




## Meckel's Diverticulum Perforation Due to Strangulated Inguinal Hernia (Littre's Hernia): A Rare Case

 Mehmet ÜSTÜN<sup>a</sup>,  
 Halit Batuhan DEMİR<sup>b</sup>,  
 Cengiz AYDIN<sup>a</sup>

<sup>a</sup>Department of General Surgery,  
University of Health Sciences  
Tepecik Training and Research Hospital,  
<sup>b</sup>Department of General Surgery,  
Ege University Faculty of Medicine,  
İzmir, TURKEY

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Correspondence:  
Mehmet ÜSTÜN  
University of Health Sciences  
Tepecik Training and Research Hospital,  
Department of General Surgery,  
İzmir, TURKEY  
dr.m.ustun@gmail.com

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**ABSTRACT** Meckel's diverticulum is remnant of omphalomesenteric ductus and it is the most frequent congenital malformation of the gastrointestinal tract. Rarely, any hernia sac contains it and named as a Littre's hernia. A 59-year-old male patient with Meckel's diverticulum perforation due to strangulated inguinal hernia, was successfully treated with diverticulectomy using linear GIA stapler and performing graft-free hernia repair. Littre's hernia may also be present in abdominal wall hernias requiring urgent surgical intervention due to incarceration. For this reason, it is important to have information about treatment management of this clinical entity.

**Keywords:** Hernia; perforation; Meckel's diverticulum

**M**eckel's diverticulum (MD) is the most common congenital malformation of the gastrointestinal tract which occurs due to the incomplete closure of the omphalomesenteric duct. The incidence is 2 to 4 % of the population.<sup>1</sup> MD is located on the antimesenteric side of ileum, between 30 and 90 centimeters from the ileocecal valve, and the size ranges from 3 to 6 centimeters.<sup>2</sup> MD in a hernia sac is described as Littre's hernia (LH). The most commonly seen is the inguinal hernia sac (approximately 50%), it also may be present in the femoral (approximately 20%) and umbilical hernia sac (approximately 20%).<sup>3</sup>

### CASE REPORT

A 59-year-old male patient was admitted to the department of emergency with swelling in the right groin that has been occurred in the last three months, and pain and redness occurred in the last 3 hours. The patient had a history of duodenal ulcer perforation operation ten years ago, and there was not any known co-morbid diseases or regular drug use. In the physical examination; auscultation and palpation of the abdomen were normal. A swelling of approximately 4 centimeters in diameter, redness, temperature increase and tenderness with palpation was found in the right inguinal region.

Laboratory values showed a significant increase in the leukocyte count (15.900 cells/ $\mu$ L). The soft tissue ultrasonography revealed necrotic lesion with heterogeneous hypoechoic fluid content with 27x15 millimeters size in the right inguinal region.

Due the initial diagnosis was inguinal abscess /incarcerated inguinal hernia, and an emergency operation was planned. During the exploration incarceration was found as the pathology. In further exploration, it was seen that terminal ileum segment in the inguinal canal and perforated MD from the anti-mesenteric side of this segment (Figure 1). Perforated diverticulum was excised using a linear GIA stapler. Then, the inguinal hernia was repaired graft free. During the follow-up period, no surgical complications occurred and the patient was discharged on the 6<sup>th</sup> day post-operatively. The pathology result of the specimen was reported as MD findings were observed in the specimens without an ectopic tissue.

Patient-informed consent for publication was obtained.

## DISCUSSION

MD usually does not reveal symptoms and incidentally found during the laparotomy/laparoscopy operation that is performed for reasons.<sup>3</sup> The lifetime complication of MD is accepted as 4%, it is more commonly seen in males and adults. The most common complication due to MD is intestinal obstruction with a 22-50% incidence. This situation by inflammation, bleeding, rarely neoplasms (3.2%).<sup>4</sup>

The clinical course of incarcerated hernias varies due to the content of hernia sac. The clinical course of the incarcerated LH may give slower and later clinical findings than the other incarcerated hernias which contain bowels. This is because the

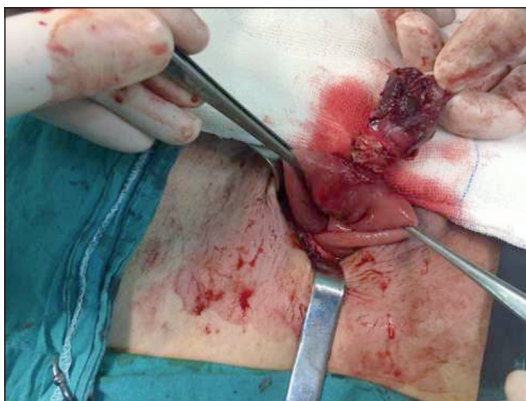


FIGURE 1: Perforated MD from the anti-mesenteric side.

small intestine lumen is not located within the hernia sac, and only the MD is involved, so this allows the intestinal passageway.<sup>5</sup> However, intestinal obstruction can occur if the base of the diverticulum is large.<sup>3</sup> In our case, although the incarceration is approximately in 3 days, the patient's intestinal passageway is open and that the patient has only complained of pain and redness in inguinal region for the last 3 hours.

The MD is a true diverticulum that contains all the layers of the small intestine also may contain heterotropic gastric, duodenal, and pancreatic tissue. Ectopic gastric mucosa may cause ulceration due to acid secretion and bleeding.<sup>5</sup> Perforation of MD may be due to circulation failure or luminal obstruction, as well as peptic ulcer perforation in the diverticulum.<sup>6</sup> In our case, the pathologic report of the specimen did not reveal any external tissue and it was thought that the cause of perforation was due to incarceration.

Treatment of LH consists of diverticulum excision and hernia repair. In perforated cases, care should be taken not to contaminate the field.<sup>2</sup> Linear staplers can be safely used in diverticula with a height-diameter ratio of more than 1.6, but if the basic of diverticulum is broad or length of diverticulum is insufficient for applying stapler, it is contraindicated to use stapler for excision because of the risk of leaving heterotropic tissue.<sup>7,8</sup>

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### Conflict of Interest

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

### Authorship Contributions

**Idea/Concept:** Mehmet Üstün, Batuhan Halit Demir; **Design:** Mehmet Üstün; **Control/Supervision:** Cengiz Aydın; **Data Col-**

**lection and/or Processing:** Mehmet Üstün, Batuhan Halit Demir; **Analysis and/or Interpretation:** Mehmet Üstün, Batuhan Halit Demir; **Literature Review:** Mehmet Üstün,

Batuhan Halit Demir; **Writing the Article:** Mehmet Üstün, Batuhan Halit Demir; **Critical Review:** Cengiz Aydın; **Materials:** Batuhan Halit Demir.

## REFERENCES

1. Sagar J, Kumar V, Shah DK. Meckel's diverticulum: a systematic review. *J R Soc Med.* 2006;99(10):501-5. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
2. Skandalakis PN, Zoras O, Skandalakis JE, Mirilas P. Littre hernia: surgical anatomy, embryology, and technique of repair. *Am Surg.* 2006;72(3):238-43.
3. Yagmur Y, Akbulut S, Can MA. Gastrointestinal perforation due to incarcerated Meckel's diverticulum in right femoral canal. *World J Clin Cases.* 2014;2(6):232-4. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
4. Dumper J, Mackenzie S, Mitchell P, Sutherland F, Quan ML, Mew D. Complications of Meckel's diverticula in adults. *Can J Surg.* 2006;49(5):353-7.
5. Malling B, Karlsen AA, Hern J. Littre hernia: a rare case of an incarcerated Meckel's diverticulum. *Ultrasound Int Open.* 2017;3(2):E91-2. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
6. Jacob TJ, Gaikwad P, Tirkey AJ, Rajinikanth J, Raj JP, Muthusami JC. Perforated obturator Littre hernia. *Can J Surg.* 2009;52(3):E77-8.
7. Mukai M, Takamatsu H, Noguchi H, Fukushige T, Tahara H, Kaji T. Does the external appearance of a Meckel's diverticulum assist in choice of the laparoscopic procedure? *Pediatr Surg Int.* 2002;8(4):231-3. [[Crossref](#)] [[PubMed](#)]
8. Palanivelu C, Rangarajan M, Senthilkumar R, Madankumar MV, Kavalakat AJ. Laparoscopic management of symptomatic Meckel's diverticula: a simple tangential stapler excision. *JSLs.* 2008;12(1):66-70. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]