

Omental Infarction: Challenges in Managing Acute Abdomen During COVID-19 Pandemic

Omental Enfarktüs: COVID-19 Pandemisi Sırasında Akut Karın Yönetimindeki Zorluklar

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ABSTRACT

Acute abdomen is a common surgical emergency, yet is challenging especially during the COVID-19 pandemic. This article highlights the challenging management of acute abdomen and issues on preoperative nasopharyngeal swab testing, aerosol-generating procedures and non-operative management. A 36-year-old gentleman presented with acute right iliac fossa pain which was diagnosed as simple acute appendicitis and was managed non-operatively. He progressed well initially, but after 2 days, he developed localized abdominal guarding. The diagnosis was revised to perforated appendicitis and he was pushed to the operation theatre on the same day. Since the swab test was negative, we performed the surgery as a non-COVID-19 patient. To our surprise, the intraoperative finding was consistent with spontaneous omental infarction and mild appendicitis. Appendectomy with omentectomy was done and the final diagnosis was consistent with acute omental infarction. Performing surgery on patients with active COVID-19 infection can lead to a high pulmonary complication and mortality rate. All cases require COVID-19 status as the screening prerequisites prior to admission and surgical intervention. Emergency cases such as acute abdomen warrant a surgical intervention regardless of COVID-19 status but with full personal protective equipment. Managing acute abdomen is challenging during the COVID-19 pandemic. The direction is towards non-operative management unless it is contraindicated. Omental infarction must be considered as one of the differential diagnoses for any patient with unexplained acute abdominal pain which warrants imaging assessment.

Keywords: Acute abdomen, case report, COVID-19, omentum

Received: 05.12.2022

Accepted: 07.11.2022

ÖZET

Akut karın yaygın bir cerrahi acildir, ancak özellikle COVID-19 pandemisi sırasında büyük zorluk oluşturmuştur. Bu makale, akut karının zorlu yönetimini ve ameliyat öncesi nazofaringeal sürüntü testi, aerosol oluşturan prosedürler ve ameliyatsız yönetim ile ilgili konuları vurgulamaktadır. Otuzaltı yaşında erkek akut sağ iliac fossa ağrısı ile başvurdu, basit akut apandisit tanısı aldı ve ameliyatsız tedavi edildi. Başlangıçta iyi ilerledi, ancak 2 gün sonra lokalize karın koruması geliştirdi. Tanısı perfore apandisit olarak revize edildi ve aynı gün ameliyathaneye sevk edildi. Swab testi negatif çıktığı için ameliyatı COVID-19 negatif hasta olarak gerçekleştirildi. İlginç olarak; intraoperatif bulgu spontan omental enfarktüs ve hafif apandisit ile uyumluydu. Apendektomi ile omentektomi yapıldı ve kesin tanı akut omental enfarktüs ile uyumluydu. Aktif COVID-19 enfeksiyonu olan hastalarda ameliyat yapmak, yüksek pulmoner komplikasyon ve ölüm oranına neden olabilir. Tüm vakalar, kabul ve cerrahi müdahale öncesinde tarama önkoşulu olarak COVID-19 durumunu gerektirir. Akut karın gibi acil durumlar, COVID-19 durumundan bağımsız olarak ancak tam kişisel koruyucu ekipmanla cerrahi müdahale gerektirir. COVID-19 salgını sırasında akut karın yönetimi zordur. Genel eğilim, kontrendike olmadığı sürece ameliyatsız yönetime yöneliktir. Omentum enfarktüsü, açıklanamayan akut karın ağrısı olan ve görüntüleme değerlendirmesini garanti eden herhangi bir hasta için ayırıcı tanılardan biri olarak düşünülmelidir.

Anahtar Sözcükler: Akut karın, olgu sunumu, COVID-19, omentum

Geliş Tarihi: 12.05.2022

Kabul Tarihi: 11.07.2022

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doi:<http://dx.doi.org/10.12996/gmj.2022.98>

INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic has caused global pandemonium, exceptionally on the healthcare system. Emergency cases that are not related to COVID-19 have reduced in numbers as shown by a decrease in the overall number of visits to the emergency department (1). The non-emergency cases are suggested to be performed during the elective setting and in dedicated COVID-19-free surgical pathway hospitals (2). However, in any emergency cases that are deemed for surgical intervention, nasopharyngeal swab testing is beneficial especially prior to the major surgery and in high SARS-CoV-2 risk areas (3). Meanwhile, there is no proven benefit of swab testing before minor surgery in low-risk areas.

Acute abdomen is the most common presentation to the emergency department, hence giving us a challenge especially during the COVID-19 pandemic. Simple inflammatory reactions to the visceral organs such as appendicitis, diverticulitis, enteritis and colitis deserve non-operative management unless it turns into a complicated type (4). Herein, we encounter a middle-aged gentleman with a preoperative diagnosis of a simple-turned-to-perforated acute appendicitis, which was noted to have omental infarction during surgery and we highlight our treatment approaches. We highlight the challenging management of acute abdomen and issues on preoperative nasopharyngeal swab testing, aerosol-generating procedures (AGP) and non-operative management.

CASE REPORT

A 36-year-old gentleman with no known medical illness nor past surgical history presented with right iliac fossa pain for two days. The pain was described as colicky in nature with no relation to food intake however it worsened upon movement. This was his first presentation with such pain and he denied any history of fall or trauma to the area. Upon abdominal examination, during admission, it was tender at the right iliac fossa with no mass or abdominal guarding felt. He was treated for acute appendicitis and was started on antibiotics & analgesics. His total white cell counts on admission were 14, however, it elevated up to 17 (normal value: $4-11 \times 10^9/L$) after 2 days of admission. In view of the hospital policy, preoperative nasopharyngeal swab testing was performed. He was well initially, but after 2 days of admission, he developed abdominal guarding which was localized to the right iliac fossa. The diagnosis was revised to perforated appendicitis and subsequently, we managed to bring him into the theatre on the same day.

Since the swab test was negative towards COVID-19, we performed the surgery as a non-COVID-19 patient. Emergency open appendicectomy through Lanz incision was undertaken. It appeared that a small area of infarcted omentum adhered loosely with the lateral abdominal wall, with mild inflammation of the appendix without any perforation or peri-appendiceal fluids. The terminal ileum was slightly dilated without any interloop collection, no Meckel's diverticulum was identified and no other significant finding was found (Figure 1). Appendicectomy with omentectomy (Figure 2) was done and sent for histological examination. He was discharged home the next day without any postoperative complications. The histology revealed a marked haemorrhage, vascular dilatation and congestion with active chronic inflammation. The appendix was normal. The final diagnosis was consistent with omental infarction with necrosis.



Figure 1: Healthy caecum identified with no evidence of tumour.

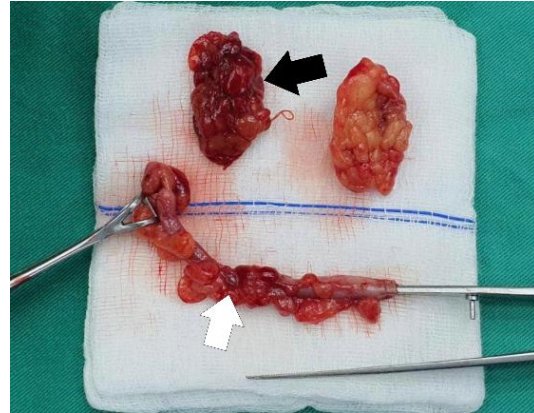


Figure 2: Macroscopic specimen showing infarcted omentum (black arrow) measuring 3 x 4 cm with another approximately same size edematous omentum which it was adhered to. Mildly inflamed appendix (white arrow) is seen at the bottom.

DISCUSSION

During the current pandemic, activities related to non-COVID-19 are apparently put on hold. Every hospital reduces elective cases, converts the laparoscopic to open surgery, and ensures care on aerosol-generating procedures such as endoscopy and laparoscopy. It is proven that performing surgery on patients with an active perioperative COVID-19 infection can lead to a very high pulmonary complication and mortality rate. In order to avoid that, the elective or emergency cases will require nasal swab as the screening prerequisites prior to admission and surgical intervention (3). However, emergency situations and complicated cancer cases like bleeding, obstructed, or perforated tumour are deemed to be surgically intervened as early as possible with or without COVID-19 status. We were fortunate as in our case, COVID-19 screening was performed by using the PCR method, and hence the surgery was performed without full personal protective equipment.

Omental infarction is a rare cause of acute abdomen with a reported incidence of 0.1% during laparotomies (6). It can be primary or secondary. The primary or spontaneous omental infarction is enigmatic. Meanwhile, the secondary cause can occur after postoperative adhesions, tumour, hernia, cyst, localized inflammation, trauma or miscellaneous namely vasculitis, hypercoagulability, and polycythaemia (6). Even our patient has a right iliac fossa pain as initial presentation; it remains a diagnostic dilemma to the attending physician as in general, the majority of the cases are not acute appendicitis (7). Other differential diagnoses that need to be in mind include Meckel's diverticulitis, mesenteric adenitis, inflammatory bowel disease especially Crohn's disease, infectious colitis, lymphoid hyperplasia, right-sided diverticulitis, caecal malignancy, carcinoid tumours, appendiceal mucocele, Valentino syndrome, acute gastroenteritis, small bowel ischaemia, pelvic inflammatory disease and so on (8).

Imaging modalities such as ultrasonography and computed tomography (CT) are informative to identify the underlying pathology. Based on the literature, ultrasonography is not sensitive but specific to diagnose omental infarction as it is able to detect abnormalities in less than 50% of the cases (9). Among the significant findings include a complex mass, a mixture of solid material, and hypoechoic zones (9). CT scan meanwhile has a higher sensitivity and specificity by recognizing a localized fat density lesion, concentric linear strands or the 'whirl' sign and hyper-attenuated streaky infiltration (10). However, since our preoperative diagnosis depends mostly on the clinical assessment, the use of imaging modalities was negligible.

The risk of exposure towards COVID-19 virus is high through the AGP such as diagnostic laparoscopy as in our case. It is best to be avoided to reduce the risk of viral transmission from AGP. The possibility of viral contamination can occur via possible release of virus in the form of an aerosol with CO₂ (11). The jet of air is to be blown through the trocars giving a chimney effect during laparoscopy. As a result, the operating theatre will be full and contaminated with aerosol materials, especially viruses hence exposing the operating staff to viral contamination (12).

Therefore, any low risk cases such as acute appendicitis should be managed via non-operative surgery or open surgery with a minimal risk.

CONCLUSION

Managing acute abdomen is challenging during the COVID-19 pandemic. The direction is mostly towards non-operative management unless it is contraindicated. It is important to take note that omental infarction must be considered one of the differential diagnoses for any patient with unexplained acute abdominal pain which warrants imaging assessment.

Conflict of interest

No conflict of interest was declared by the authors.

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