UNEXPECTED CAUSE OF CHRONIC COUGH IN A PREGNANT WOMAN

Magdalena Ciebiera¹, Iwona Szymusik²

¹. Students’ Research Group at the 1st Department of Obstetrics and Gynecology, Medical University of Warsaw, Warsaw, Poland
². 1st Department of Obstetrics and Gynecology, Medical University of Warsaw, Warsaw, Poland

#Corresponding author: Magdalena Ciebiera, e-mail: mciebiera93@gmail.com, Medical University of Warsaw, Żaryna St 5/82, p.o. box 02-593 Warsaw, phone number: +48 660 694 799

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ABSTRACT
Background. Cough is an interdisciplinary symptom. Chronic cough in pregnant women requires precise diagnosis, especially when it appears for the first time during pregnancy.

Case report. A 32-year old woman was seen by her obstetrician at 13th week of gestation. She had a history of miscarriage and premature birth. She did not report any medical problems and had no aberrations in a physical examination aside from abdominal wall scars caused by trauma during an assault with a knife. At 15th week of gestation the patient reported a severe, dry cough with no symptoms of infection. During the previous pregnancy the cough also appeared and ceased after delivery. She was diagnosed with asthma and gastro-oesophageal reflux and received adequate treatment. A chest X-ray performed before the pregnancy showed elevation of the diaphragm. MRI during pregnancy revealed cavity in the diaphragm and a hernia. She was referred for surgery. Meanwhile, the cough became milder and the operation was postponed. Several weeks later the cough returned. Current treatment was modified, with improvement. As there was a risk of premature birth, the patient received full cycle of steroid therapy at 27th week. The elective caesarean section was performed at 39th weeks. She gave birth to a healthy newborn. The cough regressed during puerperium.

Conclusions. The cough can be caused by a wide spectrum of factors. Carefully obtained medical history is crucial in establishing diagnosis. We should bear in mind anatomical changes in the body of pregnant women, which can potentially modify symptoms of certain diseases.
BACKGROUND

Chronic cough is an interdisciplinary syndrome. The most common causes include bronchial asthma, post-nasal drip syndrome and gastro-oesophageal reflux [1]. However, a chronic cough in pregnant women requires precise diagnosis, especially when it appears for the first time during pregnancy. Therefore, in such cases, other rarely occurring factors, should also be taken into consideration.

One of the uncommon reasons of a chronic cough is a traumatic diaphragmatic hernia [2], which is an acquired type of diaphragmatic hernias [3]. Roughly 75% of traumatic diaphragmatic hernias originate from blunt traumas and 25% are penetrating traumas (ratio ranges from 3:1 to 1:8) [4]. According to Thiam et al. only 1.3% of the abdominal and chest traumas result in diaphragm injuries [5]. Due to the often severe condition of patients who have suffered from diaphragm injuries, for example as a result of car accidents or penetrating abdominal injuries, the diaphragmatic rupture itself is frequently missed. That is why some of the symptoms can present later, during the recovery period or even several years after the incident. These are mainly symptoms resulting from the compression, strangulation or incarceration of displaced organs, such as: chest pain, abdominal pain, dyspnea, tachypnea or cough [2].

CASE REPORT

We present a case of a 32-year-old woman, gravida 3, para 2. The patient was seen by her gynecologist at 13th week of gestation. She had an eventful obstetrical history – infertility treatment, one miscarriage and one premature birth at 23rd week of gestation - the baby died shortly after delivery. Two years before she had been diagnosed with asthma, but at the time of appointment she was asymptomatic and did not take any medication. At that time she was not reporting any medical problems and had no significant changes on physical examination besides a few scars on her abdomen. As reported, they were caused by explorative laparotomy following abdominal trauma during an assault with a knife in 2006.

Due to the suspicion of cervical incompetence, she was admitted to the hospital for cervical suture at 14th week of gestation. However, the treatment was postponed because the patient reported severe, dry cough on admission. She had no symptoms of infection. She realized that in the previous pregnancy the cough had also appeared during the first trimester, lasted throughout pregnancy and withdrew just after the premature delivery at 23 weeks. Therefore, she was referred to the Department of Pulmonology. Pulmonary embolism was excluded. Spirometry, bronchial dilation test with salbutamol and methacholine challenge test confirmed asthma. Videolaryngoscopy revealed delicate features of reflux. During the review of her previous examinations, the elevated left side of the diaphragm was noted on the X-ray from May 2015. (Fig. 1, 2). The cause of this finding had not been explained. Magnetic resonance imaging (MRI) of the diaphragm and neighbouring tissues was obtained. She was discharged with the diagnosis of asthma and gastro-oesopharyngeal reflux and received adequate treatment – ranitidine and budesonide inhaler. Four weeks later, at 20th week of gestation, the patient received the MRI examination result. It revealed a 3 cm-wide cavity in the middle-back left side of the diaphragm and a hernia which contained a greater part of the stomach, distal part of the pancreas and vessels (Fig. 3, 4, 5). Moreover, there were atelectatic changes in the area of the left lung, which was in direct contact with the hernia.

The meeting of the senior staff was essential to determine further treatment. The patient was referred for surgery. In the meantime, owing to administered treatment, the cough became milder and the benefit-risk ratio of the operation leaned in the direction of conservative treatment - the continuation of ranitidine and budesonide inhaler.

After a few weeks, at 24th week of gestation, the cough unexpectedly returned, more bothersome than before. It was decided that both the surgery and the postoperative period, in which symptoms could exacerbate, carry too much risk. The fetus at that time was a viable one and in case of preterm birth or an emergency situation the obstetricians would have been forced to deliver the baby. Due to the above the operation was once again withheld. Pulmonologists intensified their current treatment, again with improvement.

As there still seemed to be a risk of preterm delivery, the patient was administered a full cycle of steroids (2x12mg of betamethasone at 27 weeks). For the remaining weeks of gestation the patient was intensively monitored. However, its course was uneventful. Due to the high risk of incarceration of the hernia during vaginal delivery, an elective cesarean section at 39 weeks of gestation was planned. A healthy baby boy was born and received 9 points according to Apgar scale. The cough slowly regressed during puerperium. Presently, a year after the delivery, the patient is asymptomatic and delays the decision regarding corrective surgery.

DISCUSSION

The traumatic diaphragmatic hernia is a very rare disorder. It was first described in 1541 by Sennertus in a letter to Hildani, who presented herniation of the stomach which had occurred 7 years after a self-inflicted wound [6]. Further documented reports have been described by Reid and originate from the year 1840 [7].

The anatomical conditions prevailing in pregnancy – the enlargement of the uterus and increasing abdominal pressure – intensify the symptoms of the diaphragmatic hernia. Such circumstances should result in increase in the detectability of such injuries in pregnant women. However, there have only been around thirty cases of traumatic diaphragmatic hernia complicating pregnancy described in English literature since 1959 [8, 9, 10, 11, 12, 13].

In the vast majority of reported cases traumatic diaphragmatic hernia caused a wide spectrum of nonspecific acute symptoms such as: severe respiratory difficulty [11], bowel obstruction [12], abdominal, mostly epigastric pain and vomiting [13], strangulation [14], or a combination of the above [15, 16]. The presented patient...
is unique, because in her case chronic cough was the main symptom of hernia. However, such a mild symptom in a pregnant woman can also be easily wrongly interpreted as an exacerbation of asthma or gastroesophageal reflux, as its occurrence in pregnancy reaches even up to 51% [17]. In some of the published reports of a traumatic hernia during pregnancy the proper diagnosis was delayed due to unspecific symptoms mimicking other more common problems, as in the case presented above [8, 10, 11].

Generally, it should be borne in mind that such condition could be potentially life-threatening. Surely, it is a rare disorder, but at the same time a silent and frequently neglected one. Along with the growing number of car accidents, traumatic diaphragmatic hernia could become an increasingly common phenomenon. These are the reasons why the knowledge of the symptoms of diaphragmatic injury is very important.

Women with such a defect should be operated on, preferably before conceiving, as the risk of the surgical procedure is always higher during pregnancy. In the described case the operation was withheld twice, because the benefit-risk ratio was always in favor of conservative treatment.

It should also be noted that in the description of laparotomy of the presented patient there was no mention of the diaphragm injury. Therefore, it should be kept in mind that medical records have to be maintained very carefully, as well as records of the operation protocols as they can be the key to the proper diagnosis.

CONCLUSIONS

Cough can be caused by a wide spectrum of factors. Carefully obtained medical history can be crucial to determining the diagnosis. We should always have in mind the substantial anatomical changes in the body of pregnant women, which can potentially modify symptoms of certain diseases.

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REFERENCES


LIST OF FIGURES

Fig. 1. Hyperechogenic lesion in the left fetal lung. Transverse scan of the chest.
Fig. 2. Bronchopulmonary sequestration in the left supradiaphragmatic area. Sagittal section of the chest.
Fig. 3. Visualization of separate circulation – abnormal artery of the lesion.
Fig. 4. Visualization of circulation originating from the aorta.
Fig. 5. Visualization of circulation originating from the aorta.
FIG. 1. HYPERECHOGENIC LESION IN THE LEFT FETAL LUNG. TRANSVERSE SCAN OF THE CHEST.

FIG. 2. BRONCHOPULMONARY SEQUESTRATION IN THE LEFT SUPRADIAPHRAGMATIC AREA. SAGITTAL SECTION OF THE CHEST.

FIG. 3. VISUALIZATION OF SEPARATE CIRCULATION – ABNORMAL ARtery OF THE LESION.
FIG. 4. VISUALIZATION OF CIRCULATION ORIGINATING FROM THE AORTA.

FIG. 5. VISUALIZATION OF CIRCULATION ORIGINATING FROM THE AORTA.