A Rare Cause of Dyspnea in Pregnancy: Diaphragmatic Eventration

Gebelikte Nadir Görülen Bir Dispne Nedeni: Diyafragma Evantrasyonu

Diaphragmatic Eventration in a Term Pregnant

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Özet

Diyafragma evantrasyonu; diyafragma yaprağının bir kısmı veya tamamının, kalıcı olarak yükselmesidir. Gebeliğinin 35. haftasında, ilerleyen nefes darlığı ve dispeptik yakınmalar şikayeti olan hastaya Akciğer grafisi çektik. Diyafragma evantrasyonu tanısı koyduktan sonra takip ettik. Gebeliğinin 38. haftasında şikayetlerinin artması üzerine sezaryen ile doğumu gerçekleşen vakaya yaklaşımı sunuyoruz. Gebelik haftası ne olursa olsun spesifik olmayan semptomlar ile başvuran hastalarda obstetrik nedenler ekarte edildikten sonra diyafragma evantrasyonu düşünülmelidir. Tedavi yaklaşımı jinekologları, obstetrisyenleri, çocuk doktorları ve göğüs hastalıkları uzmanlarını kapsayacak şekilde multidisipliner yaklaşım ile olmalıdır.

Anahtar Kelimeler

Diyafragma Evantrasyonu; Term Gebelik; Dispne; Solunum Fonksiyon Testi

Abstract

Diaphragmatic eventration is a permanent elevation of part or all of the diaphragmatic leaf. The patient had progressive dyspnea and dyspeptic complaints at gestational week 35. She was followed up with a presumed diagnosis of diaphragmatic eventration. We present here our intervention in a case where cesarean section was performed at gestational week 38 due to progressive dyspnea. Diaphragmatic eventration should be considered after obstetric causes are ruled out in patients who present with non-specific symptoms regardless of their gestational week. The treatment approach should be multidisciplinary, involving gynecologists, obstetricians, pediatricians, and pulmonologists, as well as specialists from other branches when necessary.

Keywords

Diaphragmatic Eventration; Term Pregnancy; Dyspnea; Respiratory Function Test

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Introduction

Diaphragmatic eventration is a permanent elevation of part or all of the diaphragmatic leaf with no impairments in organ connections or costal region connections [1]. Paralysis and eventration of the diaphragm is seen quite rarely (<0.05%). However, the incidence rate during pregnancy is unknown because there are few previously described cases. As a result, the treatment approach for diaphragmatic eventration in pregnancy is unspecified. Being mostly asymptomatic, diaphragmatic eventration is often diagnosed incidentally. In addition to respiratory complaints such as dyspnea that can be progressive or can be aggravated with effort, it can also involve gastrointestinal complaints including epigastric pain and swelling, and even exhibit symptoms such as palpitation. We present here our intervention with a patient who applied to our clinic at gestational week 35 with progressive dyspnea and dyspeptic complaints, and who was diagnosed with diaphragmatic eventration and administered a cesarean delivery.

Case Report

A 33-year-old G2P1 female at her gestational week 35 presented to our outpatient clinic complaining about severe dyspnea that had started at the third trimester of her pregnancy and progressed with increasing severity. She stated in her medical history that she had experienced dyspeptic complaints persisting for years, but her first pregnancy had been totally normal. No pathology was encountered in her systemic and obstetric examinations. She was recommended outpatient monitoring with check-ups if her complaints continued. However, she presented again approximately one week later because her respiratory difficulties worsened. Her physical examination showed subcostal retractions during inspiration. The biochemical analysis were within normal limits with total white blood cell count of 8,800/µl, hemoglobin 13.8 g/dl, platelet 204 *10.e3/mikroL, urea 8.7 mg/dl, creatinine 0.47 mg/dl, AST 24 U/L, and ALT 11 U/L. After the patient was given necessary information and her consent was obtained, a posteroanterior chest x-ray was taken in her gestational week 36 with a lead vest to protect the baby. An elevation of approximately 4 cm in the left diaphragm, a rightward shift in the trachea, and a right-sided deviation in the heart were seen in her radiography (Figure 1).

This caused us to consider a diaphragmatic eventration. The patient was asked to bring in a previously taken chest x-ray, but she said that she had never had a chest x-ray taken before. Since her gestation was at full term and her complaints increased, we thought that a spontaneous vaginal delivery would worsen her condition. We decided to administer a cesarean delivery. A female infant was delivered weighing 3,410 grams with 1 and 5 minute APGAR scores of 7 and 9 respectively. The patient's respiration complaints receded partially after birth, but her dyspeptic complaints remained. On her follow-up x-ray, which was performed 2 days after the cesarean section, the cardiac shift had retreated but the diaphragmatic elevation remained (Figure 2). Her respiratory function test, performed 3 months after cesarean section, showed a restrictive disorder (Figure 3).

It was recommended that the patient have a surgical restoration of her diaphragm.



Figure 1. Diaphragmatic eventration of 35 week pregnancy

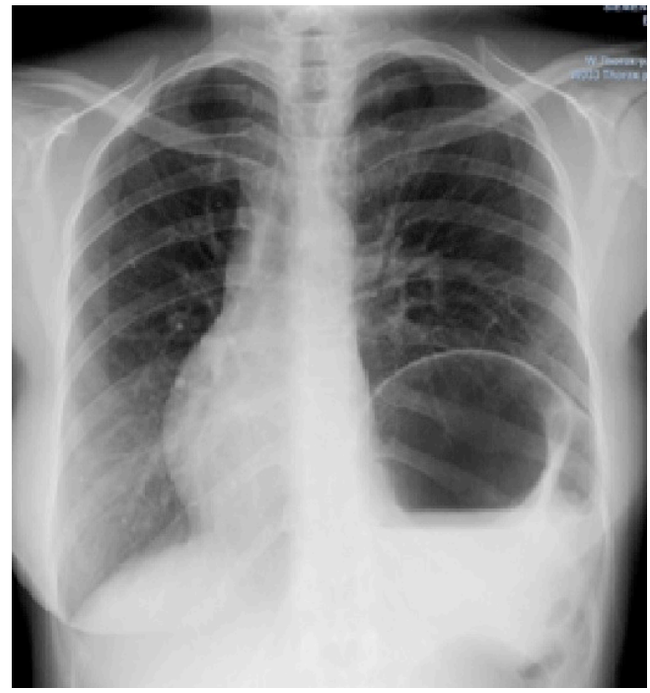


Figure 2. The cardiac shift was observed to retreat, but the diaphragmatic elevation remained after birth.

Discussion

Paralysis and eventration of the diaphragm is seen quite rarely (<0.05%). Besides being a congenital condition, it can also develop due to phrenic nerve damage secondary to a trauma, tumoral infiltrations, iatrogenic reasons, or conditions that increase the intra-abdominal pressure. It is generally asymptomatic and is incidentally encountered during an examination for another reason. It is a clinical condition often localized on the left, in which case it can be diagnosed easily. Dyspnea and orthopnea are its most frequent symptoms. Epigastric pain, burns, regurgitation, constipation, and weight loss are among its most common gastrointestinal symptoms. In advanced cas-

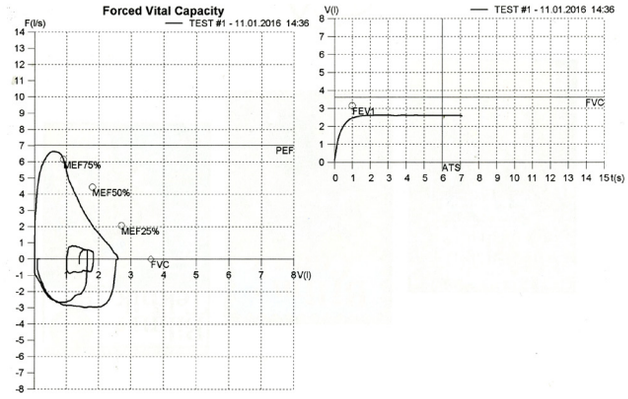


Figure 3. Respiratory function test

es, a paradoxical inward movement of the lower costal margin occurs during inspiration (Hoover's sign). It can result in ventilation-perfusion defect, respiratory alkalosis, or hypoxia. The easiest method for diagnosing it is the PA X-Ray. In a healthy person, the right hemidiaphragm is 1-2 cm higher than the left one at full inspiration. Disturbance of this situation may suggest the presence of diaphragmatic eventration. Low forced vital capacity and forced expiratory volume are observed in the first second during a respiratory function test [2]. Fluoroscopy, ultrasound, computed tomography, and magnetic resonance imaging may be utilized for diagnosis. Its treatment is surgical. Diaphragmatic repair can be performed by un-opened or opened operation techniques [3].

Nausea and vomiting in the first trimester of pregnancy and enlargement of the uterus in the second trimester, and maneuvers such as Valsalva and crystals during birth increase intra-abdominal pressure. It should be noted that these may not only lead to diaphragmatic eventration but may also worsen the existing condition and increase complaints dramatically. Since the symptoms of diaphragmatic eventration that develop during pregnancy are among the very frequently seen obstetric symptoms, it may become more difficult to make a diagnosis (4). Visceral perforation, respiratory distress, pneumothorax, and obstructive shock can be seen in advanced cases. For this reason, we should consider gastrointestinal and respiratory system pathologies after ruling out the obstetric causes in patients presenting with similar complaints. There are cases in the literature that culminate in gastric and diaphragmatic ruptures [5]. The mortality rate in such cases is quite high. In asymptomatic cases with diaphragmatic eventration during pregnancy, repair is recommended under elective conditions in the first and second trimester. At the time of elective cesarean section in the third trimester diaphragm repair is recommended, but if a normal delivery is chosen, Valsalva and crystals maneuvers should be avoided. In symptomatic cases delivery and primary diaphragm repair is recommended regardless of fetal maturity [6].

In conclusion, diaphragmatic eventration in pregnancy is a condition that is difficult to diagnose with its non-specific symptoms. It should be addressed promptly due to its potential complications. Diaphragmatic eventration should be considered after obstetric causes are ruled out in patients who present with non-specific symptoms regardless of their gestational week. The treatment approach should be multidisciplinary, involving gynecologists, obstetricians, pediatricians and pulmonologists, as well as specialists from other branches when necessary. Under optimum conditions, medicolegal responsibility calls for providing the family with proper information on possible maternal and fetal complications, obtaining their consent, and then deciding on a delivery method and diaphragmatic repair.

Competing interests

The authors declare that they have no competing interests.

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