IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 21, Issue 6 Ser.8 (June. 2022), PP 32-34
www.iosrjournals.org

Right diaphragmatic hernia revealed by late respiratory distress in newborn "Case Report"

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Abstract:
Congenital diaphragmatic hernia is characterized by an embryonic defect in a diaphragmatic dome, the incidence of which varies between 1/3000 to 1/5000 live births. The posterolateral seat through the foramen of Bochdalek accounts for 80% of congenital diaphragmatic hernias. We report a case of right congenital diaphragmatic hernias (CDH) with late onset, as well as data from the literature. The objective of this work is to focus on the diagnostic difficulties and the management of this pathology. Diagnosis and antenatal care are important elements in reducing patient mortality and morbidity. The combination of pulmonary arterial vasculopathy and pulmonary hypoplasia determine the vital prognosis, which justifies planned treatment in a neonatal center.

Keywords: *Hernie, diaphragme, diagnostic antenatal*

Date of Submission: 14-06-2022 Date of Acceptance: 29-06-2022

I. Introduction:

Congenital diaphragmatic hernia is characterized by an embryonic defect at the level of a diaphragmatic dome, the incidence of this malformation varies between 1/3000 to 1/5000 live births [1, 2, 3]. The defect is responsible for the rise of the abdominal viscera into the chest cavity.the posterolateral site through the foramen of Bochdalek accounts for 80% of congenital diaphragmatic hernias [1, 4].

Neonatal respiratory distress is the main clinical sign of this pathology. The diagnosis of diaphragmatic hernia is mainly based on standard chest radiography. The objective of this work is to focus on the diagnostic difficulties and the management of this pathology [5].

II. Patient and observation:

A 22-day-old female newborn, from an attended pregnancy, carried to term by a primiparous mother, the infectious anamnesis was negative, and the delivery was done by vaginal route with a good adaptation to the extra-uterine life with a birth weight at 3000g. The newborn was admitted for respiratory distress, in whom the examination on admission found a tonic pink newborn less reactive polypneic at 85cycle/min, heart rate at 123 beats/min and a temperature of 37.1°C. A respiratory distress quantified at 04/10 of Silverman's score associated with an abolition of the vesicular murmurs on the right with signs of malnutrition, the weight was at 2500g, the height is 51 cm and a cranial perimeter of 35 cm, the rest of the clinical examination is without particularity. A thoraco-abdominal X-ray showed the presence of hydro-areic digestive images in the thorax and a displacement of the mediastinum towards the left side A thoracic CT scan was performed showing a right diaphragmatic hernia (Figure 2). The infectious workup was normal. As part of the malformative workup, cardiac ultrasound, abdominal ultrasound and transfontanellar ultrasound were normal. The newborn was put under symptomatic treatment and then transferred to the pediatric surgery department after clinical stabilization for the surgical

procedure, which was successfully performed after 8 days of his transfer. The infant was discharged home after 4 days of the procedure, with a follow-up appointment in 15 days.

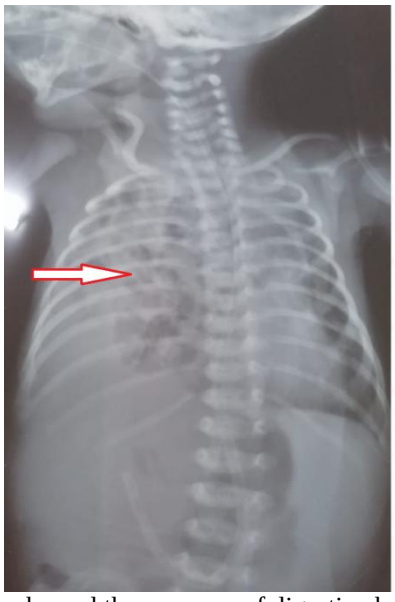

Figure1: A thoraco-abdominal X-ray showed the presence of digestive hydro-areic images in the thorax and a displacement of the mediastinum to the left side

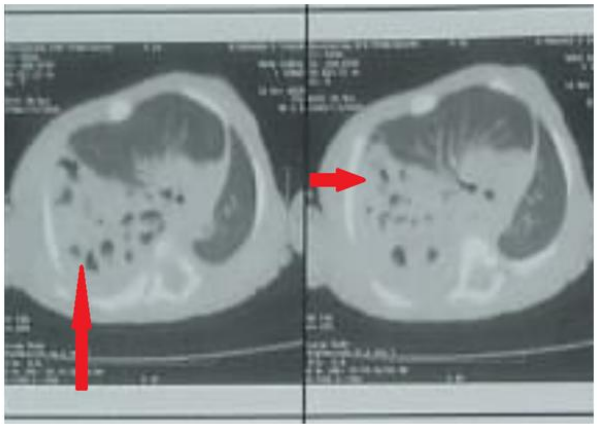

Figure 2: a thoracic CT was performed objectifying a right diaphragmatic hernia

III. Discussion:

Congenital diaphragmatic hernia (CDH) is a relatively rare malformation [6].

The formation of the diaphragm takes place from the 4th week to the 3rd month of embryogenesis. At the beginning, the three cavities, pleural, pericardial and peritoneal, communicate. The serosa then form and lean, and from the 8th week, the formation of the diaphragm occurs by colonization of the space between the serosa by myoblastic tissue.The timing of the disorder in embryogenesis determines the anatomical types of diaphragmatic hernia [7, 8].

The persistence of an orifice in the diaphragm defines CDH, with a predilection in 84% of cases at the left posterolateral level, in 12% at the right posterolateral level and it is exceptionally in both sides (2%). The size of this orifice varies from a few millimeters to complete cupola agenesis [1, 4, 5].

Congenital diaphragmatic hernia occurs 30-50% more in boys than in girls [1]. In our case, the patient is female.

The pathophysiology of delayed expression of CDH is not well 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. The pathology may reveal itself on the occasion of a sudden rise in abdominal pressure (cough, effort, vomiting, trauma) [7].

The symptomatology is usually noisy with immediate respiratory distress from birth, while our patient tolerated this malformation well which posed a delay in diagnosis hence the recourse to thoracic CT which showed the presence of a right CDH [1].

Digestive symptoms have been reported in older children (nausea, vomiting, abdominal pain). There are no pathognomonic signs. Serious, life-threatening and sudden death cases have been reported in the literature [7, 9].

The frontal chest X-ray allows the diagnosis to be made [10], whose previous normality should not exclude the diagnosis [11]. It can show images of pneumopathy, pleural fluid effusion, pneumothorax, diaphragmatic masses that can mask the diagnosis.

In the presence of any respiratory symptomatology, the chest X-ray should be examined for intrathoracic hydroaeric levels. Confirmation of the diagnosis can be made by placing an oesogastric tube and analyzing its route, which may be intrathoracic, the thoracic CT scan and the use of contrast products confirm the diagnosis and the type of CDH [7].

CDH is often associated with pulmonary hypoplasia, anatomical and functional pulmonary vascular bed abnormalities and hypodevelopment of the left heart [1]. the extent of pulmonary arterial vasculopathy (PAV) and pulmonary hypoplasia (PH) are life threatening [7, 11],which justifies planned treatment in a neonatal center [1] surgery is the radical treatment, either by median supraumbilical approach or by transverse supraumbilical approach at the level of the tip of the 10th sides. [1]

CDH is a serious pathology whose mortality in the perinatal period is estimated at 30 and 50%, in case of association of other malformations, it reaches 90% of cases [7].

Thanks to advances in antenatal and postnatal management in developed countries, the survival rate of children with diaphragmatic hernia (DH) has increased over the last 10 years. This is not the case in developing countries where the prognosis remains poor [6, 12].

Most newborns surviving the neonatal period will be exposed to respiratory complications as well as neurological, digestive, orthopedic, ENT surgical complications. This secondary morbidity justifies the implementation of therapeutic protocols and the organization of a multidisciplinary follow-up in this vulnerable population [6].

IV. Conclusion:

Congenital diaphragmatic hernia is a rare but serious condition with a very high mortality. Diagnosis remains a big problem and can impact prognosis and subsequent management. Therefore, diaphragmatic hernia should always be suspected in the presence of late respiratory distress in the newborn and suggestive imaging. Several associations with other malformations have been described and their discovery may guide the diagnosis. Careful observation of the chest X-ray and, if there is any doubt, the placement of an esogastric tube can help make the diagnosis.

Author's contributions:

All the authors contributed to the conduct of this job. All the authors also declare that they have read and approved the final version of the manuscript

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