Mahadi and Aung
Brunei International Medical Journal
2025; 21:205-208

Brunei International Medical Journal

Case Report

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Right-sided Diverticulitis Mimicking Acute Appendicitis in a Woman of Reproductive Age

Norhasyimah Binti **MAHADI** [1*] and Khin Thida **AUNG** [2]

Abstract

Right lower quadrant (RLQ) abdominal pain in women of reproductive age presents a diagnostic challenge in the outpatient setting due to its broad differential diagnoses, including gynaecological, gastrointestinal, and urinary causes. This case describes a young female who presented with RLQ pain, McBurney's point tenderness, and a high Alvarado score, initially suggesting acute appendicitis. However, ultrasound scan showed no evidence of appendicitis, prompting further evaluation with computed tomography scan, confirming the less common diagnosis of right-sided colonic diverticulitis. The patient was admitted under the surgical service, treated with intravenous antibiotics, and discharged with a planned colonoscopy. A structured approach to evaluating RLQ pain in women of reproductive age must consider less common diagnoses such as acute diverticulitis. Imaging is essential in establishing an accurate diagnosis and avoiding unnecessary surgery.

Keywords: Abdominal Pain; Appendicitis; Right-sided Diverticulitis; Diverticular disease

Author Details:
1 Outpatient Department, Jerudong Park Medical Centre, Brunei Darussalam
2 Department of Diagnostic Imaging, Jerudong Park Medical Centre, Brunei Darussalam

Correspondence:
Norhasyimah Binti MAHADI
dr.norhasyimah@jpmc.com.bn

INTRODUCTION

Right lower quadrant (RLQ) pain is a common feature of both right-sided diverticulitis and acute appendicitis , causing diagnostic confusion. Consequently, right-sided diverticulitis is often only identified during surgery for presumed appendicitis.[1] In reproductive women, gynaecological causes add to this challenge. Emergent conditions like appendicitis, ovarian cyst torsion, and ectopic pregnancy are prioritised to avoid management delays. As diverticulitis in young Asians is more often right-sided, it warrants consideration and included in the differential diagnoses. [1-4]

Diverticulosis is due to sac-like protrusions (diverticula) forming at weak points in the intestinal wall, especially where blood vessels enter to supply the mucosa, mainly in the colon. Most cases of diverticular disease remain asymptomatic unless complicated by inflammation (diverticulitis) or bleeding.

Diverticulitis may present acutely or chronically and classified as uncomplicated which is more common, or complicated by intestinal obstruction, abscess, fistula formation, or perforation. It affects approximately 4% to 15% of individuals with diverticular disease, with incidence increasing with age. [3] This condition is more prevalent in Western population, typically left-sided, while right-sided diverticulitis is rare but associated with better prognosis with lower complication rates, fewer surgical interventions, reduced recurrence, and shorter hospital stays.[3-5]

Distinctly, diverticular bleeding caused by ruptures of underlying vasa recta, typically right-sided; the most common cause of lower gastrointestinal haemorrhage and rarely associated with acute or chronic diverticulitis.[6]

CASE REPORT

A 39-year-old woman with history of postpartum thyroiditis presented with first episode of worsening RLQ abdominal pain (sharp) with tenderness in the right iliac fossa (RIF) for five hours, radiating towards mid - abdomen. It was associated with fever, anorexia and nausea. Urinary symptoms, vaginal bleeding or discharge, loin to groin pain, vomiting and diarrhoea were absent. Her menses was regular.

The patient was clinically alert, hydrated and was not septic-looking. She had moderate pain (pain score of 6/10) and was febrile (38.3°C). Her heart rate was 106 bpm, blood pressure of 101/68 mmHg, and oxygen saturation of 97% on room air. There was RLQ tenderness especially at RIF region with a positive McBurney's sign and rebound tenderness. There was no organomegaly, renal angle tenderness, or mass.

The patient was kept fasting and started on intravenous (IV) Normal saline (125 mL/hour) and IV paracetamol (1 gram). Urine pregnancy test and serum beta-hCG were negative, urine dipstick unremarkable. Blood tests showed elevated C-reactive protein (1.36 mg/dL), mildly raised erythrocyte sedimentation rate (27 mm/hr), normal amylase, and a white cell count of 8.1 x 10^9/L with neutrophilia (93.3%). Her Alvarado score was 7 (**Table I**).

Table I: Alvarado score for Acute Appendicitis (adapted from Alvarado Score for Acute Appendicitis) for patient.

Signs		
Right lower quadrant tenderness	No 0	Yes +2
Elevated temperature (37.3 C or 99.1F)	No 0	Yes +1
Rebound tenderness	No 0	Yes +1
Symptoms		
Migration of pain to the right lower quadrant	No 0	Yes +1
Anorexia	No 0	Yes +1
Nausea or Vomiting	No 0	Yes +1
Laboratory values		
Leukocytosis > 10,000	No 0	Yes +2
Leukocytes left shift > 75% neutrophils	No 0	Yes +1
Total = 7 points		

Coloured boxes indicate patient's score

Ultrasound scan of the abdomen and pelvis was performed to support suspicion but no evidence of appendicitis or significant obstetric or gynaecological pathology.

She was admitted under surgical service and underwent a plain Computed Tomography (CT) scan, confirming right-sided diverticulitis (**Figure 1**). A clear fluid diet was initiated and IV amoxicillin–clavulanic acid (1.2 gm three times daily) and IV netilmicin (150 mg twice daily) were commenced with Intramuscular Pethidine 100mg as-needed basis for analgesia.

DISCUSSION

Absence of menstrual delay, non-ovulatory phase status, and exclusion of pregnancy and urinary pathology via point-of-care testing had narrowing the differential diagnoses in this case. Due to signs of acute appendicitis, including positive McBurney's point and rebound tenderness, the Alvarado score was calculated and indicated likelihood of appendicitis.

The Alvarado scoring system was employed due to the author's familiarity; however the Raja Isteri Pengiran Anak Saleha Appendicitis (RIPASA) score is more applicable , as it was developed locally and better represents the Southeast Asian population, demonstrating higher sensitivity, specificity, and diagnostic accuracy.[7-8] Based on the RIPASA score, our patient scored 9, based on female sex, age under 39.9 years, right iliac fossa pain and tenderness, rebound tenderness, anorexia, symptom duration of less than 48 hours, fever (38.3° C), negative urinalysis, and non-local status (***Refer to***

Figure 1: CT scans showing diverticular disease and acute diverticulitis (a– Coronal view and b—Axial view).

the Supplementary Text). A score of 7.5–11.5 indicates a high probability of acute appendicitis, justifying surgical admission and abdominal ultrasound, which was readily performed in our private outpatient setting.

On ultrasound, the normal appendix can be identified in approximately 30% of adult patients and 80% of children, while an inflamed appendix can be detected in 80–90% of cases. Appendicitis can be excluded if the entire normal appendix is visualised on ultrasound.[9-10] Although ultrasound plays an important role in detecting diverticulitis, its diagnostic accuracy in this case was compromised by overlying bowel gas; a well recognised limitation of sonographic imaging.[11] CT is now considered the gold standard for evaluating diverticulitis, as it confirms the diagnosis, assess severity, and exclude alternative pathologies.[12]

Traditionally, uncomplicated diverticulitis is treated with antibiotics against colonic flora, although emerging evidence supports a selective, non-antibiotic strategy.[13-14] The 2021 American Gastroenterological Association guidelines recommend selective antibiotic use in immunocompetent patients with mild, uncomplicated diverticulitis but strongly recommend for immunocompromised individuals.[13] Empirical antibiotics should cover common pathogens, particularly anaerobes and gram-negative rods.[15]

The patient received two broad-spectrum IV antibiotics. Although this combination is uncommon, the rationale was unclear to the author, who was not involved in inpatient management. A 10-day course of oral amoxicillin–clavulanic acid (625 mg twice daily) given upon discharge; a common empirical monotherapy as outpatient.[13]

Colonoscopy is advised after complicated diverticulitis and following the initial uncomplicated diverticulitis. In this patient, it was planned after three months, aligning with recommendation to delay 6 to 8 weeks or until symptom resolution to reduce procedural risks.[13]

Lifestyle factors such as smoking and obesity influence diverticulitis formation and recurrence, with diet playing a key role. During the acute phase, a clear liquid diet is recommended to rest the bowels, gradually shifting to a low-fibre or soft diet as symptoms improve.[13] After recovery, a high-fibre diet rich in fruits and cereals is encouraged. Vegetable fibre shows limited benefit and patients should reduce red meat intake and avoid typical western dietary patterns.[16] Proper dietary advice was given in this case though no specific details were documented.

CONCLUSION

In women of reproductive age, pelvic related pathologies are also usually included in the differential. Right-sided diverticulitis mimics appendicitis. Imaging such as CT scan aids in accurate diagnosis. In young women, pregnancy and gynaecological conditions must be excluded.

Take Home Message

- Right-sided diverticulitis is more common in young Asians.
- Always consider right sided diverticulitis in suspected appendicitis cases.
- CT scan is the gold standard for diagnosis and exclusion of other causes.
- Dietary modifications are essential for prevention.

Abbreviations

RLQ	Right lower quadrant
RIF	Right iliac fossa
IV	Intravenous
CT	Computed tomography
RIPASA	Raja Isteri Pengiran Anak Saleha Appendicitis

Declarations

Patient Consent

Patient consent has been obtained. This case report submission is approved by the Jerudong Park Medical Centre (JPMC) and written consent was obtained from this patient following the JPMC Policy

Disclosure and Conflict of Interest

The authors declare that they have no conflicts of interest and no financial disclosures relevant to this case report.

Acknowledgments

None.

References

1. Tan KK, Wong J, Yan Z, Chong CS, Liu JZ, Sim R. Colonic diverticulitis in young Asians: a predominantly mild and right-sided disease. ANZ J Surg. 2014;84:181–4.
2. Shin JH, Son BH, Kim H. Clinically distinguishing between appendicitis and right-sided colonic diverticulitis at initial presentation. Yonsei Med J. 2007;48:511-6.
3. Nallapeta NS, Farooq U, Patel K. Diverticulosis [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 [updated 2023 Apr 16; cited 2025 Jul 3]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK430771/
4. Papatriantafyllou A, Dedopoulou P, Soukouli K, Papageorgiou D, Kanellos I, Alexiou T. Right-sided diverticulitis: a rare cause of right-sided abdominal pain.Cureus. 2023;15(4)\:e37123.
5. Hajibandeh S, Hajibandeh S, Smart NJ, Maw A. Meta-analysis of the demographic and prognostic significance of right-sided versus left-sided acute diverticulitis. Colorectal Dis. 2020;22:499–508.
6. Lewis Myron. Bleeding Colonic Diverticula. J Clin Gastroenterol. 2008;42:1156-8.
7. Chong CF, Thien A, Mackie AJ, Tin AS, Tripathi S, Ahmad MA, et al. Evaluation of the RIPASA score: A new scoring system for the diagnosis of acute appendicitis. Brunei Int Med J. 2010;6:17–26.
8. Pasumarthi V, Madhu CP. A comparative study of RIPASA score and ALVARADO score in diagnosis of acute appendicitis. Int Surg J. 2018;5:796-801.
9. Puylaert J. Appendicitis - US findings [Internet]. Netherlands: Radiology Assistant; 2020 Jul 5 [cited 2025 Jul 15]. Available from: https://radiologyassistant.nl/abdomen/acute-abdomen/appendicitis-us-findings
10. Puylaert J. US of the GI tract - Normal Anatomy [Internet]. Netherlands: Radiology Assistant; 2020 Apr 3 [cited 2025 Jul 15]. Available from: https://radiologyassistant.nl/abdomen/ultrasound/lk-jg-1-1
11. Kuzmich S, Howlett DC, Andi A, Shah D, Kuzmich T. Transabdominal sonography in assessment of the bowel in adults. Am J Roentgenol. 2009;192:197-212.
12. Destigter KK, Keating DP. Imaging update: acute colonic diverticulitis. Clin Colon Rectal Surg. 2009;22:147-55.
13. Peery AF, Shaukat A, Strate LL, et al. AGA clinical practice update on medical management of colonic diverticulitis: expert review. Gastroenterology. 2021;160:906-911.e1.
14. Chabok A, Påhlman L, Hjern F, Haapaniemi S, Smedh K; AVOD Study Group. Randomized clinical trial of antibiotics in acute uncomplicated diverticulitis. Br J Surg. 2012;99:532-9.
15. Salzman H, Lillie D. Diverticular disease: diagnosis and treatment. Am Fam Physician. 2005 ;72:1229-34.
16. Carabotti M, Falangone F, Cuomo R, Annibale B. Role of dietary habits in the prevention of diverticular disease complications: a systematic review. Nutrients. 2021;13:1288.
17. Aune D, Sen A, Norat T, Riboli E. Dietary fibre intake and the risk of diverticular disease: a systematic review and meta-analysis of prospective studies. Eur J Nutr. 2020;59:421-32.

Table: RIPASA score for acute appendicitis.[1,2]

Demographic information		
Gender	Female +0.5	Male +1
Age	≤40 +1	>40 +0.5
Foreign national	No 0	Yes +1
Symptoms		
Right iliac fossa (RIF) pain	No 0	Yes +0.5
Pain migration to RIF	No 0	Yes +0.5
Anorexia	No 0	Yes +1
Nausea & vomiting	No 0	Yes +1
Duration of symptoms	≤48 +1	>48 +0.5
Signs		
RIF tenderness	No 0	Yes +1
Guarding	No 0	Yes +1
Rebound tenderness	No 0	Yes +1
Rovsing sign	No 0	Yes +2
Temperature 37°C and 39°C	No 0	Yes +2
Laboratory		
Elevated white blood cell count	No 0	Yes +1
Negative urine analysis (absence of blood, white blood cells, bacteria)	No 0	Yes +1
TOTAL SCORE		

Total score is achieved by adding all the score for each category together. Additional score is added for patient with foreign National identity card (NRIC).

Guidelines for management according to total score:

- < 5 = Probability of acute appendicitis is unlikely; observe patient and repeat scoring after 1–2 hrs. If reducing score, discharge. If increasing score, treat according to score level.
- 5–7.0 = Low probability of acute appendicitis; observe and repeat scoring after 1–2 hrs or perform abdominal ultrasound investigations to rule out acute appendicitis. Patients may need admission for observations, discussed with surgeon on-call.
- 7.5–11.0 = Probability of acute appendicitis is high; refer patient to on-call surgeon for admission and repeat score in 1–2 hrs time. If remains high, prepare patient for appendicectomy procedure. In female patients, suggest perform abdominal ultrasound investigations to rule out gynaecological causes of RIF pain.
- > 12 = Definite acute appendicitis; refer to surgeon on-call for admission and appendicectomy.

References

1. Chong CF, Adi MI, Thien A, Suyoi A, Mackie AJ, Tin AS, et al. Development of the RIPASA score: a new appendicitis scoring system for the diagnosis of acute appendicitis. Singapore Med J. 2010;51:220-5.
2. Chong CF, Thien A, Mackie AJ, Tin AS, Tripathi S, Ahmad MA, et al. Evaluation of the RIPASA score: A new scoring system for the diagnosis of acute appendicitis. Brunei Int Med J. 2010;6:17–26.