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Left Congenital Diaphragmatic Hernia - Case Report

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Rezumat

Hernie diafragmatică congenitală stângă - prezentare de caz

Hernia diafragmatică reprezintă ascensionarea conținutului cavității abdominale în cavitatea toracică printr-un defect localizat la nivelul diafragmului. Incidența este de aproximativ 1/2500 nou-născuți, herniile de parte stângă fiind mai frecvent întâlnite decât cele drepte (85% față de 12%). Deși majoritatea cazurilor sunt diagnosticate antenatal sau imediat după naştere, există pacienți la care diagnosticul se pune mai târziu, cu ocazia unor consulturi de rutină, ca urmare a unor traumatisme, intercurențe respiratorii, digestive sau cu ocazia complicațiilor (volvulus gastric, ocluzii, necroze, perforații, peritonite). Prognosticul pacienților cu hernie diafragmatică congenitală diagnosticați tardiv este de obicei favorabil. În cazul pacienților diagnosticați cu hernie diafragmatică congenitală cu ocazia unei complicații este indicat abordul deschis prin laparotomie sau toracotomie. Vă prezentăm cazul unei paciente în vârstă de 7 ani cu un istoric recent de traumatism care prezenta tulburări respiratorii, la care imaginea radiologică a ridicat suspiciunea unui hemopneumotorax şi s-a introdus un drenaj toracic. În clinica noastră s-a stabilit diagnosticul de hernie diafragmatică congenitală, s-a intervenit chirurgical prin abord deschis abdominal şi s-a practicat sutură directă cu evoluție postoperatorie imediată şi tardivă favorabilă.

Cuvinte cheie: Hernie Bochdalek, abord trans-abdominal, prezentare tardivă

Abstract

Congenital diaphragmatic hernia (CDH) occurs when the abdominal contents protrude into the thoracic cavity through an anatomical defect in the diaphragm. The incidence of CDH is 1 in 2500 births, with left congenital diaphragmatic hernias (LCDH) being more common than right-side hernias (85% to 12%). While many cases are discovered prenatally or during the immediate postnatal period, 5 to 25% of CDH can be late presenting events which are detected by routine examinations, during medical check-ups, because of respiratory or gastro-intestinal problems or complications such as gastric volvulus, occlusion, perforation, peritonitis or necrosis. Trans-abdominal or trans-thoracic approach is mandatory in those cases where complications have been identified. The prognosis for late presenting patients with LCDH is usually favorable. We report the case of a 7-year-old girl with recent history of trauma, who was admitted to a local hospital with respiratory distress. In our clinic, LCDH was diagnosed and closure of the defect was performed through an open trans-abdominal approach with favorable outcome.

Key words: Bochdalek hernia, trans-abdominal approach, late-presenting

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Introduction

Congenital diaphragmatic hernia (CDH) represents 8% of all congenital malformations, with an incidence of 1 in 2500 births (1,2). The pathology consists of a small defect of the diaphragm through which the abdominal organs protrude into the thoracic cavity (3).

The diagnosis of congenital diaphragmatic hernias typically occurs prior to delivery, but 5-25% of cases are late presenting, after the neonatal period. The most frequently encountered type of CDH is posterolateral hernia, through the foramen of Bockdalek, with left-sided defects being more common than right-sided hernias (85% to 12%). Anterior hernias (through the foramen of Morgagni) are found in just 1-5% of cases of CDH (3,4).

Surgical repair is performed through an open trans-abdominal or trans-thoracic approach, with the suturing of the diaphragmatic defect (5).

We report the case of a 7-year-old girl, with recent history of trauma, who was diagnosed with hemopneumothorax when evaluated in the Emergency Department for respiratory distress. The patient was transferred to our clinic, where CDH was found and surgical repair was performed with favorable outcome.

Case report

A 7-year-old girl with a history of trauma 2 days prior to admission was transferred to the surgical ward of our clinic with a massive left post-traumatic hemopneumothorax diagnosis.

The patient was admitted to a local emergency department with acute respiratory distress. A chest X-ray was performed and revealed signs of massive hemopneumothorax. A pleural drainage tube was inserted and fresh blood came through it. After having been stabilized, she was transferred to our clinic for further investigations and treatment.

On examination, the patient was in a poor physical state, she was intubated and ventilated and presented subcutaneous emphysema. Breath sounds on the left side were absent. An abdominal ultrasound was performed and the absence of the spleen in the abdominal cavity was noted. Two chest X-rays then raised the suspicion of left diaphragmatic hernia diagnosis (Fig. 1, Fig. 2).

A left subcostal incision was performed and the intraoperative findings revealed the stomach, small intestine, colon and spleen pushed into the thoracic cavity. A 1 cm solution of continuity, with anfractuous edges was discovered at the lower pole of the spleen and a non-bleeding hematoma was encountered at the splenic hilum (Fig 3). The herniated viscera were reintegrated into the abdominal cavity and a defect measuring 10/7 cm was found in the left, posterior side of the diaphragm (Fig 4). This defect was closed and peritoneal drainage was placed.

The postoperative recovery was uneventful, with radiological evaluation showing good progress. 10 days after surgery, the patient was discharged, with following check-

Figure 1. *Chest X-ray – postero-anterior view*

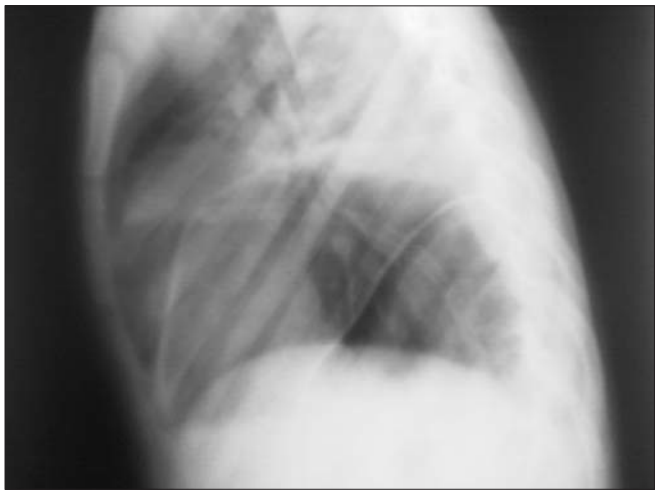

Figure 2. *Chest X-ray – lateral view*

Figure 3. *Intraoperative view: evacuated splenic hematoma and great epiploon hematoma*

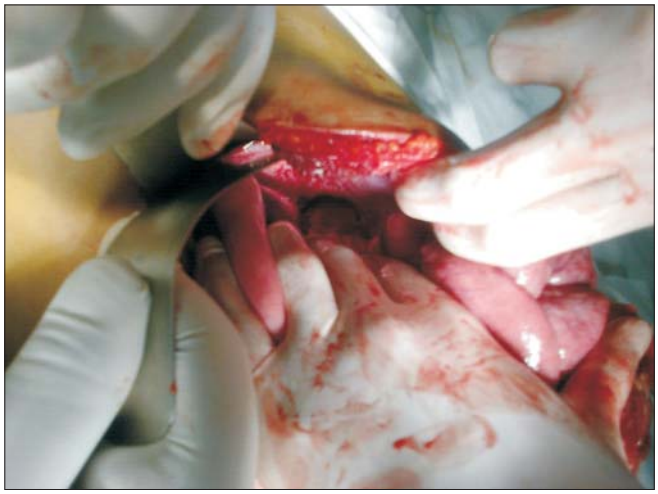

Figure 4. *Intraoperative view of the diaphragmatic defect*

ups revealing normal healing of the wound and no signs of complications.

Discussion

The most frequent type of CDH is the posterolateral defect, with left-sided hernias representing 85% of these cases, while only 12% are situated on the right side. Anterior defects through the foramen of Morgagni are less common, occurring in only 1-5% of patients with CDH. These defects tend to be right-sided (3,4). Due to the progress made in fetal ultrasonography, in 60% of cases the diagnosis of CDH occurs prior to delivery. (6) The postnatal diagnosis is based on clinical and radiological data, with symptoms usually appearing a few hours after birth.

5-25% of CDH are late presenting cases, which are diagnosed during routine check-ups, after trauma, because of complications such as intestinal occlusion, necrosis, perforation, peritonitis, gastric volvulus, respiratory or digestive discomfort (3,7,8,9,10). Such symptoms include chest and abdominal pain, dyspnea, wheezing, cough, absent breath sounds, emesis, nausea (11). Respiratory symptoms occur more often in younger patients and are more frequent in RCDH, while gastrointestinal symptoms appear in older patients and are more common in LCDH cases (3,12).

The diaphragmatic defect may not initially include the herniation of abdominal contents, thus leading to a variable age of presentation (3). The extension of the diaphragmatic defect and the moment in which the viscera protrude are of great importance. Small defects can remain undetected until acquired conditions determine an increase in the abdominal pressure, enlarging the hernia (11). Trauma to the abdomen may cause significant pressure changes in the thoracoabdominal cavities, which then leads to the herniation of the abdominal viscera through the diaphragmatic defect. The protruded viscera, especially the spleen, may present secondary lesions due to the impact of the traumatism (13).

In our case, the patient had no history of recurrent respiratory or digestive symptoms, suggesting that the herniation of the abdominal contents into the thoracic cavity was recent, most likely due to the traumatism the patient had suffered. The intraoperative findings also showed lesions to the spleen.

Establishing the correct diagnosis may prove difficult because of low suspicion or misleading radiological imaging (14). Chest X-ray is the most common method for diagnosing CDH. If CDH is suspected, an ultrasound may be useful, with further diagnostic imaging including CT scan, MRI, or upper and lower gastrointestinal contrast studies (3).

Patients diagnosed with CDH must be sent to the surgical department for proper management in order to avoid further complications. Management of patients with late presenting CDH consists of stabilization and prompt surgical repair (5,11). Open surgery is recommended, although there are some reported cases which were managed laparoscopically (11,15,16).

The prognosis of late presenting CDH patients is usually better than in those cases which were diagnosed prenatally or shortly after birth, because the management of these patients is different. Survival is between 97-100%, in comparison to neonatal CDH, with patients having uncomplicated recovery and few postoperative complications (3,17).

Conclusion

CDH is usually encountered in the neonate period, but some cases can be diagnosed in older children. We presented the case of a 7-year-old girl with recent history of trauma, presenting respiratory distress that was misdiagnosed as hemopneumothorax. Radiological investigations established the diagnosis of LCDH, with herniation of the abdominal viscera into the thoracic cavity. Surgical repair was performed, through an open abdominal approach, with favorable outcome.

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