

Bochdalek Hernia Revealed by Intestinal Obstruction in Adult: Case Report

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Abstract

Case Report

The Bochdalek hernias is a type of congenital diaphragmatic hernia (CDH) that is characterized by the persistence of a diaphragmatic breach. These hernias are most often diagnosed in the perinatal period and are rare in adults. However, acute intestinal obstruction can be a rare revealing mode in adults, and strangulated Bochdalek diaphragmatic hernia is the subject of this article. The article discusses the embryology and pathophysiology of Bochdalek hernias, as well as their clinical presentation, diagnosis, and treatment. We report a case study of a 25-year-old patient with a chronic pain in the left hypochondrium radiating to the left pulmonary hemifield, which was diagnosed as a strangulated Bochdalek diaphragmatic hernia.

Keywords: Bochdalek hernias; congenital diaphragmatic hernia; intestinal obstruction, strangulation.

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INTRODUCTION

Congenital diaphragmatic hernia (CDH) is a developmental anomaly characterized by the persistence of a diaphragmatic breach. Bochdalek hernias are the most frequent CDH (80%) and are posterolateral hernias [1]. They are most often diagnosed in the perinatal period and are rare in adults [2]. Once diagnosed, surgical repair is the recommended treatment. Acute intestinal obstruction can be a rare revealing mode in adults that the radiologist should be aware of, strangulated Bochdalek diaphragmatic hernia, is the subject of this article.

From an embryological standpoint, the foramen of Bochdalek is a 2 to 3 cm opening located in the posterior region of the fetal diaphragm, allowing communication between the pleural and the peritoneal cavities. This communication normally closes by the eighth week of development. The diaphragmatic muscle arises from the development of the septum transversum,

which develops embryologically from back to front. A Bochdalek occurs when there is incomplete fusion between the lateral and posterior parts of the diaphragm. [5.6] Generally, left-sided hernias close spontaneously with a decrease in symptoms. In such cases, mechanical reduction of the hernia can be performed [9]. However, some patients may develop severe complications with strangulation of the viscera, especially when the diagnosis is delayed [10]. Gastric volvulus is a rare but well-known complication of Bochdalek hernia [11], with mortality rates as high as 32% [12]. The abdominal organs that can herniate through this opening include the kidney, spleen, pancreas, liver (in some cases), small intestine, and colon. The predominance of left-sided hernias is likely explained by the protective role of the liver. However, in mainly retrospective studies of asymptomatic patients, right-sided hernias were found to be more common (68%) than left-sided (18%) or bilateral (14%) hernias [1, 2].

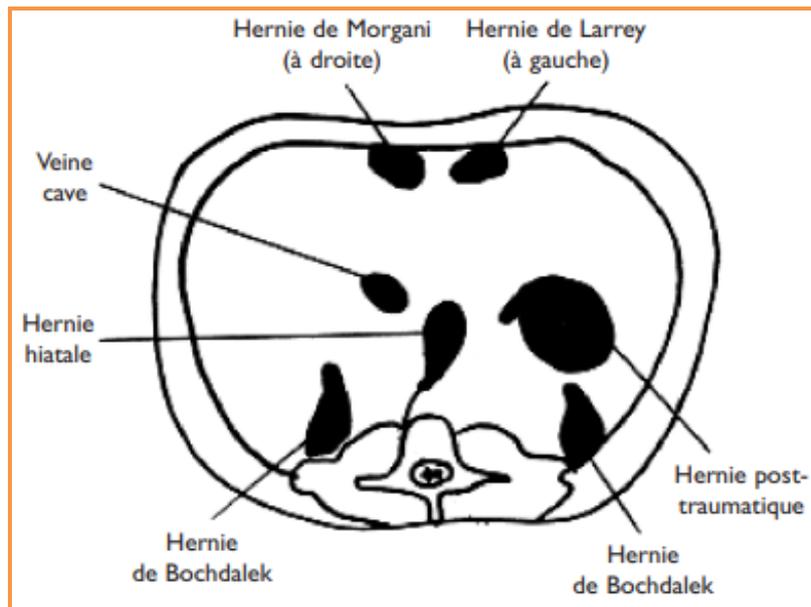


Figure 1: Diaphragmatic hernias (With thanks www.jend.de)

OBSERVATION

This is a 25-year-old patient, with no notable pathological history, admitted to the emergency room admitted for diffuse abdominal pain that has been progressively onset for 2 months, followed by a complete occlusive syndrome, cessation of materials and gas, the whole evolved in a context of apyrexia and conservation of the general state. Clinical examination found a conscious, hemodynamically and respiratory stable patient with abdominal pain and eardrums. Digital rectal examination revealed an empty rectal ampulla.

An abdomino-pelvic CT scan before and after injection of the iodinated contrast product carried out in first intention objectified a colonic distension arriving at

8.7 cm and small intestine reaching at 4.8 cm seat of hydro-aeric levels (Figure 2), upstream of a zone of caliber disparity corresponding to the strangulation of the left colic angle (Figure 3) during its passage through a left posterolateral diaphragmatic defect measuring 3.5 cm (Figure 4). Management consisted of urgent surgery under general anesthesia via midline laparotomy straddling the umbilicus. On exploration, significant distension of the cecum, ascending colon and transverse colon was noted, upstream of a strangulated left diaphragmatic hernia, the hernial sac contained the left colic angle. The procedure consisted of enlargement of the collar, reduction of the hernial contents, closure of the breach with separate stitches with silk and subhepatic drainage followed by closure of the abdominal wall.

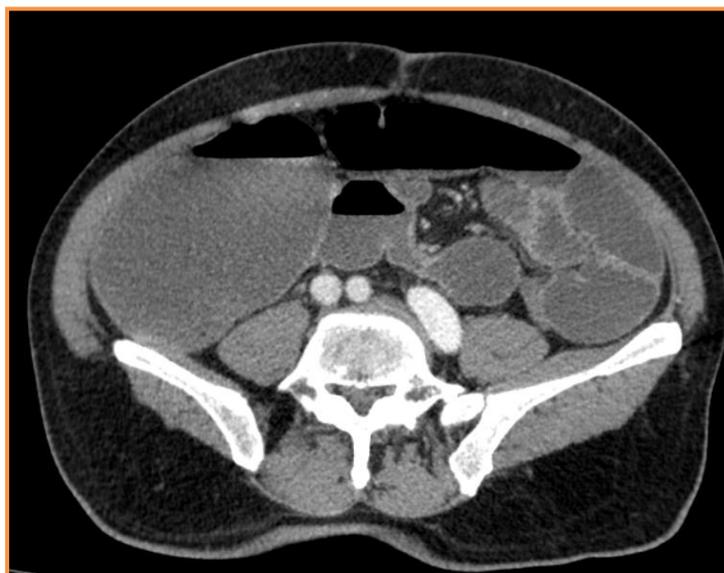


Figure 2: Abdominal CT scan in axial section shows a mixed hydro-aeric distension site of hydro-aeric levels



Figure 3: Abdominal CT scan in coronal and axial section shows the strangulation of the left colic angle during its passage through a diaphragmatic defect in the left posterolateral side



Figure 4: Abdominal CT scan in axial section shows zone of caliber disparity corresponding to strangulation of the left colic angle during its passage through a left posterolateral diaphragmatic defect measuring 3.5 cm

DISCUSSION

Bochdalek's hernia (BHD) is caused by a defect in the closure of the canal between the septum transversum and the esophagus during the eighth week of pregnancy [1]. HDB are posterolateral hernias and they are the most frequent (80%) of HDC with a prevalence on the left side (85%), right side (13%) and bilateral (2%). It is a perinatal pathology which associates a noisy symptomatology with a significant morbidity and mortality. In adults, it is a rare entity, generally discovered incidentally, without specific symptoms or signs [2,3]. In our patient, it was chronic pain in the left hypochondrium radiating to the left pulmonary hemifield with a sudden AMG that led to the diagnosis.

Late onset HDCs are rarer, 5 to 30% of cases [1-3]. The pathophysiology of delayed expression of HDC is poorly understood.

Obstruction of the diaphragmatic hernial orifice by certain abdominal organs such as the liver or

the spleen could explain the delay in the appearance of signs [3].

The pathology can be revealed during a sudden rise in abdominal pressure [3]. The semiological latency can be prolonged and the clinical signs are often absent until the revelation of the hernia [1, 2, 4]. Respiratory manifestations are predominant in young children (dyspnea, wheezing, recurrent respiratory infections, cough). The signs are more readily abdominal in older children (nausea, vomiting, abdominal pain) [2, 4, 5]. There are no pathognomonic signs. Serious pictures like the one we report, involving life prognosis and cases of sudden death have been reported [2], but remain rare. The quantity and quality of ascended abdominal organs are variable: spleen, colon, liver, stomach, kidney, tail of the pancreas [1, 4]. However, most often, colon and stomach are the two organs involved [6]. The volvulus of a hollow organ like the stomach, or full like the spleen can be a mode of revelation [5]. In these late onset cases of HDC, the left posterolateral location remains the most common (Bochdalek's hernia) [1].

On the chest X-ray, a HB can result in a heterogeneous image containing opacities and clearness of postero-lateral seat, by the presence of a gastric air pocket in intrathoracic in the event of gastric hernia, or the existence of basithoracic digestive loops [2]. However, the standard radiography has some limitations, in fact the spontaneous reduction of the hernia and the voluminous HB which can mimic a diaphragmatic eventration can be at the origin of false negatives [3]. In case of doubt, the esogastroduodenal transit and the barium enema make it possible to identify the herniated hollow viscera and the seat of the hernial neck [4]. But, on the barium transit, the HB can be confused with a hiatal hernia or with a diaphragmatic eventration. CT therefore remains the most efficient examination because it makes it possible to identify the intra-thoracic viscera, to specify the seat of the hernial neck [5]. If it is not sought, however, HB can be overlooked on CT [6]. Surgical exploration under laparoscopy or by laparotomy can also overlook HB if the surgeon is not informed. The polymorphic and non-specific clinical symptomatology as well as the limitations of chest X-rays explain why the diagnosis of HB is often made in adults on the occasion of acute complications which may be of a respiratory or digestive nature [7]. The most frequent digestive complications are the strangulation of the stomach, and the strangulation of the small intestine or the colon which are manifested by an occlusive syndrome as the case of our patient. More rarely, strangulation of the digestive tract can cause hemorrhagic ulceration, or diastatic or ischemic perforation [8]. Perforation of the digestive tract is manifested by pyopneumothorax and septic shock with sometimes sudden death [9]. Exceptionally, acute pancreatitis by strangulation of the body of the pancreas has been observed in HB, and infarctions or splenic ruptures by strangulation of the splenic pedicle [9]. Due to the seriousness of the complications, HB must be systematically operated on even if it is asymptomatic [10].

There are different operating methods for the Bochdalek hernia, either by thoracotomy or by laparotomy. Some authors prefer a thoracotomy approach for right-sided Bochdalek hernias. For those located on the left, there is the choice between thoracotomy and laparotomy [15]. The advantage of the thoracotomy approach is better observation of the herniated tissue with greater ease of reduction by adhesiolysis. The laparotomy approach allows better control of reduced organs and better access to infarcted organs as in the case of gastric volvulus which requires gastropexy. Currently, minimally invasive surgery with thoracoscopy and/or laparoscopy is more frequently used for elective corrections of the Bochdalek hernia.

CONCLUSION

Although this case of Bochdalek hernia is a rarity, it shows the difficulty of diagnosing such a hernia given the very heterogeneous symptomatology

presented by these patients. The clinician should avoid being tricked into a chest x-ray, which could simply delay the time for a correct diagnosis to be made. The examination of choice is a thoraco-abdominal CT scan which quickly leads to a correct diagnosis given the very typical images. Any clinical sign of incarceration of viscera through the Bochdalek hernia represents an absolute indication for an emergency operation and nothing should delay this treatment.

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