# Perforated Acute Appendicitis with Accidental Mesodiverticular Band in a Southeast Asian Ovalocytosis: An Unfortunate Occurrences

Güneydoğu Asya Ovalositozunda Kazayla Oluşan Mezodivertiküler Bantlı Perfore Akut Apandisit: Talihsiz Bir Olay

Nurul Amira Kabul[1], Nurul Najah Mohamad Kamal[1], Andi Fauzi Andi Kadir[1], Muhammad Budiman Zamhor[1], Noralia Ain Mohd Zaid Koh[1], Yee Woon Chia[1], Tharuni Chandrasegar[1], Firdaus Hayati[1,2]

[1]Department of Surgery, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia
[2]Department of Surgery, Queen Elizabeth Hospital, Ministry of Health, Kota Kinabalu, Sabah, Malaysia

**ABSTRACT**

Acute appendicitis (AA) is one of the commonest surgical emergencies. Perforation is one of the major complications of AA which can cause dreaded morbidity as well as mortality. Comorbidities, especially among endocrine, vascular or even haematological disorder, can mask postoperative complications. By having good knowledge of certain perioperative conditions, the patient can avoid more invasive intervention. Herein, a young lady with southeast asian ovalocytosis (SAO) presented with perforated AA and incidental mesodiverticular band developed postoperative jaundice and we discuss the possible outcomes of these unfortunate events.

**Key Words:** Appendicitis, Hereditary ovalocytosis, Meckel's diverticulum

**Received:** 01.25.2020 **Accepted:** 09.01.2020

**ÖZET**

Akut apandisit (AA) en yaygın cerrahi acil durumlardan biridir. Perforasyon, AA'nın en önemli komplikasyonlarından biridir ve ölümün yanı sıra korkunç morbiditeye de neden olabilir. Özellikle endokrin, vasküler ve hatta hematolojik bozukluklar arasındaki komorbiditeler, postoperatif komplikasyonları maskeleyebilir. Belirli perioperatif koşullar hakkında iyi bilgi sahibi olarak, hasta daha invaziv müdahaleden kaçınabilir. Burada, perfore AA ve tesadüfi mezodivertiküler bant ile başvuran güneydoğu Asya ovalositozlu (SAO) genç bir kadın ameliyat sonrası sarılık geliştirdi ve bu talihsiz olayların olası sonuçlarını tartışıyoruz.

**Anahtar Sözcükler:** Apandisit, Kalıtsal ovalositoz, Meckel divertikülü

**Geliş Tarihi**: 25.01.2020 **Kabul Tarihi:** 01.09.2020



**ORCID IDs:** N.A.K. 0000-0001-8608-9699, N.N.M.K. 0000-0002-2456-472X, A.F.A.K. 0000-0003-0994-0886, M.B.Z. 0000-0003-1321-3067, N.A.M.Z.K. 0000-0002-6315-0300, Y.W.C. 0000-0003-0361-5417, T.C. 0000-0002-3867-4989, F.H. 0000-0002-3757-9744

**Address for Correspondence / Yazışma Adresi:** Firdaus Hayati. MD, DrGenSurg. Department of Surgery, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia E-mail: firdaushayati@gmail.com

doi:http://dx.doi.org/10.12996/gmj.2020.152

## INTRODUCTION

Acute appendicitis (AA) is one of the commonest surgical emergencies. The overall prevalence of 7-8% worldwide with a median age of 29 years showing how common is this condition among the young population (1). In general, one out of every 2,000 people has an appendectomy sometime during their lifetime. Diagnosis is typically clinical, but it can be supported by imaging modalities namely ultrasonography, computed tomography, and magnetic resonance imaging (1). Perforation is one of the major complications of AA which can cause eventful morbidity and mortality. While there should be no unnecessary delay, all patients, particularly those most at risk either endocrine, vascular or even haematological disorder, should receive benefit by a short period of intensive preoperative preparation. Intraoperative exploration is of utmost importance. Deem requiring rapid and salvageable surgery, quick thinking by the operating surgeon for promising decision making. By having good knowledge on certain perioperative conditions, the patient can avoid more invasive intervention. Herein, a young lady with southeast asian ovalocytosis (SAO) presented with perforated AA and incidental mesodiverticular band developed postoperative jaundice and we discuss the possible outcomes of these unfortunate events.

## CASE REPORT

A 17-year-old lady presented with acute paraumbilical abdominal pain for the past 2 days and it migrated to the right iliac fossa region. It was initially colicky and then became sharp aching in nature with a pain score of 8 out of 10. The pain was associated with fever, nausea, and loss of appetite. On examination, she was alert, conscious and was in pain. Her vital signs showed tachycardia and hypotension. There was a board-like rigidity on the abdomen suggesting classic peritonitis. Investigation showed leukocytosis of 32.98 (normal: 4-11 X 10^3/uL) and anaemia of 8.0 (normal: 10-12 g/dL). Peripheral blood film revealed SAO with underlying iron deficiency anemia. Otherwise, the renal profile, urinalysis, and serum amylase were normal.

Despite aggressive fluid resuscitation, she remained hypotensive. She was immediately started on inotropic support to keep mean arterial pressure above 65. She was started with intravenous antibiotics simultaneously. An exploratory laparotomy was performed in view of peritonitis. Intraoperatively, there was an extensive pool of pus upon entering the peritoneal cavity, especially at the pelvic and RIF region. A gangrenous AA was noted with a perforation at the body. There was also a Meckel's diverticulum (MD) with a narrow base with a fibrous band to the anterior abdominal wall located 40 cm from the ileocecal valve. An appendicectomy and wedge resection of the MD was undertaken. However, to our surprise, we noticed to discover hepatomegaly up till the umbilicus level as well as splenomegaly.

The surgery was uneventful, however, at postoperative day 1, she was noted to have a tinge of jaundice. An ultrasound (Figure 1) was done showing a homogeneously enlarged liver of 18 cm without any focal lesion. There was no dilated intrahepatic biliary system. Other organs showed no sonographic abnormalities. However, she recovered well with supportive care and was discharged after postoperative day 5. The histopathology was consistent with the gangrenous appendix and Meckel's diverticulum.

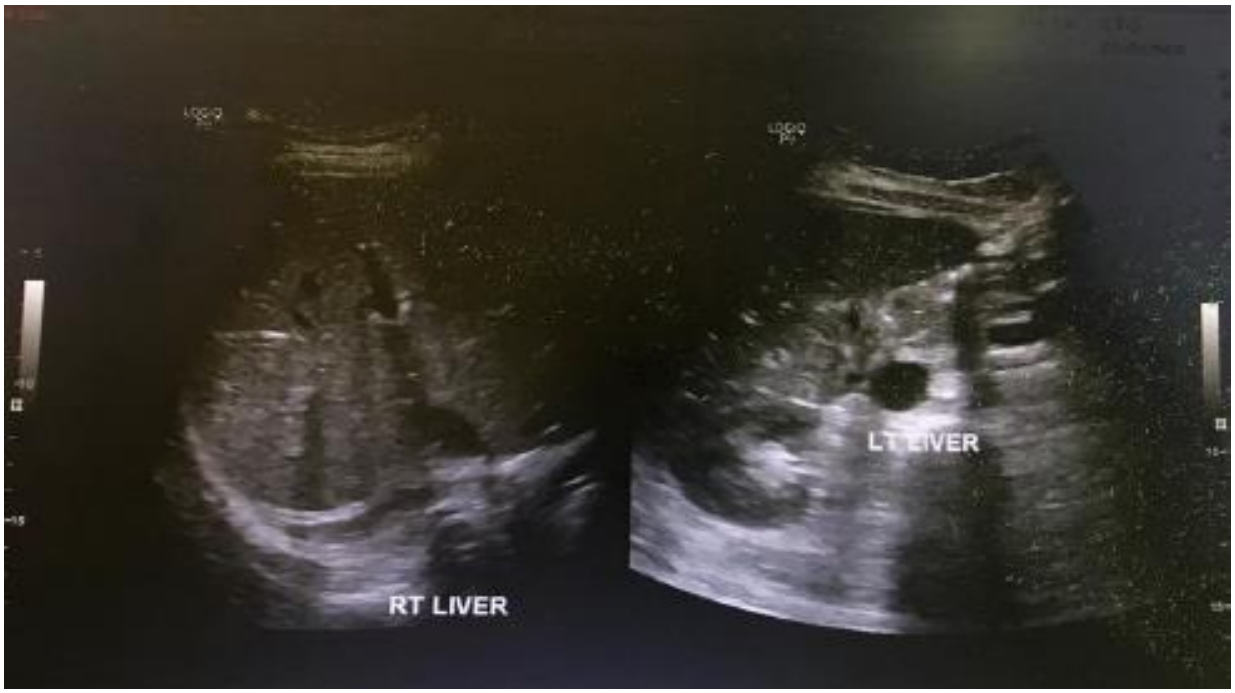


**Figure 1:** Ultrasound showing hepatomegaly without evidence of biliary obstruction

## DISCUSSION

Appendicectomy is a common surgical intervention for AA, especially among patients without comorbidities. However, patients with haematological disorder require attentive perioperative management. SAO is a very common condition in the people from Indonesia, Malaysia, Papua New Guinea, the Philippines, and southern Thailand, especially in areas where malaria is endemic (2). It is characterized as having characteristically rounded or oval-shaped red blood cells elliptocytes (ovalocytes) with increased membrane rigidity and decreased anion transport, hence it can give rise to abnormal erythrocytes sequestration in the spleen and liver (2).

In the long run, those patients can develop hepatosplenomegaly in addition to anaemia as in this patient. Any patient undergoing surgery for any causes requiring an acceptable level of haemoglobin to ensure a promising recovery. The worst scenario is when we have to deal with septic patients. As in our case, a perforated AA in septic shock with underlying SAO is a rare entity. This occurrence has never been published before. Even the patient was anaemic, she only required haematinic drugs to improve her haemoglobin level. However, in an elderly patient, blood transfusion is mandatory.

Since the patient developed postoperative jaundice, there are few causes that need to be considered either unconjugated or conjugated (intrahepatic or extrahepatic) hyperbilirubinaemia (3). Multifactorial mixed hyperbilirubinemia is the most common reason for postoperative jaundice.

Unconjugated hyperbilirubinemia can happen after blood transfusions, haemolysis of any underlying haematoma, and anaesthetic or analgesic drug effects (3). In addition, an underlying haematological disorder such as SAO also contributes to underlying jaundice. Mild liver dysfunction sometimes occurs after major surgery even in the absence of pre-existing liver disorders. Ischemic liver injury from septic shock and inotropic support, drug-induced hepatitis, or viral infections of the liver can lead to intrahepatic conjugated hyperbilirubinaemia (3). The extrahepatic biliary obstruction must be considered in all patients with conjugated hyperbilirubinemia (3). Abdominal sonography is mandatory to rule out a biliary obstruction in the case of extrahepatic conjugated hyperbilirubinaemia as being performed on our patient.

She was noted to have an enlarged liver intraoperatively which was then confirmed via postoperative ultrasound. The hepato-splenomegaly in this patient was highly suggestive of secondary to the SAO. Since she presented initially with board-like rigidity of the abdomen, the attending doctor could not identify the hepato-splenomegaly in the first place. The involuntary contraction of the anterior abdominal walls can hinder the clinical finding of organomegaly. Any patients with peritonitis require urgent laparotomy without performing any imaging modalities.

The majority of MD are silent and are discovered incidentally during surgery. They have been known to cause severe hemorrhage, intussusception, diverticulitis, perforation, peptic ulceration and intestinal obstruction (4). Intestinal obstruction is the most common presentation in the adult, reported as the largest modern series of symptomatic MD (5). Cardinal symptoms of intestinal obstruction caused by an MD may occur when either the diverticulum is attached or entrapped within an ileal loop by a mesodiverticular band to the umbilicus, abdominal wall or other viscera, or diverticulum is free and unattached (6). Hence, the volvulus of the small bowel around the band may occur. In this case, we had decided to resect the mesodiverticular band and MD to avoid future intraabdominal complications.

## CONCLUSION

Complicated AA with mesodiverticular band and SAO are rare entities. The treatment can be intricate, especially when dealing with sepsis and anaemia. Postoperative jaundice in these entities can be benign and self-resolving with conservative management.

**Conflict of interest**
No conflict of interest was declared by the authors.

**Acknowledgment**
We would like to thank the Director General of Health, Ministry of Health Malaysia for giving us the opportunity to publish this case report.

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