

# A rare cause of acute abdomen; A case of duodenal diverticulitis mimicking periampuller mass on Abdominal CT

## Nadir bir akut batın sebebi; BT de pankreatik kitleyi taklit eden duodenal divertikülit olgusu

Esra Ümmühan Mermi Yetiş<sup>1</sup>, Alev Günaldı<sup>1</sup>, Rahmi Çubuk<sup>1</sup>

<sup>1</sup>Maltepe Üniversitesi Tıp Fakültesi, Radyoloji Anabilim Dalı, İstanbul, Türkiye

ORCID ID: EUMY 0000-0001-6410-590X

AG 0000-0003-3142-823X

RC 0000-0002-5539-2502

Gönderim Tarihi: 23 Haziran 2020, Kabul Tarihi: 10 Aralık 2020

İletişim: Esra Ümmühan Mermi Yetiş

Maltepe Üniversitesi Tıp Fakültesi, Radyoloji Anabilim Dalı, İstanbul, Türkiye

e-mail: esraummuhanmermi@gmail.com

### SUMMARY

We aimed to present the imaging findings of a patient with duodenal diverticulitis mimicking a periampullary mass on abdominal computed tomography (CT). A 58-year-old female patient was admitted with complaints of abdominal pain, tenderness, 38.2 degrees of fever. She had high leukocyte, sedimentation, and C-Reaktif Protein (CRP) level. In the contrast enhanced Abdominal CT and Magnetic Resonans (MR)/magnetic resonance cholangiopancreatography (MRCP) images; duodenal diverticulitis was first considered in the differential diagnosis. The operation was performed on the patient and the diagnosis of duodenal diverticulitis was confirmed, and the patient was discharged after recovery. Acute abdominal pain can be perceived as minor bowel diverticulitis excluding non-Meckel. Abdominal MR and MRCP examinations greatly contribute to diagnosing cases, where mass and infection can't be differentiated in abdominal CT.

**Anahtar kelimeler:** Acute abdomen, diverticulitis, multidetector computed tomography, magnetic resonance imaging

### ÖZET

Bu bildiri amacımız abdominal bilgisayarlı tomografide (BT) periampüller kitleyi taklit eden duodenal divertikülitli olgunun görüntüleme bulgularını sunmaktır. 58 yaşında kadın hasta 3 gündür sırta yayılan karın ağrısı, hassasiyet, defans, 38.2 derece ateş ile genel cerrahi polikliniğine başvurdu. Hastada löksitoz ve sedim, C-reaktif protein (CRP) yüksekliği mevcuttu. Hastanın Kontrastlı Batın BT ve Dinamik Batın manyetik rezonans (MR) /Manyetik rezonans kolanjiopankreatografi (MRCP) bulgularında ayırıcı tanısında duodenal divertikülit ilk planda düşünüldü. Yapılan medikal tedaviye rağmen semptomlarında gerileme saptanmayan olguya operasyon yapıldı. Duodenal divertikülit tanısı doğrulanan olgu şifa ile taburcu oldu. Divertikülitler akut batın nedenlerinden biridir. Batın BT de kitle, enfeksiyon ayırımı yapılamayan olgularda Batın MR ve MRCP tetkikinin tanıya katkı sağlayacağı akıld tutulmalıdır.

**Keywords:** Akut karın, çok kesitli bilgisayarlı tomografi, divertikülit, manyetik rezonans görüntüleme

## INTRODUCTION

A diverticulum is a bulging sack in any portion of the gastrointestinal tract (1). Non-Meckel small intestine diverticular disease is rare and has been reported in 0.3–1.3% of postmortem studies (2) The prevalence of duodenal diverticulum (DD) has been found to be as high as 22% in autopsy series;1 however, most cases are asymptomatic (3). In 1913, the first duodenal diverticulum was defined radiologically (4).

Surgery considerations were postponed at this point in time due to reduction of inflammation Although the majority of periampullary diverticula are asymptomatic, occasionally non pancreaticobiliary or pancreaticobiliary complications can occur. Non-pancreaticobiliary complications are rare and may include diverticulitis, hemorrhage, perforation, or fistula formation. Pancreaticobiliary complications can present as recurrent gallbladder or bile duct stones, obstructive jaundice, cholangitis, or acute pancreatitis (5).

## CASE REPORT

Informed consent was obtained from the patient. A 58-year-old female patient was admitted to the general surgery outpatient clinic of our hospital with complaints of abdominal pain that had spread to the back for 3 days.

On physical examination, she had tenderness and defensiveness, in the right upper quadrant. She had a belt-like and abdominal pain more in the epigastric region, and 38.2 degrees of fever. In laboratory tests; there was leukocyte, sedimentation, CRP height.

On the patient's direct abdominal x-ray nonspecific gas pattern was observed. Abdominal CT examination was requested to the patient.

In contrast enhanced abdominal CT there was distention and calculus in the gallbladder. In the periampullary region, approximately 3 cm diameter hypodense lesion area was observed (Fig.1,2).

MR / MRCP examination was planned for the patient to elaborate differential diagnosis.

In Dynamic Abdominal MR / MRCP there was a lumen structure with a diameter of 3 cm and thickness increase in the wall, which is thought to be related to the duodenum at two levels of the duodenum. There

was a leveling appearance in its lumen. Heterogeneity and fluid were observed in the surrounding fat plans. In the differential diagnosis, duodenal diverticulitis was first considered. There were calculi in the gallbladder. The wall of the gallbladder is normal and no pericolistic fluid was detected. Choledocal calibration was fine (Fig.3-6).

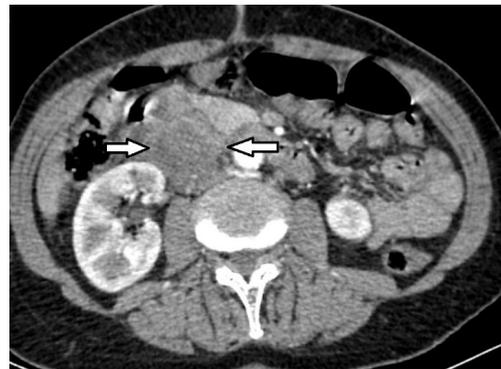
The operation was performed on the patient whose symptoms did not decrease despite the medical treatment. The patient, whose diagnosis of duodenal diverticulitis was confirmed (Fig.7), was discharged with healing 1 week after operation.

## DISCUSSION

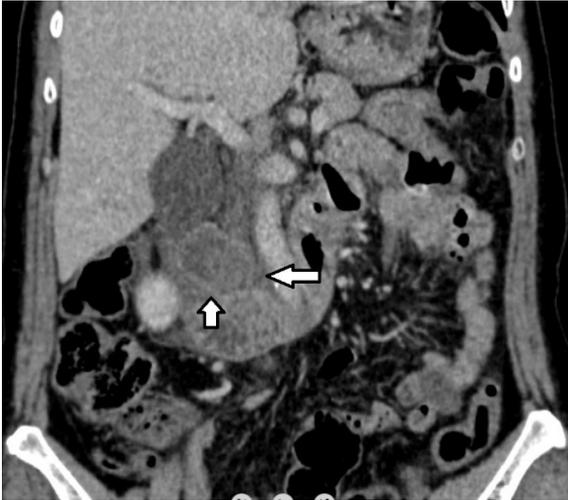
Gastrointestinal diverticula can be detected throughout the digestive system. The most common region is the colon, but the duodenum is followed. The most common form of duodenal diverticulum is periampullary diverticulum in 70-75%. Although most of the periampullary diverticula are asymptomatic, complications such as bleeding, perforation, diverticulitis, pancreatitis, cholangitis, jaundice, intestinal obstruction can be seen in 5% of the cases (6).

Abdominal CT examination may not always be sufficient for diagnosis in cases. Abdominal MR and MRCP examination help diagnosis. It is also advantageous to show additional pathologies such as gallbladder and biliary tract pathologies.

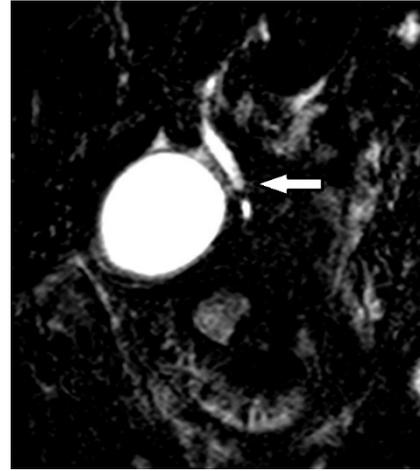
In conclusion acute abdominal pain can be perceived as minor bowel diverticulitis excluding non-Meckel. This should always be kept in mind when applying cross differential diagnosis of acute abdominal findings on examination or cross-sectional imaging. Finally, abdomina MR and MRCP examinations greatly contribute to diagnosing cases, where mass and infection can't be differentiated in abdominal CT.



**Figure 1:** Axial enhanced CT image shows periampuller hipodense mass area



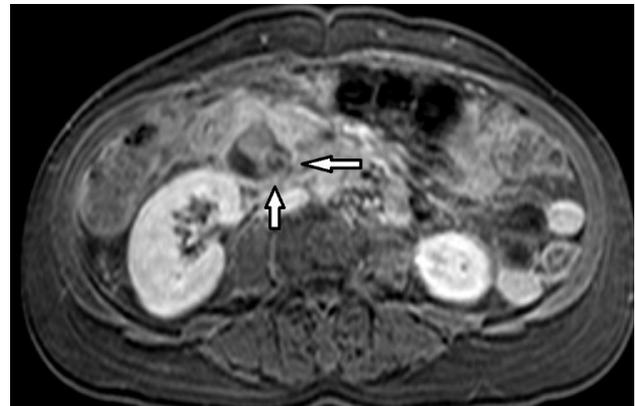
**Figure 2:** Coronal enhanced CT image shows perampuller hipodense mass area



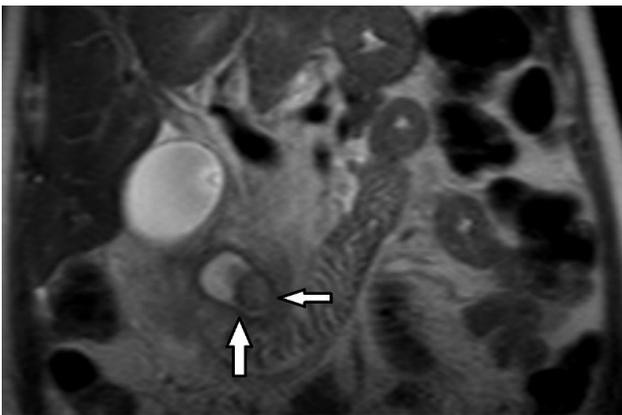
**Figure 5:** MRCP image shows normal choledoc calibration



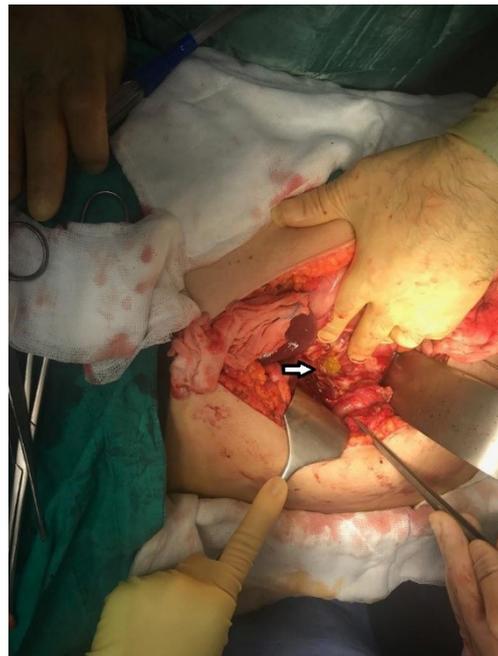
**Figure 3:** Axial T2 weighted image shows a mass area with lumen related with duodenum



**Figure 6:** Axial enhanced MR image shows nonenhanced mass area with lumen which related duodenum



**Figure 4:** Coronal T2 weighted image shows a mass area with lumen related with duodenum



**Figure 7:** Operation Picture

---

## REFERENCES

- 1) Chiu EJ, Shyr YM, Su CH, Wu CW, Lui WY; Diverticular Disease of the Small Bowel. *Hepatogastroenterology* Jan-Feb 2000;47(31):181-4.
- 2) Shamim Ejaz, Raghu Vikram , John R Stroehlein; Non-Meckel Small Intestine Diverticulitis. *Case Rep Gastroenterol.* 2017 Aug 17;11(2):462-472. doi: 10.1159/000475747
- 3) Ki Hoon Kim , Sang Hyun Park; Conservative Treatment of Duodenal Diverticulitis Perforation: A Case Report and Literature Review. *Open Access Emerg Med .* 2018 Aug 30;10:101-104. doi: 10.2147/OAEM.S168487.
- 4) Sanjay K.Mahajan, Rajesh Kashyap, Upender K. Chandel, Jatinder Mokta, Satinder S. et al. Doudenal diverticulum: review of literature. *Indian J Surg* 2004 June ;66:140-5
- 5) Keyur Desai, Joshua D Wermers, Nebiyu Beteselassie; Lemmel Syndrome Secondary to Duodenal Diverticulitis: A Case Report. *Cureus .* 2017 Mar 1;9(3):e1066. doi: 10.7759/cureus.1066.
- 6) Anil Ergin, Mehmet Mahir Fersahođlu, Bülent Kaya, Ender Onur; Lemmel's syndrome: A rare cause of abdominal pain and hyperbilirubinemia due to duodenal diverticulum. *Haydarpaşa Numune Medical Journal* 2017 Jan; 57(2): 104-106 | DOI: 10.14744/hnhj.2017.58077