FP Essentials
Call for Authors – October 2024

Abdominal Pain Syndromes

We are seeking an author or author group to write an edition of *FP Essentials* on the topic of abdominal pain syndromes. This edition will cover four topics:

1. Diverticular disease
2. Cholelithiasis and choledocholithiasis
3. Appendicitis
4. Small bowel obstruction and ileus

The main text of the manuscript should be approximately 10,000 words in length, divided into four sections of approximately 2,500 words each, plus an abstract of approximately 200 words for each section. In addition, there should be key practice recommendations, a maximum of 15 tables/figures total, additional resources, and up to 200 references to provide support for all recommendations and factual statements in the manuscript. References must be numbered sequentially by section, with section headers dividing the list and each new section starting over at "1."

This edition should focus on what is new in each topic and should answer the key questions listed for each section. Each section should begin with an illustrative case, similar to the examples provided, with modifications to emphasize key points; each case should have a conclusion that demonstrates resolution of the clinical situation. The references provided here include information that should be considered in preparation of this edition of *FP Essentials*. However, these should be used only as a starting point in identifying the most current guidelines and references to include in the edition.

Needs Assessment: Family physicians encounter many patients with a wide variety of gastrointestinal and abdominal symptoms in daily practice. AAFP members have rated diverticular disease, cholelithiasis and choledocholithiasis, appendicitis, and small bowel obstruction and ileus as conditions they wish to learn more about, as these conditions may present either acutely or subacutely, and they can pose significant challenges in appropriate and timely diagnosis and triage. Moreover, family physicians find it challenging to determine which patients may be suitable candidates for empiric antibiotic treatment without serologic or radiographic evaluation and which patients need a detailed evaluation and surgical consultation. A newly characterized condition, symptomatic uncomplicated diverticular disease, remains often elusive and underdiagnosed, as it shares characteristics of functional bowel disorders including irritable bowel syndrome. This monograph will present diagnostic and treatment paradigms for these conditions to guide family physicians in the appropriate initial steps of evaluation, subspecialty referral, and follow-up.

Section 1: Diverticular Disease

Example case: *QR is a 35-year-old male who presents with a 2-day history of progressively worsening left lower quadrant abdominal pain. He reports a 1-day history of low-grade fevers, anorexia, and blood and mucus in his stools. QR recalls a similar episode a few years ago; he saw a physician elsewhere and was diagnosed with diverticulitis without any diagnostic testing. He was prescribed oral antibiotics and his symptoms resolved within one week.*

Key questions to consider (for diverticulosis, diverticular bleeding, diverticulitis, symptomatic uncomplicated diverticular disease):

Pathophysiology

- What is the pathophysiology of these conditions?
- What role does the microbiome play in the pathogenesis of diverticular disease?

Epidemiology

- What is prevalence of these conditions? What impact does age and gender have on prevalence and on diagnosis rates?
- What factors predispose patients to the development of these conditions?
- What are the commonly associated medical comorbidities?

Clinical Presentation and Diagnosis

- What are the common clinical presentations for these conditions?
- What are the current evidence-based diagnostic work-up and criteria for these conditions?
- When can a diagnosis of acute diverticulitis be made safely and accurately made in the absence of laboratory or radiographic imaging?

Treatment

- What are the current evidence-based treatment recommendations for these conditions?
- When are antibiotics over surgery indicated for suspected diverticulitis, and when can "watchful waiting" be recommended? When indicated, which antibiotics are preferred?
- How effective are probiotics, fiber, and other similar approaches at preventing recurrent episodes of diverticulitis?
- What dietary restrictions should (and should not) be recommended for patients with a history of diverticulitis?
- When should a patient with these conditions be referred to a gastroenterologist?
- When should a patient with acute and/or recurrent diverticulitis be referred to a surgeon? What are the indications for partial versus total colectomy?
- What surgical treatments are used? What are the indications for surgery?

Prognosis

- What are the short- and long-term prognoses of the patient with recurrent diverticulitis?

Initial references to consider:

- Barbaro MR, Cremon C, Fuschi D, et al. Pathophysiology of diverticular disease: from diverticula formation to symptom generation. *Int J Mol Sci*. 2022;23(12):6698.
- Cameron R, Duncanson K, Hoedt EC, et al. Does the microbiome play a role in the pathogenesis of colonic diverticular disease? A systematic review. *J Gastroenterol Hepatol*. 2023;38(7):1028-1039.
- Kupcinskas J, Strate LL, Bassotti G, et al. Pathogenesis of diverticulosis and diverticular disease. *J Gastrointestin Liver Dis*. 2019;28(suppl. 4):7-10.

- Ticinesi A, Nouvenne A, Corrente V, Tana C, Di Mario F, Meschi T. Diverticular disease: a gut microbiota perspective. *J Gastrointestin Liver Dis*. 2019;28(3):327-337.
- Eckmann JD, Shaukat A. Updates in the understanding and management of diverticular disease. *Curr Opin Gastroenterol*. 2022;38(1):48-54.
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- Qaseem A, Etxeandia-Ikobaltzeta I, Lin JS, et al.; Clinical Guidelines Committee of the American College of Physicians. Colonoscopy for diagnostic evaluation and interventions to prevent recurrence after acute left-sided colonic diverticulitis: a clinical guideline from the American College of Physicians. *Ann Intern Med*. 2022;175(3):416-431.
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- Dichman ML, Rosenstock SJ, Shabanzadeh DM. Antibiotics for uncomplicated diverticulitis. *Cochrane Database Syst Rev*. 2022;6(6):CD009092.
- Huston JM, Zuckerbraun BS, Moore LJ, Sanders JM, Duane TM. Antibiotics versus no antibiotics for the treatment of acute uncomplicated diverticulitis: review of the evidence and future directions. *Surg Infect (Larchmt)*. 2018;19(7):648-654.
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- Sebastian SA, Co EL, Panthangi V, et al. Colonic diverticular bleeding: an update on pathogenesis and management. *Dis Mon*. 2023;69(11):101543.
- Kaise M, Nagata N, Ishii N, Omori J, Goto O, Iwakiri K. Epidemiology of colonic diverticula and recent advances in the management of colonic diverticular bleeding. *Dig Endosc*. 2020;32(2):240-250.
- Cuomo R, Cargiolli M, Andreozzi P, Zito FP, Sarnelli G. Rationale and evidences for treatment of symptomatic uncomplicated diverticular disease. *Minerva Gastroenterol Dietol*. 2017;63(2):130-142.
- Saguil A. Diverticulitis: predicting which patients with acute abdominal pain have the disease. *Am Fam Physician*. 2020;102(6):371-372.

Section 2: Cholelithiasis and Choledocholithiasis

Example case: *HK is a 49-year-old female who presents with a several-day history of right upper quadrant abdominal pain. She has a past medical history of gastroesophageal reflux disease and obesity, and she reports worsening abdominal pain after ingestion of fatty and spicy foods, large meals, and alcoholic beverages. She had several episodes of bilious vomiting this morning upon awakening and has not been able to tolerate any liquids or foods today.*

Key questions to consider:

Pathophysiology

- What is the pathophysiology of cholelithiasis and choledocholithiasis?
- What role does the microbiome play in the pathogenesis of cholelithiasis and choledocholithiasis?

Epidemiology

- What is prevalence of these conditions? What impact does age and gender have on prevalence and on diagnosis rates?
- What factors predispose patients to the development of these conditions?
- What are the commonly associated medical comorbidities?

Clinical Presentation and Diagnosis

- What are the common clinical presentations for these conditions?
- What is the differential diagnosis?
- What are the current evidence-based diagnostic work-up and criteria for these conditions? What diagnostic tests are indicated? What is the role of imaging, including MRCP and HIDA?
- What prediction models exist to guide clinicians toward accurate diagnoses? What is the evidence to support using such models?

Treatment

- What are the current evidence-based non-surgical and surgical recommendations for treatment of these conditions? How do these recommendations vary between pediatric/adolescent/adult populations?
- When are antibiotics over procedures (e.g. ERCP) versus surgery indicated for these conditions, and when can “watchful waiting” be recommended? When indicated, which antibiotics are preferred?
- What is the recommended treatment for asymptomatic (and incidentally discovered) cholelithiasis?
- What treatments can be offered to favorably improve the microbiome to minimize risk of development of these conditions or recurrence of symptomatic exacerbations?
- When should a patient with these conditions be referred to a gastroenterologist?
- When should a patient with these conditions be referred to a surgeon?

Prognosis

- What are the short- and long-term prognoses of the patient with these conditions?

Initial references to consider:

- Zdanowicz K, Daniluk J, Lebensztejn DM, Daniluk U. The Etiology of cholelithiasis in children and adolescents-a literature review. *Int J Mol Sci*. 2022;23(21):13376.
- Cianci P, Restini E. Management of cholelithiasis with choledocholithiasis: endoscopic and surgical approaches. *World J Gastroenterol*. 2021;27(28):4536-4554.

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- Park W, Park J. A Comparative investigation of the bile microbiome in patients with choledocholithiasis and cholecystolithiasis through metagenomic analysis. *Int J Mol Sci*. 2024;25(6):3297.
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- Cohen RZ, Tian H, Sauer CG, et al. Creation of a pediatric choledocholithiasis prediction model. *J Pediatr Gastroenterol Nutr*. 2021;73(5):636-641.
- Badger WR, Borgert AJ, Kallies KJ, Kothari SN. Utility of MRCP in clinical decision making of suspected choledocholithiasis: an institutional analysis and literature review. *Am J Surg*. 2017;214(2):251-255.
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- Madden AM, Smeeton NC, Culkin A, Trivedi D. Modified dietary fat intake for treatment of gallstone disease in people of any age. *Cochrane Database Syst Rev*. 2024;2(2):CD012608.
- Shenoy R, Kirkland P, Hadaya JE, et al. Management of symptomatic cholelithiasis: a systematic review. *Syst Rev*. 2022;11(1):267.
- Patel H, Jepsen J. Gallstone disease: common questions and answers. *Am Fam Physician*. 2024;109(6):518-524.

Section 3: Appendicitis

Example case: *MD is a 20-year-old previously college student who presents with acute right lower quadrant abdominal pain. He denies any recent trauma or heavy lifting, or any significant gastrointestinal or genitourinary symptoms. During the office visit, he develops nausea and vomiting and becomes febrile.*

Key questions to consider:

Pathophysiology

- What is the pathophysiology of this condition?
- What role does the microbiome play in the pathogenesis of this condition?

Epidemiology

- What is prevalence of this condition? What impact does age and gender have on prevalence and on diagnosis rate?
- What factors predispose patients to the development of this condition?
- What are the commonly associated medical comorbidities?

Clinical Presentation and Diagnosis

- What are the common clinical presentations for this condition? What is the differential diagnosis? How does the differential diagnosis vary by age and sex?
- What are the current evidence-based diagnostic work-up and criteria for this condition?
- What imaging modalities are recommended for patients of various ages?
- What serologic tests can aid in making an accurate diagnosis of appendicitis?
- When can a diagnosis of acute appendicitis be made safely and accurately made in the absence of laboratory or radiographic imaging?

Treatment

- What are the current evidence-based treatment recommendations for this condition?
- When are antibiotics over surgery indicated for suspected appendicitis, and when can "watchful waiting" be recommended? Which antibiotics can be used to treat appendicitis?
- How effective are probiotics in the prevention of recurrent episodes of appendicitis?
- When should a patient with acute and/or recurrent appendicitis be referred to a surgeon? What is the current recommended management of a patient with a ruptured appendix?

Prognosis

- What are the short- and long-term prognoses of the patient with acute appendicitis?

Initial references to consider:

- Bhangu A, Søreide K, Di Saverio S, Assarsson JH, Drake FT. Acute appendicitis: modern understanding of pathogenesis, diagnosis, and management. *Lancet*. 2015;386(10000):1278-1287.
- Moris D, Paulson EK, Pappas TN. Diagnosis and management of acute appendicitis in adults: a review. *JAMA*. 2021;326(22):2299-2311.
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- Hajibandeh S, Hajibandeh S, Hobbs N, Mansour M. Neutrophil-to-lymphocyte ratio predicts acute appendicitis and distinguishes between complicated and uncomplicated appendicitis: a systematic review and meta-analysis. *Am J Surg*. 2020;219(1):154-163.
- Wu Z, Zhao L, Liu Y, Qian S, Wu L, Liu X. Fibrinogen as a marker of overall and complicated acute appendicitis: a systematic review and meta-analysis. *J Surg Res*. 2022;280:19-26.
- Cui W, Liu H, Ni H, Qin X, Zhu L. Diagnostic accuracy of procalcitonin for overall and complicated acute appendicitis in children: a meta-analysis. *Ital J Pediatr*. 2019;45(1):78.
- Vanhatalo S, Munukka E, Kallonen T, et al. Appendiceal microbiome in uncomplicated and complicated acute appendicitis: a prospective cohort study. *PLoS One*. 2022;17(10):e0276007.
- Vanhatalo S, Munukka E, Sippola S, et al; APPAC collaborative study group. Prospective multicentre cohort trial on acute appendicitis and microbiota, aetiology and effects of antimicrobial treatment: study protocol for the MAPPAC (Microbiology APPendicitis ACuta) trial. *BMJ Open*. 2019;9(9):e031137.
- Perez KS, Allen SR. Complicated appendicitis and considerations for interval appendectomy. *JAAPA*. 2018;31(9):35-41.
- Doleman B, Fonnes S, Lund JN, et al. Appendectomy versus antibiotic treatment for acute appendicitis. *Cochrane Database Syst Rev*. 2024;4(4):CD015038.
- D'Souza N, Hicks G, Beable R, et al. Magnetic resonance imaging (MRI) for diagnosis of acute appendicitis. *Cochrane Database Syst Rev*. 2021;12(12):CD012028.
- Ebell MH. Diagnosing appendicitis in children and adolescents with abdominal pain. *Am Fam Physician*. 2023;107(3):301-302.

Section 4: Small Bowel Obstruction and Ileus

Example case: *EH is an 85-year-old female with a history of total abdominal hysterectomy for menometrorrhagia over 40 years ago and osteoporosis. She was admitted to the hospital after she accidentally slipped and fell in the shower and developed a burst fracture of her T10 vertebral body. EH was given oxycodone, cyclobenzaprine, pregabalin, and acetaminophen for pain control. Upon discharge, she reported significant constipation and the following day she developed abdominal pain and distention. During follow-up examination with her family physician, bowel sounds were absent.*

Key questions to consider:

Pathophysiology

- What is the pathophysiology of small bowel obstruction and ileus? What are the most common causes?
- What role does the microbiome play in the pathogenesis of these conditions?

Epidemiology

- What is prevalence of these conditions? What impact does age and gender have on prevalence and on diagnosis rate?
- What factors predispose patients to the development of these conditions?
- What are the commonly associated medical comorbidities?

Clinical Presentation and Diagnosis

- What are the common clinical presentations for these conditions?
- What is the differential diagnosis, and how does it vary by age and sex?
- What are the current evidence-based diagnostic work-up and criteria for these conditions?
- When can a diagnosis of these conditions be made safely and accurately made in the absence of laboratory or radiographic imaging?

Treatment

- What are the current evidence-based treatment recommendations for these conditions?
- How effective are probiotics, fiber, and other dietary interventions in the prevention of recurrent episodes?
- Which patients can be managed without hospital admission? What are indications for admission?
- When should a patient with these conditions be referred to a surgeon? When should a patient with these conditions be referred to a gastroenterologist?

Prognosis

- What are the short- and long-term prognoses of the patient with these conditions?

Initial references to consider:

- Lai YT, Wu PH. Gallstone ileus. *N Engl J Med*. 2022;387(10):924.
- Long B, Robertson J, Koyfman A. Emergency medicine evaluation and management of small bowel obstruction: evidence-based recommendations. *J Emerg Med*. 2019;56(2):166-176.
- Scaglione M, Galluzzo M, Santucci D, et al. Small bowel obstruction and intestinal ischemia: emphasizing the role of MDCT in the management decision process. *Abdom Radiol (NY)*. 2022;47(5):1541-1555.
- Bower KL, Lollar DI, Williams SL, Adkins FC, Luyimbazi DT, Bower CE. Small bowel obstruction. *Surg Clin North Am*. 2018;98(5):945-971.

- Shogan BD, Chen J, Duchalais E, et al. Alterations of the rectal microbiome are associated with the development of postoperative ileus in patients undergoing colorectal surgery. *J Gastrointest Surg*. 2020;24(7):1663-1672.
- Chapman SJ; EuroSurg Collaborative. Ileus Management International (IMAGINE): protocol for a multicentre, observational study of ileus after colorectal surgery. *Colorectal Dis*. 2018;20(1):O17-O25.
- Vercruysse G, Busch R, Dimcheff D, et al. Evaluation and management of mechanical small bowel obstruction in adults [internet]. In: *Michigan Medicine Clinical Care Guidelines*. Ann Arbor (MI): Michigan Medicine University of Michigan; 2021.
- Dorsey ST, Harrington ET, Iv WF, Emerman CL. Ileus and small bowel obstruction in an emergency department observation unit: are there outcome predictors? *West J Emerg Med*. 2011;12(4):404-7.
- Mahony CR, Traynor MD Jr, Knight AW, et al. Small bowel obstruction managed without hospital admission: a safe way to reduce both cost and time in the hospital? *Surgery*. 2022;171(6):1665-1670.
- Podda M, Khan M, Di Saverio S. Adhesive small bowel obstruction and the six w's: who, how, why, when, what, and where to diagnose and operate? *Scand J Surg*. 2021;110(2):159-169.
- Long B, Gottlieb M. Accuracy of ultrasonography for the diagnosis of small bowel obstruction. *Am Fam Physician*. 2021;104(2):135-136.
- Al Samaraee A, Bhattacharya V. Facing the unexpected: unusual causes of mechanical small bowel obstruction in adults. *Clin J Gastroenterol*. 2021;14(5):1287-1302.
- Hwabejire JO, Tran DD, Fullum TM. Non-operative management of adhesive small bowel obstruction: Should there be a time limit after which surgery is performed? *Am J Surg*. 2018;215(6):1068-1070.
- Shokoohi H, Mayes KD, Peksa GD, et al. Multi-center analysis of point-of-care ultrasound for small bowel obstruction: a systematic review and individual patient-level meta-analysis. *Am J Emerg Med*. 2023;70:144-150.
- Willis MA, Toews I, Soltau SL, et al. Preoperative combined mechanical and oral antibiotic bowel preparation for preventing complications in elective colorectal surgery. *Cochrane Database Syst Rev*. 2023;2(2):CD014909.