Case Report

Dyspnea in Pregnancy: An Unusual Cause

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ABSTRACT

Eventration of diaphragm is usually asymptomatic, but can present with symptoms ranging from mild dyspnea to a life-threatening emergency. It can pose a management dilemma when diagnosed incidentally especially during the pregnancy. We report a case of eventration of diaphragm diagnosed during pregnancy and managed conservatively with a favorable feto-maternal outcome.

KEY WORDS: Dyspnea, eventration of diaphragm, pregnancy

INTRODUCTION

Diaphragmatic eventration is defined as an elevation of a hemi diaphragm without defects in the continuity. The muscular insertions are normal, the normal orifices are sealed and there is no interruption of the pleural or peritoneal layers.[1] It is due to a thin floppy attenuation of a portion of the diaphragm that allows the intra-abdominal viscera to push the diaphragm upward to encroach the lungs. As more than 50% of adult patients remain asymptomatic, this condition often goes undiagnosed. The other 25% of patient have only mild exertional dyspnea.[2] We describe a pregnant woman with eventration of diaphragm who became symptomatic at the onset of labor.

CASE REPORT

A 20-year-old primigravida, booked at our institution, was admitted at 37 weeks of gestation with complaint of mild exertional dyspnea for last 3 days and labor pains. Her dyspnea increased in supine or left lateral position. Her antenatal period was uneventful. She had no history of smoking, any trauma, accident or similar episode of dyspnea in the past.

On examination, she had a respiratory rate of 30/min. There was no pallor or pedal edema. On chest auscultation, there were decreased breath sounds on left lower side. The arterial blood gas analysis on room air showed respiratory alkalosis. Her hemoglobin was 11.2 g% and liver and kidney function tests were normal. The chest radiograph showed a high elevation of the left hemi-diaphragm up to the 7th posterior rib as a result of eventration [Figure 1]. Paradoxical movements of diaphragm were demonstrable on fluoroscopy as well as sniff test (on ultrasound) confirming the diagnosis of eventration. The ultrasonographic examination also ruled out any defect in diaphragmatic continuity. Patient went into spontaneous labor. She was nursed in propped up position, on oxygen inhalation by face mask and with preparedness for emergency caesarean section in case of increasing respiratory distress. The labor was augmented with oxytocin and second stage was cut short by conducting vacuum delivery. Both intrapartum and postpartum period were uneventful. Post-delivery her dyspnea improved and her chest radiograph showed completely normal findings indicating that diaphragmatic eventration was precipitated by pregnancy [Figure 2]. The patient was fine on her follow-up at 6 weeks and 3 months.

DISCUSSION

Dyspnea of pregnancy is common because of gravid uterus pushing diaphragm 4 cm cephalad and decrease in functional residual capacity (FRC) and total lung capacity (TLC). However, moderate to severe dyspnea needs to be evaluated. Eventration of diaphragm is mainly asymptomatic thus has been under-reported. Although diaphragmatic eventration and paralysis are two different entities, the symptomatic consequences, radiographic pictures and the

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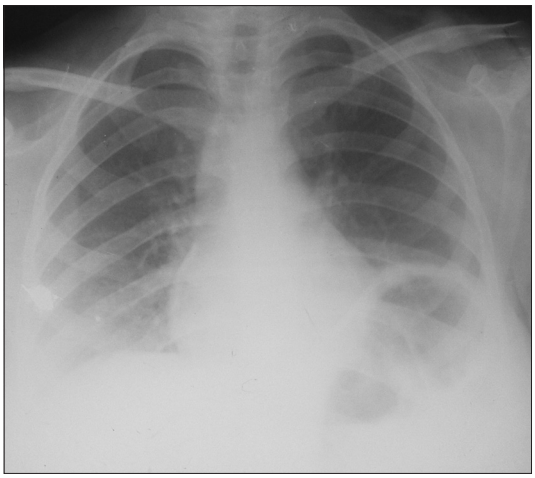

Figure 1: The left dome of diaphragm is raised lying above the level of right dome with its peak reaching up to the 7th posterior rib suggesting eventration

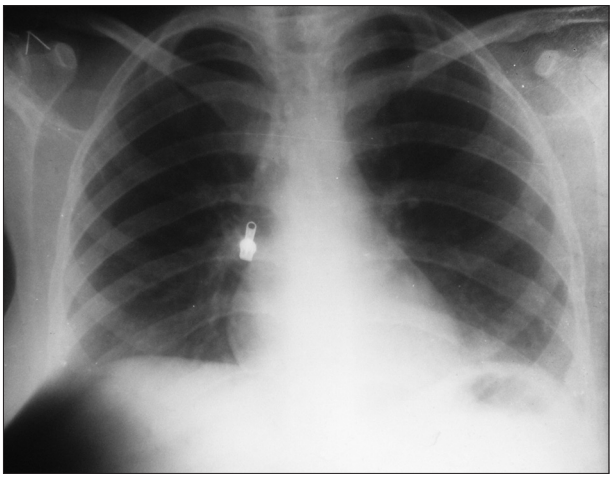

Figure 2: Post-delivery chest radiograph of the same patient showing resolution of eventration of diaphragm with normal position of the left dome at the left posterior 8th rib

therapeutic procedures are very similar and the groups of patients are analogous. For practical purposes, in most situations, the differentiation of these entities is of limited value.[1,3] Although eventration can be congenital, however it is also often due to paralysis of hemi-diaphragm which can be due to open heart surgery, mediastinal and esophageal procedure, lung transplantation, penetrating injuries or surgery of the neck and thorax, birth trauma, herpes zoster or space-occupying lesion such as aortic aneurysm, substernal thyroid and bronchogenic or mediastinal tumors.

The diagnosis can be suspected on clinical examination and chest radiography and confirmed by ultrasonography and fluoroscopy as was in our case. Clinical examination reveals dullness on percussion and absent or decreased breath sounds over the lower chest on the involved side. On deep palpation, inspiratory excursion of abdomen are less on paralyzed side, but paradoxically, the lower rib cage shows greater excursion on the side of paralysis.[2] The diaphragmatic muscle is thin and weak with either reduced, paradoxical or absent movement on fluoroscopy and ultrasonography.[4] Ultrasound may present valuable information about the integrity of the diaphragm, the content of eventration and other diaphragmatic pathologies.[5] Imaging modalities such as fluoroscopy, computed tomography and magnetic resonance imaging may be done as adjuvant techniques if diagnosis is in doubt, but are often unnecessary after ultrasound.[6] Fluoroscopy and the sniff test with paradoxic movements of the diaphragm during inspiration optimally monitored by ultrasonography aided in the diagnosis in this case also. Ultrasonography also confirmed diaphragmatic integrity.

Diaphragmatic eventration reduces the vital capacity (VC) by 25% and TLC by 15%.[1] More than 50% of adults are asymptomatic while others show mild exertional dyspnea, chest wall pain, cough or dyspnea at rest. A few others have severe exertional dyspnea associated with chest pain, while some develop dyspnea at rest especially while lying down with paralyzed side down.

Effect of eventration of diaphragm on pregnancy is not elaborately mentioned in literature and is only known through a few case reports.[7-9] Pregnancy causes physiological decrease in FRC (by 18%) and increase in tidal volume (by 30-35%), which can be further accentuated by unilateral diaphragmatic paralysis. In addition, Unilateral diaphragmatic paralysis reduces the VC by approximately 25% and TLC by approximately 15% and these changes during pregnancy can pose an increased risk of hypoxemia and respiratory failure and thus increase materno-fetal morbidity and mortality.[1]

Although cesarean section has been done in severe respiratory distress in few cases,[8-10] vaginal delivery has also been allowed in case of mild respiratory distress.[7]

There must have been some congenital weakness or hypoplasia in the diaphragm dome which precipitated the condition, making our patient symptomatic near term (the changes being precipitated by size of gravid term uterus). However, the symptoms being mild, she was managed conservatively, her labor progress was monitored and patient delivered with aid of vacuum. Her intrapartum and postpartum period was uneventful. Timely diagnosis and management resulted in a favorable maternal and fetal outcome. The patient at follow-up after 3 months was completely asymptomatic.

CONCLUSION

Asymptomatic diaphragmatic eventration can become symptomatic during pregnancy. In patients with mild

symptoms, labor can be allowed under vigilant monitoring with facility of emergency caesarean section. Operative vaginal delivery can help to avoid the cardio respiratory distress during second stage of labor. We should keep a high index of suspicion in patients developing dyspnea in later pregnancy. Simple clinical examination and chest radiograph can help in the diagnosis of this rare condition and timely intervention can lead to favorable materno-fetal outcome.

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