 2013; **46**: 193-196 [PMID: [23614133](#) DOI: [10.5946/ce.2013.46.2.193](#)]
- 2 **Cozzutto C**, Carbone A. The xanthogranulomatous process. Xanthogranulomatous inflammation. *Pathol Res Pract* 1988; **183**: 395-402 [PMID: [3054826](#) DOI: [10.1016/S0344-0338\(88\)80085-2](#)]
- 3 **Rammohan A**, Cherukuri SD, Sathyanesan J, Palaniappan R, Govindan M. Xanthogranulomatous cholecystitis masquerading as gallbladder cancer: can it be diagnosed preoperatively? *Gastroenterol Res Pract* 2014; **2014**: 253645 [PMID: [25404941](#) DOI: [10.1155/2014/253645](#)]
- 4 **Chen TP**, Yi WL, Liu CS, Lin YH. Neck xanthogranuloma mimicking malignancy in a patient with diabetes mellitus: A case report and literature review. *Medicine (Baltimore)* 2018; **97**: e12615 [PMID: [30290633](#) DOI: [10.1097/MD.00000000000012615](#)]
- 5 **Bourm KS**, Menias CO, Ali K, Alhalabi K, Elsayes KM. Spectrum of Xanthogranulomatous Processes in the Abdomen and Pelvis: A Pictorial Review of Infectious, Inflammatory, and Proliferative Responses. *AJR Am J Roentgenol* 2017; **208**: 475-484 [PMID: [28095017](#) DOI: [10.2214/AJR.16.17075](#)]
- 6 **Krishna M**, Dayal S. Xanthogranulomatous inflammatory lesion mimicker of malignancy: A clinicopathological study from rural India. *North Clin Istanb* 2021; **8**: 485-492 [PMID: [34909587](#) DOI: [10.14744/nci.2021.04317](#)]
- 7 **Wong KC**, Tsui WM, Chang SJ. Xanthogranulomatous inflammation of terminal ileum: report of a case with small bowel involvement. *Hong Kong Med J* 2015; **21**: 69-72 [PMID: [25686705](#) DOI: [10.12809/hkmj134103](#)]
- 8 **Zhang XS**, Dong HY, Zhang LL, Desouki MM, Zhao C. Xanthogranulomatous inflammation of the female genital tract: report of three cases. *J Cancer* 2012; **3**: 100-106 [PMID: [22393333](#) DOI: [10.7150/jca.3929](#)]
- 9 **Dhawan S**, Jain D, Kalhan SK. Xanthogranulomatous inflammation of ascending colon with mucosal involvement: report of a first case. *J Crohns Colitis* 2011; **5**: 245-248 [PMID: [21575889](#) DOI: [10.1016/j.crohns.2010.12.009](#)]
- 10 **Chen MR**. Epstein-barr virus, the immune system, and associated diseases. *Front Microbiol* 2011; **2**: 5 [PMID: [21687403](#) DOI: [10.3389/fmicb.2011.00005](#)]
- 11 **Houen G**, Trier NH. Epstein-Barr Virus and Systemic Autoimmune Diseases. *Front Immunol* 2020; **11**: 587380 [PMID: [33488588](#) DOI: [10.3389/fimmu.2020.587380](#)]
- 12 **Naumann DN**, Bhangu A, Kelly M, Bowley DM. Stapled versus handsewn intestinal anastomosis in emergency laparotomy: a systemic review and meta-analysis. *Surgery* 2015; **157**: 609-618 [PMID: [25731781](#) DOI: [10.1016/j.surg.2014.09.030](#)]
- 13 **Neutzling CB**, Lustosa SA, Proenca IM, da Silva EM, Matos D. Stapled versus handsewn methods for colorectal anastomosis surgery. *Cochrane Database Syst Rev* 2012; CD003144 [PMID: [22336786](#) DOI: [10.1002/14651858.CD003144.pub2](#)]



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
Help Desk: <https://www.f6publishing.com/helpdesk>
<https://www.wjgnet.com>

