

World Journal of *Clinical Cases*

World J Clin Cases 2023 December 26; 11(36): 8434-8605



Contents

Thrice Monthly Volume 11 Number 36 December 26, 2023

EDITORIAL

- 8434 Post-trans-arterial chemoembolization hepatic necrosis and biliary stenosis: Clinical characteristics and endoscopic approach

Cocca S, Carloni L, Marocchi M, Grande G, Bianchini M, Colecchia A, Conigliaro R, Bertani H

MINIREVIEWS

- 8440 Perioperative nursing care for hip arthroplasty patients with concomitant hypertension: A minireview

Ji CY, Yang LR

ORIGINAL ARTICLE

Retrospective Study

- 8447 Evaluation of response to gemcitabine plus cisplatin-based chemotherapy using positron emission computed tomography for metastatic bladder cancer

Öztürk H, Karapolat İ

- 8458 Functional magnetic resonance imaging study of group independent components underpinning item responses to paranoid-depressive scale

Stoyanov D, Paunova R, Dichev J, Kandilarova S, Khorev V, Kurkin S

EVIDENCE-BASED MEDICINE

- 8475 Mendelian randomization provides evidence for a causal effect of serum insulin-like growth factor family concentration on risk of atrial fibrillation

Lin S, Tang J, Li X, Wu G, Lin YF, Li YF

SYSTEMATIC REVIEWS

- 8486 Significance of fostering the mental health of patients with diabetes through critical time intervention

Eseadi C, Amedu AN, Aloh HE

META-ANALYSIS

- 8498 Impact of angiotensin-converting enzyme inhibitors or angiotensin receptor blockers on the mortality in sepsis: A meta-analysis

Yang DC, Xu J, Jian L, Yu Y

CASE REPORT

- 8507 Multiple sparganosis spinal infections mainly in the thoracic region: A case report

Wen GJ, Chen J, Zhang SF, Zhou ZS, Jiao GL

- 8512** Iatrogenic flexor tendon rupture caused by misdiagnosing sarcoidosis-related flexor tendon contracture as tenosynovitis: A case report
Yan R, Zhang Z, Wu L, Wu ZP, Yan HD
- 8519** Cholecystoenteric fistula in a patient with advanced gallbladder cancer: A case report and review of literature
Wang CY, Chiu SH, Chang WC, Ho MH, Chang PY
- 8527** Intraperitoneal hyaline vascular Castleman disease: Three case reports
Gao JW, Shi ZY, Zhu ZB, Xu XR, Chen W
- 8535** Iris metastasis from clear cell renal cell carcinoma: A case report
Wang TT, Chen XY, Min QY, Han YZ, Zhao HF
- 8542** Spinal cord infarction attributed to SARS-CoV-2, with post-acute sequelae of COVID-19: A case report
Oleson CV, Olsen AC, Shermon S
- 8551** Spontaneous gastric hematoma as a rare cause of acute abdomen: A case report
Budimir I, Žulec M, Eljuga K, Židak M, Lisek V
- 8557** LiNA OperaScope™ for microwave endometrial ablation for endometrial polyps with heavy menstrual bleeding: A case report
Kakinuma K, Kakinuma T, Ueyama K, Shinohara T, Okamoto R, Yanagida K, Takeshima N, Ohwada M
- 8563** Colonoscopy-induced acute appendicitis: A case report
Song XL, Ma JY, Zhang ZG
- 8568** Post-laparotomy heterotopic ossification of the xiphoid process: A case report
Lee SS
- 8574** Balloon displacement during caesarean section with pernicious placenta previa: A case report
Gu DF, Deng C
- 8581** Synchronous carotid endarterectomy and coronary artery bypass graft: Four case reports
AlGhamdi FK, Altoijry A, AlQahtani A, Aldossary MY, AlSheikh SO, Iqbal K, Alayadhi WA
- 8589** Intraoperative cardiogenic shock induced by refractory coronary artery spasm in a patient with myasthenia gravis: A case report
Hsu CW, Chang CC, Lin CS
- 8595** Effects of video game-based therapy in an adolescent with cerebral palsy: A case report
Mohd Iqbal HA, Ho WS, Zanudin A, Hisham H, Mohd Nordin NA

LETTER TO THE EDITOR

- 8603** Lyophilized recombinant human brain natriuretic peptide: A promising therapy in patients with chronic heart failure
Kourek C, Briasoulis A, Giamouzis G, Skoularigis J, Xanthopoulos A

ABOUT COVER

Editorial Board Member of *World Journal of Clinical Cases*, Marco Infante, MD, PhD, Adjunct Professor, UniCamillus, Saint Camillus International University of Health Sciences, Rome 00131, Italy.
marco.infante@unicamillus.org

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 abstracted and indexed in Science Citation Index Expanded (SCIE, also known as SciSearch®), Journal Citation Reports/Science Edition, Current Contents®/Clinical Medicine, PubMed, PubMed Central, Reference Citation Analysis, China Science and Technology Journal Database, and Superstar Journals Database. The 2023 Edition of Journal Citation Reports® cites the 2022 impact factor (IF) for WJCC as 1.1; IF without journal self cites: 1.1; 5-year IF: 1.3; Journal Citation Indicator: 0.26; Ranking: 133 among 167 journals in medicine, general and internal; and Quartile category: Q4.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: Zi-Hang Xu, Production Department Director: Xiang Li, 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, Salim Surani, Jerzy Tadeusz Chudek, George Kontogeorgos, Maurizio Serati

EDITORIAL BOARD MEMBERS

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

PUBLICATION DATE

December 26, 2023

COPYRIGHT

© 2024 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>



Colonoscopy-induced acute appendicitis: A case report

Xiao-Ling Song, Jin-You Ma, Zhi-Gao Zhang

Specialty type: Medicine, research and experimental

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): C
Grade D (Fair): 0
Grade E (Poor): 0

P-Reviewer: Day AS, New Zealand

Received: October 16, 2023

Peer-review started: October 16, 2023

First decision: November 1, 2023

Revised: November 11, 2023

Accepted: December 12, 2023

Article in press: December 12, 2023

Published online: December 26, 2023



Xiao-Ling Song, Jin-You Ma, Zhi-Gao Zhang, Department of Gastroenterology, Sunshine Union Hospital, Weifang 261000, Shandong Province, China

Corresponding author: Zhi-Gao Zhang, MD, Deputy Director, Department of Gastroenterology, Sunshine Union Hospital, No. 999 Yingqian Street, Weifang 261000, Shandong Province, China. techmed@126.com

Abstract

BACKGROUND

Colonoscopy is widely used for examination, diagnosis, and treatment because of its low incidence of associated complications. Post-colonoscopy appendicitis (PCA) is very rare and is easily misdiagnosed as electrocoagulation syndrome or colon perforation. Therefore, clinicians should pay close attention to this complication.

CASE SUMMARY

A 47-year-old female patient underwent a colonoscopy for a systematic physical examination, and the procedure was uneventful with normal endoscopic and histologic findings. However, the bowel preparation was suboptimal (Boston 2-3-2). After the examination, the patient experienced pain in the lower abdomen, which progressively worsened. Computed tomography of the lower abdomen and pelvis revealed appendiceal calculi obstruction and appendicitis. As the patient refused surgery, she was managed with antibiotics and recovered well.

CONCLUSION

In the current literature, the definition of PCA remains unclear. However, abdominal pain after colonoscopy should be differentiated from acute appendicitis.

Key Words: Colonoscopy; Complications; Appendicitis; Differential diagnosis; Case report

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

Core Tip: Abdominal pain is a common symptom after colonoscopy and is generally considered to be caused by perforation or electrocoagulation syndrome. Acute appendicitis is often ignored as a differential diagnosis. This case report aims to improve clinicians' awareness of possible appendicitis after colonoscopy. The causal relationship between colonoscopy and acute appendicitis remains unclear. However, regardless of whether it is defined as a complication, it should be differentiated from colonoscopy-associated abdominal pain, particularly in the right lower abdomen.

Citation: Song XL, Ma JY, Zhang ZG. Colonoscopy-induced acute appendicitis: A case report. *World J Clin Cases* 2023; 11(36): 8563-8567

URL: <https://www.wjgnet.com/2307-8960/full/v11/i36/8563.htm>

DOI: <https://dx.doi.org/10.12998/wjcc.v11.i36.8563>

INTRODUCTION

Colonoscopy is a common clinical examination, involving an endoscopic analysis of the entire colon, which aids in diagnosis and treatment. Colonoscopy is widely used because of its safety. However, although rare, serious complications, such as pain, bleeding, inflammation, perforation, cardiopulmonary complications, and death, can occur after colonoscopy.

Abdominal pain is a common symptom of colonoscopy. Mild abdominal pain is considered normal, and acute appendicitis, a relatively rare condition, is often ignored as a possible cause. Indeed, a previous study reported that the incidence of acute appendicitis after colonoscopy was approximately 0.038% [1]. However, considering that non-specific abdominal pain symptoms and minor appendicitis are easily overlooked, the recorded incidence of acute appendicitis may have been underestimated.

The number of patients undergoing colonoscopy have recently been increasing, and more cases of appendicitis after colonoscopy have consequently been reported. Since the first reported case in 1988, over 50 cases have been reported in the literature [2,3]. Many cases of perforation or gangrene, for which surgery is the primary treatment, have been reported [4-7]. Herein, we report the case of a woman who developed non-perforated appendicitis 10 h after colonoscopy and was treated with antibiotics immediately after a definitive diagnosis. This treatment yielded satisfactory results. This article aims to attract clinical attention to appendicitis after colonoscopy. Early identification and timely treatment are of paramount importance to avoid serious consequences and improve prognosis.

CASE PRESENTATION

Chief complaints

The patient complained of abdominal pain after undergoing colonoscopy. Appendicitis was diagnosed 10 h later.

History of present illness

The patient underwent a colonoscopy for health management, and the procedure was uneventful without any pathological biopsy. However, the state of intestinal cleanliness was poor (Boston 2-3-2), and clumps were observed in the feces. Ten hours after the examination, the patient experienced progressive pain in the right lower abdomen and was admitted to the gastroenterology department.

History of past illness

The patient's past medical history was unremarkable.

Personal and family history

The patient denied any possibility of family history-related conditions.

Physical examination

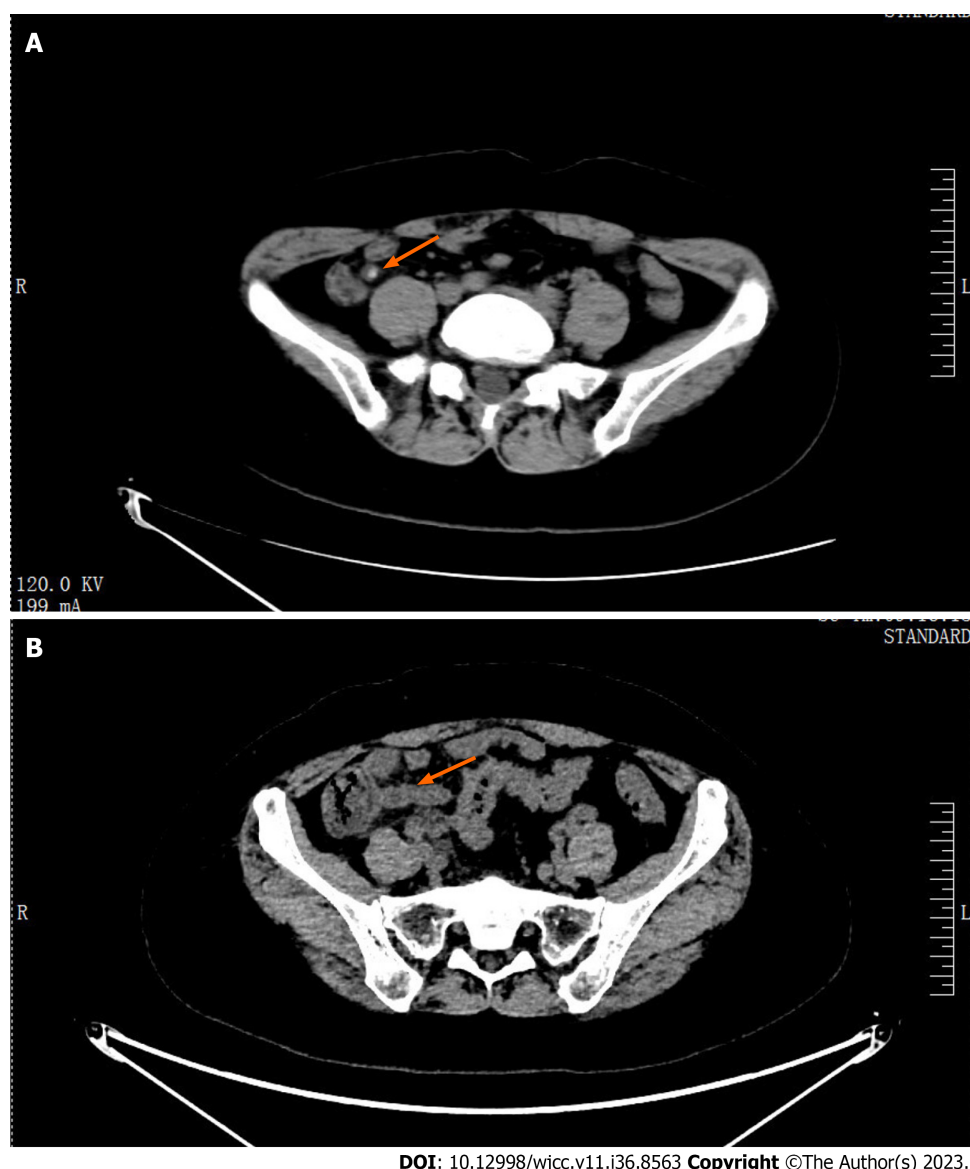
Body temperature was 37.6 °C, blood pressure was 132/75 mmHg, and heart rate was 85 beats/min. Tenderness of the right lower abdomen was evident without total abdominal pain [Murphy (-), Mc (+)].

Laboratory examinations

The white blood cell count, neutrophil count, and C-reactive protein level were 9.54×10^9 cells/L, 11.8×10^9 cells/L (N%: 90.4%), and 25.3 mg/L, respectively.

Imaging examinations

A computed tomography (CT) scan of the lower abdomen and pelvis revealed a dilated and inflamed appendix with fecoliths (Figure 1A).



DOI: 10.12998/wjcc.v11.i36.8563 Copyright ©The Author(s) 2023.

Figure 1 Computed tomography scan of the lower abdomen and pelvis. A: Computed tomography (CT) revealed a dilated and thickened appendix with fecoliths (solid arrow: Appendix with fecoliths); B: After 3 d of treatment, the pelvic CT revealed that the appendicolith had disappeared (solid arrow: Dilated appendix without fecolith).

FINAL DIAGNOSIS

Post-colonoscopy acute appendicitis.

TREATMENT

The patient refused surgery and was administered antibiotics. After 3 d of treatment, the pelvic CT revealed inflammation in the appendix, and the appendicolith had disappeared (Figure 1B). Five days later, the patient was discharged in good physical condition.

OUTCOME AND FOLLOW-UP

The patient was followed up for 1 year and no symptoms of appendicitis recurred.

DISCUSSION

Colonoscopy is widely used to examine, diagnose, and treat intestinal diseases. It is associated with rare serious complications, of which bleeding and perforation are the most common. The incidence rate of complications ranges from 0.2% to 3%[8-10]. In recent years, more rare complications have been reported, including splenic and mesenteric vein embolisms. Post-colonoscopy appendicitis (PCA) is a rare complication.

Further, some scholars believe that PCA is a coincidence rather than a complication. Since the first reported case of PCA in 1988, the number of similar cases has increased over the past 20 years; to date, over 50 similar cases have been reported[2,3]. Interestingly, the number of cases reported in the past decade has increased fourfold compared to the previous decade[2], suggesting that this complication has gained increasing awareness among physicians.

Currently, no consensus on the definition, pathogenic factors, or pathogenesis of PCA have been established. Shaw *et al* [11] proposed that PCA should be defined as appendicitis occurring within 72 h of colonoscopy. Currently, there are several hypotheses regarding the pathogenesis of PCA: (1) Air pressure trauma caused by over-inflation[9]; (2) Obstruction and/or inflammation caused by stool pressing on the appendix[12]; (3) Direct trauma caused by unintentional intubation of the appendix tube[13]; (4) Exacerbation of existing subclinical diseases[14]; and (5) Stimulation of residual glutaraldehyde in the endoscope on the mucosa[13].

In the present case, appendicitis may not have been caused by a single factor. Owing to the impact of intestinal air pressure, fecal calculus in the intestinal cavity rushes into the appendix. Meanwhile, rising airway pressure makes it difficult for the airway to roll out, thereby causing appendicitis. In this case, this assumption was based on the fact that the patient's intestinal cleanliness was unremarkable.

The diagnosis of PCA presents certain challenges, particularly because its initial clinical manifestations are generally nonspecific. Therefore, misdiagnosis of intestinal perforation or polypectomy syndrome is common. In the early stages of the disease, changes in biochemical examination results are not evident. However, CT can exclude lesions in other organs and intestinal perforations very early. CT scanning has high sensitivity and specificity for detecting acute appendicitis [15]. Plain abdominal film and ultrasound examinations may not be significantly useful in the early diagnosis and treatment of this disease[16-21]. Therefore, CT has become the primary diagnostic modality for PCA in clinical settings. The duration of PCA from symptom onset to diagnosis varied from several hours to 10 d. A recent study demonstrated that patients undergoing colonoscopy are prone to developing appendicitis within a week[22]. Therefore, patients experiencing abdominal pain after an examination should be cautious and skeptical of their diagnosis.

Based on previous treatment of PCA, laparoscopy is the first treatment choice. Over the past 15 years, the success rate of laparoscopy has reached approximately 89.5%[3]. However, when complicated with extensive peritonitis, open surgery remains a more safe, rapid, and effective treatment modality[23,24]. However, in recent years, nonsurgical treatments have received increasing attention. Furthermore, owing to an improved understanding of PCA, this disease can now commonly be diagnosed at an early stage. Non-surgical treatment is feasible for appendicitis without perforation, gangrene, or suppuration[3].

CONCLUSION

Although PCA is rare, the number of reported cases has increased in recent years. Owing to its nonspecific clinical symptoms and the fact that some mild inflammatory reactions may independently subside, the actual incidence of this disease may be underestimated. However, PCA should be considered in the differential diagnosis of patients with abdominal pain after colonoscopy, especially when intestinal cleanliness is poor.

FOOTNOTES

Author contributions: Song XL designed the research plans and wrote the manuscript; Ma JY contributed to the index detection, collation and analysis of original results; Zhang ZG proposed the feasibility analysis of the research scheme and revised the paper.

Informed consent statement: Written informed consent was obtained.

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

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: Xiao-Ling Song 0009-0007-5323-108X; Zhi-Gao Zhang 0009-0003-3781-1077.

S-Editor: Wang JJ

L-Editor: Filipodia

P-Editor: Zhang XD

REFERENCES

- 1 Chae HS, Jeon SY, Nam WS, Kim HK, Kim JS, An CH. Acute appendicitis caused by colonoscopy. *Korean J Intern Med* 2007; **22**: 308-311 [PMID: 18309695 DOI: 10.3904/kjim.2007.22.4.308]
- 2 Ng ZQ, Elsbagh A, Wijesuriya R. Post-colonoscopy appendicitis: Systematic review of current evidence. *J Gastroenterol Hepatol* 2020; **35**: 2032-2040 [PMID: 32503089 DOI: 10.1111/jgh.15130]
- 3 Hamid HKS, Ahmed AY, Simmons JR. Postcolonoscopy Appendicitis: A Review of 57 Cases. *Surg Laparosc Endosc Percutan Tech* 2019; **29**: 328-334 [PMID: 31425452 DOI: 10.1097/SLE.0000000000000718]
- 4 Gancayco J, Soulos PR, Khiani V, Cramer LD, Ross JS, Genao I, Tinetti M, Gross CP. Age-based and sex-based disparities in screening colonoscopy use among medicare beneficiaries. *J Clin Gastroenterol* 2013; **47**: 630-636 [PMID: 23619827 DOI: 10.1097/MCG.0b013e31828345c8]
- 5 Musielak M, Patel H, Fegelman E. Postcolonoscopy appendicitis: laparoscopy a viable option. *Am Surg* 2012; **78**: 1300-1303 [PMID: 23089454]
- 6 Lipton S, Estrin J. Postcolonoscopy appendicitis: a case report. *J Clin Gastroenterol* 1999; **28**: 255-256 [PMID: 10192615 DOI: 10.1097/00004836-199904000-00015]
- 7 Takagi Y, Abe T. Appendicitis following endoscopic polypectomy. *Endoscopy* 2000; **32**: S49 [PMID: 10935805]
- 8 Kavic SM, Basson MD. Complications of endoscopy. *Am J Surg* 2001; **181**: 319-332 [PMID: 11438266 DOI: 10.1016/s0002-9610(01)00589-x]
- 9 Basson MD, Etter L, Panzini LA. Rates of colonoscopic perforation in current practice. *Gastroenterology* 1998; **114**: 1115 [PMID: 9606100 DOI: 10.1016/s0016-5085(98)70348-8]
- 10 Kim SY, Kim HS, Park HJ. Adverse events related to colonoscopy: Global trends and future challenges. *World J Gastroenterol* 2019; **25**: 190-204 [PMID: 30670909 DOI: 10.3748/wjg.v25.i2.190]
- 11 Shaw D, Gallardo G, Basson MD. Post-colonoscopy appendicitis: A case report and systematic review. *World J Gastrointest Surg* 2013; **5**: 259-263 [PMID: 24179623 DOI: 10.4240/wjgs.v5.i10.259]
- 12 Gatto NM, Frucht H, Sundararajan V, Jacobson JS, Grann VR, Neugut AI. Risk of perforation after colonoscopy and sigmoidoscopy: a population-based study. *J Natl Cancer Inst* 2003; **95**: 230-236 [PMID: 12569145 DOI: 10.1093/jnci/95.3.230]
- 13 Vender R, Larson J, Garcia J, Topazian M, Ephraim P. Appendicitis as a complication of colonoscopy. *Gastrointest Endosc* 1995; **41**: 514-516 [PMID: 7615235 DOI: 10.1016/s0016-5107(05)80015-x]
- 14 Doohen RR, Aanning HL. Appendiceal colic: A rare complication of colonoscopy. *S D J Med* 2002; **55**: 526-527 [PMID: 12533021]
- 15 Pickhardt PJ, Lawrence EM, Pooler BD, Bruce RJ. Diagnostic performance of multidetector computed tomography for suspected acute appendicitis. *Ann Intern Med* 2011; **154**: 789-796, W [PMID: 21690593 DOI: 10.7326/0003-4819-154-12-201106210-00006]
- 16 Wong J, Chang J, Alkadi W. Acute appendicitis post-colonoscopy. *ANZ J Surg* 2016; **86**: 309-310 [PMID: 24846371 DOI: 10.1111/ans.12686]
- 17 Hirata K, Noguchi J, Yoshikawa I, Tabaru A, Nagata N, Murata I, Itoh H. Acute appendicitis immediately after colonoscopy. *Am J Gastroenterol* 1996; **91**: 2239-2240 [PMID: 8855760]
- 18 Srivastava V, Pink J, Swarnkar K, Feroz A, Stephenson BM. Colonoscopically induced appendicitis. *Colorectal Dis* 2004; **6**: 124-125 [PMID: 15008912 DOI: 10.1111/j.1463-1318.2004.00579.x]
- 19 Paramythiotis D, Kofina K, Papadopoulos V, Michalopoulos A. Diagnostic Colonoscopy Leading to Perforated Appendicitis: A Case Report and Systematic Literature Review. *Case Rep Gastrointest Med* 2016; **2016**: 1378046 [PMID: 27980869 DOI: 10.1155/2016/1378046]
- 20 Kafadar MT, Bilgiç İ, Kartal S, Güllü S. An unusual cause of acute abdomen: Post-colonoscopy appendicitis. *Turk J Surg* 2018; **34**: 340-341 [PMID: 30664438 DOI: 10.5152/turkjsurg.2017.3458]
- 21 Zhou XC, Huang CW, Dai YY, Huang ZY, Lou Z. Perforated appendicitis after colonoscopy: cause or coincidence?: A rare case report and literature review. *Medicine (Baltimore)* 2017; **96**: e8747 [PMID: 29145325 DOI: 10.1097/MD.00000000000008747]
- 22 Basson MD, Persinger D, Newman WP. Association of Colonoscopy With Risk of Appendicitis. *JAMA Surg* 2018; **153**: 90-91 [PMID: 28979984 DOI: 10.1001/jamasurg.2017.3790]
- 23 Ohtani H, Tamamori Y, Arimoto Y, Nishiguchi Y, Maeda K, Hirakawa K. Meta-analysis of the results of randomized controlled trials that compared laparoscopic and open surgery for acute appendicitis. *J Gastrointest Surg* 2012; **16**: 1929-1939 [PMID: 22890606 DOI: 10.1007/s11605-012-1972-9]
- 24 Sohn M, Agha A, Bremer S, Lehmann KS, Bormann M, Hochrein A. Surgical management of acute appendicitis in adults: A review of current techniques. *Int J Surg* 2017; **48**: 232-239 [PMID: 29155250 DOI: 10.1016/j.jisu.2017.11.028]



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>

