



## **ATYPICAL PRESENTATION OF BOCHDALEK HERNIA IN ADULT; CASE REPORT.**

### **Yetişkin bir hastada karşılaşılan atipik bir Bochdalek fitiği olgusu; Olgu sunumu.**

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#### **ABSTRACT**

The classic congenital diaphragmatic hernia of Bochdalek is a posterolateral defect in the diaphragm thought to be caused by failure of the pleuroperitoneal canal to close. It is a common congenital anomaly, occurring in approximately one in 2.200 to 12.500 live births, but is widely considered to be extremely rare in adults. We present a case of obstructed diaphragmatic hernia (Bochdalek) with gastric volvulus in an adult male who presents with acute onset respiratory distress and frequent retching with production of little vomitus. Presence of Bochdalek hernia was confirmed preoperatively by CECT of chest and abdomen and undergone emergency laparotomy and surgical repair of the diaphragmatic defect and discharged without any postoperative complication.

**Keywords:** Bochdalek hernia, gastric volvulus, Borchardt's triad, surgery.

#### **ÖZET**

Klasik konjenital diyafragma hernisi olarak tanımlanan Bochdalek hernisi pleuroperitoneal kanalın kapanmaması sonucunda ortaya çıktığı sanılmaktadır. Oldukça sık karşılaşılan bir anomali olup, 2.200-12.500 canlı doğumdan birisinde karşılaşılan bir durum olmakla beraber erişkinlerde oldukça nadir görülür. Burada Bochdalek hernisi içerisinde gelişen mide volvulusu sonucu kusma şikayetleri ile gelen bir hasta sunulmuştur. Preoperatif dönemde Bilgisayarlı tomografi ile Bochdalek herni varlığı saptanan hastaya acil laparotomi yapıldı. Hastanın diyaframasındaki defekt primer olarak kapatıldı ve hasta postoperatif dönemde problemsiz taburcu edildi.

**Anahtar kelimeler:** Bochdalek herni, mide volvulusu, Borchardt triadı, cerrahi tedavi.

#### **INTRODUCTION**

Bochdalek hernia was first described by Victor Alexander Bochdalek, an anatomist in 1848. The hernial defect results in utero from failed closure of the pleuroperitoneal ducts, primitive communications between the pleural and abdominal cavity (1,2). It is

a common congenital anomaly, occurring in approximately one in 2200 to 12.500 live births, but is widely considered to be extremely rare in adults (3). It may be of both sided but left sided is more common than its counter parts due to the fact that pleuroperitoneal canal closes earlier on the right side (4).

We present a case of obstructed diaphragmatic hernia (Bochdalek) with gastric volvulus in an adult male.

### CASE

Our patient, an apparently healthy 19 years-old male, presented to the ER department with acute onset respiratory distress and sense of tightness in the left side of the chest followed by repeated retching with production of little nonbilious vomitus. There was no history of any trauma to chest and abdomen in the past. The patient was initially evaluated by medical team with a suspicion of spontaneous left sided pneumothorax and was subsequently referred to surgical side after performing a chest x-ray. On examination the respiratory rate was 30 per minute with accessory muscles of respiration in action, BP of 118/68 mmHg, mediastinum shifted to right and air entry was diminished in left hemithorax. Abdominal examination failed to provide us any clue.

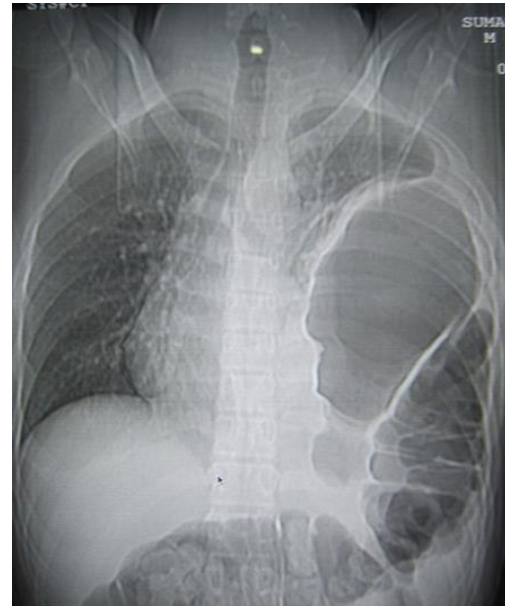
The chest x-ray showed presence of bowel loops in the left hemithorax and the left lung along with the mediastinum was compressed and shifted to the right. CECT of thorax showed almost whole of the stomach along with the part of the bowel herniated into the left hemithorax and confirmed the presence of left sided Bochdalek hernia. Attempt to insert a Ryle's tube was failed.



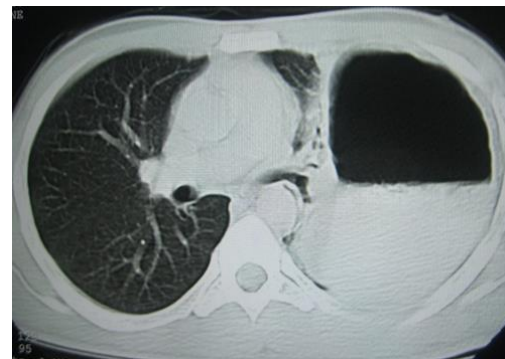
**Figure 1:** chest x-ray showing left sided diaphragmatic hernia.

Decision was made to go for emergency exploratory laparotomy with cardiothoracic backup for left antero-lateral thoracotomy if required. On exploration of the abdomen, whole of the stomach was found to be herniated into the left chest through left posterolateral diaphragmatic defect and rotated along its longitudinal axis (organoaxial). The other organs which were herniated through the same defect along with the stomach were the spleen, the splenic flexure of colon

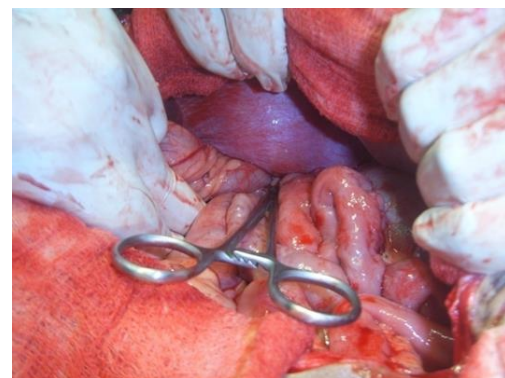
and part of the small bowel. All the contents were reduced back into the abdomen by gradual traction without injuring the vital structures and all the contents were viable after reduction. Thoracotomy was not required. The diaphragmatic defect was closed with interrupted, mattress suture by using 1-0 polypropylene and left sided ICD was placed.



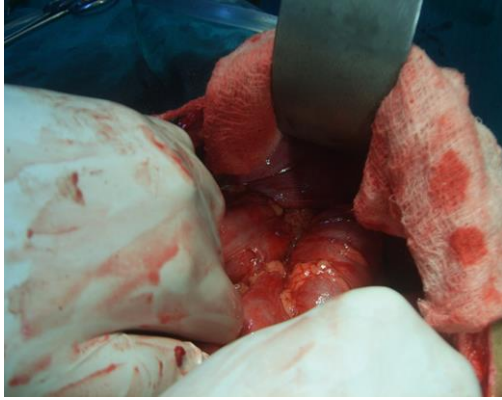
**Figure 2:** CECT chest showing herniated stomach and small bowel.



**Figure 3:** CECT showing stomach occupying the left hemithorax.



**Figure 4:** Hernial content.



**Figure 5:** Diaphragmatic gap.

Postoperative period was uneventful and postoperative x-ray showed full expansion of left lung. Chest drain was removed on 3<sup>rd</sup> POD and patient was discharged on 7<sup>th</sup> POD. The patient is absolutely fine on follow up.

### DISCUSSION

The classic congenital diaphragmatic hernia of Bochdalek is a posterolateral defect in the diaphragm thought to be caused by failure of the pleuroperitoneal canal to close (5). If the herniation is present from the time of birth, it is termed “congenital.” If the herniation forms later, perhaps because of extension of intraabdominal or perirenal fat into the thorax, it is termed “acquired.” Acquired hernias are also called “incidental” or “subacute” hernias. Bochdalek hernia most commonly manifests during the patient’s first few weeks of life. Diagnosis beyond the first 8 weeks of life is estimated to represent 5-25% of all Bochdalek hernias (6). In adults, most Bochdalek hernias are likely to be asymptomatic and thus the findings of the condition is incidental (7). The symptoms are typically vague in those patients who do experience them at the time of diagnosis. The patients may present with chest pain or describe symptoms that are generally referable to the gastrointestinal tract (8). But sometimes a Bochdalek hernia may cause life-threatening respiratory distress which mimics a tension pneumothorax as in our case (9).

Bochdalek hernia along with gastric volvulus is an extremely rare presentation. Torsion occurs along the stomach’s longitudinal axis (organoaxial) in about two thirds of cases and along the vertical axis (mesenteroaxial) in one third of cases. Most commonly, organoaxial gastric volvulus occurs acutely and is associated with a diaphragmatic defect (10,11,12). The major symptoms at presentation are abdominal pain that is acute in onset, distention, vomiting, and upper GI hemorrhage. The sudden onset of constant and severe upper abdominal pain, recurrent retching with production of little vomitus, and the inability to pass a nasogastric tube constitute Borchardt’s triad which is typical for gastric volvulus in diaphragmatic hernia (13).

Chest X-ray shows gas-fluid levels in the chest and thus suggests the diagnosis of diaphragmatic hernia

(14). Thin section CT scanning is highly accurate and should be regarded as the standard method to diagnose a Bochdalek hernia (15). Our present patient was admitted to the emergency department with such non-specific symptoms as dyspnoea and sense of tightness of left chest. Diagnosis is established by plain chest radiography, with definitive confirmation by CT scan of the thorax and abdomen. The current treatment of choice of a Bochdalek hernia is surgical repair even in asymptomatic cases because of the risk of visceral herniation and strangulation (16). Surgical treatment encompasses both reduction of the hernia and defect closure. In emergency setting both abdominal and thoracic route may be required to reduce the hernial content but in this case the hernia content was reduced successfully through the abdominal route (17). Sometimes extensive defects may not be repaired with sutures and/or endogenous tissue so prosthetic materials (mesh) should be available before surgery but in our patient it was not required (18).

In conclusion, although the vast majority of Bochdalek hernias present in infancy they may also present in adults. A high index of suspicion is required as there are no classical symptoms. The case we presented was misdiagnosed as tension pneumothorax but once correct diagnosis was made, the condition was easily repaired surgically with great benefit to the patient.

### REFERENCE

1. Rout S, Foo FJ, Hayden JD, Guthrie A, Smith AM: Right-sided Bochdalek hernia obstructing in an adult: case report and review of the literature. *Hernia* 2007;11:359-62.
2. Puri P, Wester T. Historical aspects of congenital diaphragmatic hernia. *Pediatr Surg Int.* 1997;12:95-100.
3. Yamaguchi M, Kuwano H, Hashizume M, Sugio K, Sugimachi K, Hyoudou Y. Thoracoscopic treatment of Bochdalek hernia in the adult: report of a case. *Ann Thorac Cardiovasc Surg.* 2002;8:106-8.
4. Schumpelick V, Steinau G, Schlüper I, Prescher A. Surgical embryology and anatomy of the diaphragm with surgical applications. *Surg Clin North Am.* 2000;80:213-39.
5. Reynolds M. Congenital posterolateral diaphragmatic hernias and other less common hernias of the diaphragm in infants and children. In: Shields TW, LoCicero J III, Ponn RB, Rusch VW, editors. *General thoracic surgery.* 6. Baski, Lippincott Williams & Wilkins, Philadelphia, 2005, p:761-71.
6. Nitecki S, Bar-Maor JA. Late presentation of Bochdalek hernia: our experience and review of the literature. *Isr J Med Sci.* 1992;28(9):711-4.
7. Fine R, Borrero E, Stone A. Bochdalek hernia in adulthood. *N Y State J Med.* 1987;87:516-8.
8. Hines GL, Romero C. Congenital diaphragmatic hernia in the adult. *Int Surg.* 1983;68:349-51.

9. Dalton AM, Hodgson RS, Crossley C: Bochdalek hernia masquerading as a tension pneumothorax. *Emerg Med J.* 2004;21:393-4.
10. Singleton AC. Chronic gastric volvulus. *Radiology* 1940;34:53-61.
11. Milne LN, Hunter JJ. Gastric volvulus: 2 cases and review of the literature. *J Emerg Med.* 1994;12:299-306.
12. Teplick G, Haskin M. *Surgical radiology.* 3. Baski, W.B. Saunders, Philadelphia, 1980, p:482.
13. Borchardt M. Zur pathologie und therapie des magnevolvulus. *Arch Klin Chir.* 1904;74:243-60.
14. Siegel MJ, Shackelford GD, McAlister WH. Left-sided congenital diaphragmatic hernia: delayed presentation. *AJR Am J Roentgenol.* 1981;137:43-6.
15. Gale ME. Bochdalek hernia: prevalence and CT characteristics. *Radiology* 1985;156:449-52.
16. Mullins ME, Saini S. Imaging of incidental Bochdalek hernia. *Semin Ultrasound CT MR* 2005; 26:28-36.
17. Obatake M, Nakata T, Nomura M, Nanashima A, Inamura Y, Tanaka K, et al. Congenital intrathoracic kidney with right Bochdalek defect. *Pediatr Surg Int.* 2006;22:861-3.
18. Steinau G, Dreuw B, Schleef J, Treutner KH, Schumpelick V. Diaphragm replacement - an experimental animal study. *Hernia* 1997;1:123-7.