



## Cases with Recurrent Hospitalization due to Unexplained Ileus: Paraduodenal Hernia

Açıklanamayan İleus Sebebiyle Tekrarlayan Hastanede Yatışı Olan Olgular: Paraduodenal Herni

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### Abstract

**Aim:** Internal hernia is one of the rare causes of surgical pathologies in the abdomen. Paraduodenal hernia (PDH) is the most frequent subtype of internal hernia. There are no specific clinical and laboratory findings for diagnosis. This situation may cause delays in diagnosis and adverse clinical outcomes in patients. Computed Tomography (CT) is an imaging method that can help in the diagnosis of internal hernia.

**Cases:** A case report of our two patients who were followed up in the clinic, who had been hospitalized with similar complaints in the past and operated for PDH has been prepared. Internal herniation is one of the pre-diagnoses that should be kept in mind, especially in the history of unexplained and recurrent hospitalization in patients with abdominal pain and signs of intestinal obstruction. Observation of hernia sac on CT and observing small intestinal loops trapped in it are the only objective findings that can help us in the diagnosis of internal herniation.

**Conclusions:** A Internal herniation is a diagnosis that should be kept in mind in patients with a history of intermittent undiagnosed intestinal obstruction and with or without a history of surgery.

**Keywords:** Paraduodenal hernia; internal hernia; mechanical intestinal obstruction

### Öz

**Amaç:** İnternal herni, batın içerisindeki cerrahi patolojiler arasındaki nadir sebeplerden birisidir. Paraduodenal herni (PDH) internal hernilerin en sık görülen alt tipidir. Tanı için spesifik klinik bulgu ve laboratuvar bulgusu yoktur. Bu durum hastalarda tanıda gecikmeye ve olumsuz klinik sonuçlara sebep olabilir. Bilgisayarlı Tomografi internal herni tanısı konulmasında yardımcı olabilecek görüntüleme yöntemidir.

**Olgular:** Klinikte takip edilen, geçmişte de benzer şikayetler ile yatışı olmuş ve PDH sebebiyle opere ettiğimiz iki hastamızın olgu sunumu hazırlanmıştır. İnternal herniasyon, karın ağrısı ve intestinal obstrüksiyon bulguları olan hastalarda özellikle açıklanamayan ve tekrarlayan yatış öyküsünde akılda tutulması gereken ön tanılardan biridir. Bilgisayarlı Tomografi görüntülemesinde herni kesesi gözlenmesi ve içerisinde sıkışmış ince bağırsak ansları gözlenmesi internal herniasyon tanısında bize yardımcı olabilecek tek objektif bulgudur.

**Sonuç:** İnternal herniasyon, aralıklı tanı konulamamış bağırsak tıkanıklığı öyküsü olan, ameliyat öyküsü olan veya olmayan hastalarda akılda tutulması gereken bir tanıdır.

**Anahtar sözcükler:** Paraduodenal Herni; internal herni; mekanik intestinal obstrüksiyon

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## INTRODUCTION

Internal herniation is a rare clinical condition. An internal herniation is the protrusion of internal organs into the abdominal cavity through the peritoneal or mesenteric opening defects. The hernia orifice is usually a pre-existing anatomical structure such as the foramen Waldeyer, Winslow, or Landzert. However, congenital intestinal rotation anomaly or peritoneal connections are important factors causing internal herniation. History of surgery in the abdomen, especially surgical changes in the mesentery and omentum, are also potential sites for internal herniation (1). Paraduodenal hernia (PDH) is the most common subtype. Life-long intestinal obstruction develops in approximately 50% of paraduodenal hernias (2). This rare condition can be diagnosed with clinical suspicion, a good anamnesis and Computed Tomography (CT). In this disease, which is difficult to diagnose, surgery should be considered if diagnosed. The follow-up and surgical process of two patients diagnosed with paraduodenal hernia, who had a history of hospitalization with similar complaints were evaluated as a case report.

**Case 1:** Patient who is 38-years-old female, presented to the emergency department with complaints of newly started abdominal pain and nausea. The pain is continuous in character, spreading to the whole abdomen and increasing intermittently in the form of cramps. The patient has gas-stool discharge. Oral intake can be tolerated. The patient had nausea and vomiting. Her vomiting include what she ate. It was learned from the patient's medical history that she had undergone two cesarean section operation. The patient has no known additional medical history. The patient had a history of admission to the emergency department and hospitalization with similar complaints two years ago. The patient was hospitalized with a preliminary diagnosis of ileus. After four days of hospitalization, the patient was discharged after her complaints regressed. She did not repeat similar complaints afterwards. In the abdominal examination, there is no tenderness, defense or rebound in the abdomen; There is a tympanic sound on percussion in the epigastric and left hypochondrium.

Laboratory values were as follows; except that the white blood cell is  $17.74 \times 10^3/\mu\text{l}$  ( $4-10 \times 10^3/\mu\text{l}$ ) and the lactate level is  $2.34 \text{ mmol/l}$  ( $0.5-1.6 \text{ mmol/l}$ ), the rest of laboratory values were normal.

Abdominal CT (Figure 1) report of the patient: Small bowel loops with distended appearance, clustered in the left upper quadrant, were observed (internal hernia?)

**Figure 1:** CT image of case report1; hernial sac and small intestinal loops trapped inside



The patient's oral intake was closed and the patient was followed up with a nasogastric tube for four days; intravenously hydrated and intravenous antibiotic therapy was administered. On the fourth day, the patient was decided to operate.

The abdomen was entered through a median incision above the umbilicus. In the abdominal exploration, the neck of the hernia sac was observed, with the entrance of the small intestine loops starting approximately 60 cm distal from the ligament of Treitz in the area corresponding to the Landzert's fossa of the patient. Two fibrous bands were seen narrowing the neck of the hernia sac. By separating the fibrous bands, the neck of the hernia sac was expanded and approximately 90 cm of small intestine loop was removed from the hernia sac. No signs of ischemia were observed in the removed intestinal loops of the patient, and vascularization and peristalsis were normal. The hernia sac was repaired by primary suturing. In the intra-abdominal exploration, intestinal loops were observed as intact and no additional pathology was detected. The operation was terminated (Figure 2).

**Figure 2:** Per-operative image of a 38-years-old female patient; black arrow fossa Landzert and the small intestinal loops entering it.

On the second postoperative day, the nasogastric tube was removed and feeding was started



gradually. The patient, who had gaseous stool discharge, tolerated oral intake, and whose laboratory values returned to normal, was discharged. The patient is followed up without complaints in the second month of the postoperative period.

**Case 2:** Patient who is 25-years-old female, presented to the emergency department with a complaint of sudden onset abdominal pain for one day. Abdominal pain was in the epigastric region. The pain spreads to all quadrants. The pain is continuous and colic. Gas-stool discharge is decreased. nausea-vomiting accompanies the pain and is in the style of what they eat. The patient could not tolerate food intake. The patient has no additional medical history.

The patient had a history of hospitalization four years ago with similar complaints with the pre-diagnosis of ileus, her internation was provided. The patient was discharged after ten days of hospitalization, with her complaints regressing. In the abdominal examination, there is tenderness in the abdomen. There is no defence, rebound or distension. Laboratory values were as follows; white blood cell  $13.81 \times 10^3 \mu\text{l}$  ( $4-10 \times 10^3 \mu\text{l}$ ), lactate:  $1.76 \text{ mmol/l}$  ( $0.5-1.6 \text{ mmol/l}$ ) urinary erythrocyte:  $11/\text{HPF}$  ( $<5\text{HPF}$ ), urinary leukocytes:  $11/\text{HPF}$  ( $<5\text{HPF}$ ), the rest of the laboratory values were normal. Abdominal CT (Figure 3) report of patient; dilatation with liquid content in the small intestines, air-fluid levels were observed (mechanical ileus).

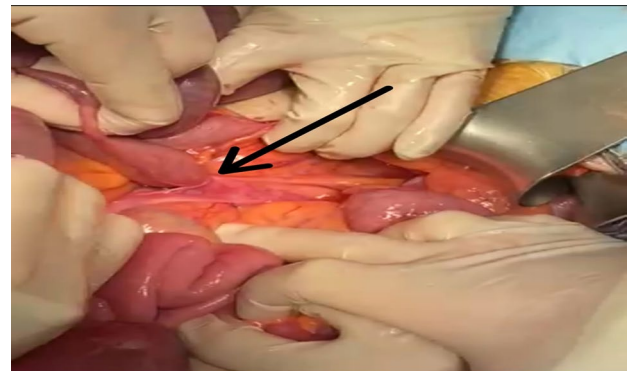
**Figure 3:** CT image of case report 2; hernial sac and small intestinal loops trapped inside.



The patient's food intake was stopped by inserting a nasogastric tube, and intravenous hydration was

provided and he was followed up for resuscitation. The decision to operate was taken on the third day of the patient's hospitalization. The abdomen was entered through a median incision above the umbilicus. When counted backwards from the terminal ileum in the area corresponding to Landzert's fossa, it was observed that the small intestine loops starting from approximately 150cm had entered the hernia sac. The neck of the hernia sac was expanded and the small intestine moments were carefully retracted. Color and peristalsis of the small intestines were normal. The hernia sac was excised. The hernia defect was repaired with primary suturing. No additional pathology was detected in the abdomen and the operation was terminated (Figure 4).

**Figure 4:** Per-operative image of the 25-year-old female patient; black arrow fossa Landzert and the small intestinal loops entering it.



In the postoperative follow-up, the nasogastric tube was removed on the first day. The patient did not have any active complaints, and the food intake was increased gradually and the patient was discharged on the sixth postoperative day without any symptoms. The patient is followed without any complaints in the sixteenth month postoperatively.

## DISCUSSION

An internal herniation is the protrusion of internal organs into the abdominal cavity through the peritoneal or mesenteric opening defects. The hernia orifice is usually a pre-existing anatomical structure such as the foramen Waldeyer, Winslow, or Landzert. However, congenital intestinal rotation anomaly or peritoneal connections are important factors causing internal herniation. History of surgery in the abdomen, especially surgical changes in the mesentery and omentum, are also potential sites for internal herniation (1). Types of internal hernia; It is paraduodenal, pericecal, foramen Winslow, transmesenteric, intersigmoid,

supravesical, pelvic, retroanastomotic, transomental hernia (3). Paraduodenal hernia accounts for approximately 53% of internal hernias and is the most common subtype among internal hernias. While clinical complaints develop in 50% of PDHs, 50% are asymptomatic (2,4).

Paraduodenal hernia; It can be divided into two classes as left PDH (from Fossa Landzert's) and right PDH (from Fossa Waldeyer). Left PDH is more common than right PDH with a ratio of 3:1 and its incidence is higher in men than in women, most patients are diagnosed between the 4th and 6th decades of their life (5,6). detect Fossa Landzert's is a congenital fusion defect of the peritoneum and the descending colon mesentery in the left upper quadrant. Fossa Waldeyer is a congenital fusion defect of the ascending colonic mesentery and peritoneum in the right upper quadrant (7).

Internal hernias are a rare clinical condition. It constitutes 0.6%-5.8% of small bowel obstructions. For this reason, it may be a situation that is overlooked in the initial evaluation of patients. Due to the lack of specific diagnostic criteria, it is difficult to diagnose and delay in diagnosis may cause traumatic consequences for patients (8). These results may range from asymptomatic follow-up to findings that progress to obstruction or strangulation (9). Intestinal obstruction develops in approximately 50% of PDHs throughout life. The mortality rate in patients experiencing acute attacks is approximately 20-50% (2). Up to 10-50% of patients diagnosed with internal hernia are diagnosed in unrelated abdominal surgeries or autopsies (10).

At the stage of diagnosis, it is recommended to take careful anamnesis from the patients. Patients may have non-specific complaints such as abdominal pain, nausea-vomiting, and decreased gas-stool discharge. The chronic description of these findings and the history of hospitalization due to previously undiagnosed intestinal obstruction are remarkable features. There are no specific laboratory findings. Computed Tomography is the most helpful method in the diagnosis phase. On CT, small intestinal loops are usually seen clustered in a pouch. There is an ans that goes into and out of the hernia sac. Closed loop obstruction may be observed. The important vascular structures adjacent to the left PDH sac are the inferior mesenteric vein and the left colic artery. The vascular structures adjacent to the right paraduodenal hernia are the superior mesenteric vein, the superior mesenteric artery, and the right colic vein (7).

Surgery should be considered when the diagnosis of paraduodenal hernia is made in symptomatic

patients. Although there are extensive surgical approaches to PDHs, there are three basic operative techniques: enlargement of the hernia defect followed by restoration of normal abdominal anatomy followed by repair of the hernia defect with or without mesh; less frequently, it includes the removal of the hernia sac and repair of the hernia defect (6).

## CONCLUSION

PDH are most common type of internal hernia and require high level of clinical suspicion for their diagnosis. Paraduodenal hernias are more commonly located on the left side. PDH is more common in man than women and affected people are most commonly detected in the 4th and 6th decades of their life. A Internal herniation is a diagnosis that should be kept in mind in patients with a history of intermittent undiagnosed intestinal obstruction and with or without a history of surgery. In order to protect patients from delayed diagnosis and related complications, close follow-up and surgical intervention are recommended to be kept in mind from the moment of diagnosis.

## Author's Contribution

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The authors disclose that no grants or support resources were used.

All authors declared their contribution to the study at all stages and approved the final version of the manuscript.

All authors declared that this manuscript has not been published before and is not currently being considered for publication elsewhere

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