



Case report

Rib fractures with haemothorax after labor: a case report

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Abstract

Introduction: Maternal thoracic trauma during labor is extremely rare.

Case presentation: A woman was presented at the Accident and Emergency Department complaining of pain over the lower thorax bilaterally which started after a difficult delivery when the obstetrician forced her lower thorax. Small right-sided haemothorax and rib fractures bilaterally were diagnosed and she was admitted to hospital. Her in-hospital stay and follow up was uneventful.

Conclusion: Maneuvers during labor should be applied from trained personnel and should be performed safely.

Introduction

It is known that a complicated delivery can be due to different reasons such as abnormal infant position, shoulder dystokia etc. In order to deliver the infant, the obstetrician or perinatal personnel may apply different kinds of maneuvers i.e. the fundal pressure in an effort to avoid the possibility of transforming the delivery to cesarean section [1].

Many complications result from these maneuvers. For example uterine rupture may occur after fundal pressure [2], while perineal lacerations and cephalo-hematoma appear more frequently after such maneuvers application [3,4]. Scarce complications might also appear including the development of pleural effusion [5], or the

spontaneous appearance of chylothorax [6]. One case of diaphragmatic rupture to due force application on a patient's abdomen during labor has also been reported [7].

We present an unusual case of bilateral thoracic trauma (rib fractures) and small right-sided haemothorax occurred by an attempted maneuver application during labor.

Case presentation

A 29-year-old female (Greek Gipsy) was presented at the Accident and Emergency Department complaining of chest pain mainly located over the lower thoracic cage, bilaterally. The pain appeared immediately after delivery of her baby fifteen days ago and became progressively

greater. The delivery was performed in a discrete, district hospital by obstetrics and gynecology medical personnel. In addition, the patient reported that “medical staff had to apply force on her chest in order to help delivery”. The patient had a clean past medical history. On examination, tenderness above the previously mentioned area was verified. Tenderness over the right hypochondrium was also noted. Full blood count revealed anemia (Hematocrit 26.5%, hemoglobin 8.9 mg/dl). A possible pneumonic embolism was thought to be the cause of the pain, but fibrinogen, D-Dimer values and arterial blood gases were normal. An electrocardiogram was performed and proven to be normal. Chest X-ray revealed a small right-sided haemothorax (Figure 1). Rib cage X-rays were also performed, that revealed 8th and 9th rib fractures of the right hemithorax (Figure 2) and 9th to 11th rib fractures of the left hemithorax. An abdominal ultrasound was finally performed which was also normal. The patient was admitted in hospital. She was discharged on painkillers two days later and referred to the outpatient department in for further follow up. The patient’s pain subsided while the haemothorax was observed to resolve on her follow up chest x-ray fifteen days later (Figure 3).

Discussion

In general, difficult deliveries due to a variety of reasons are described in the literature (i.e. shoulder dystokia, pelvic deformities, diabetic mother) [1]. The obstetrician and the perinatal personnel who faces a complicated delivery may apply a number of different maneuvers in order to achieve childbirth. Their use and efficiency is nowadays questioned. Fundal pressure can lead to

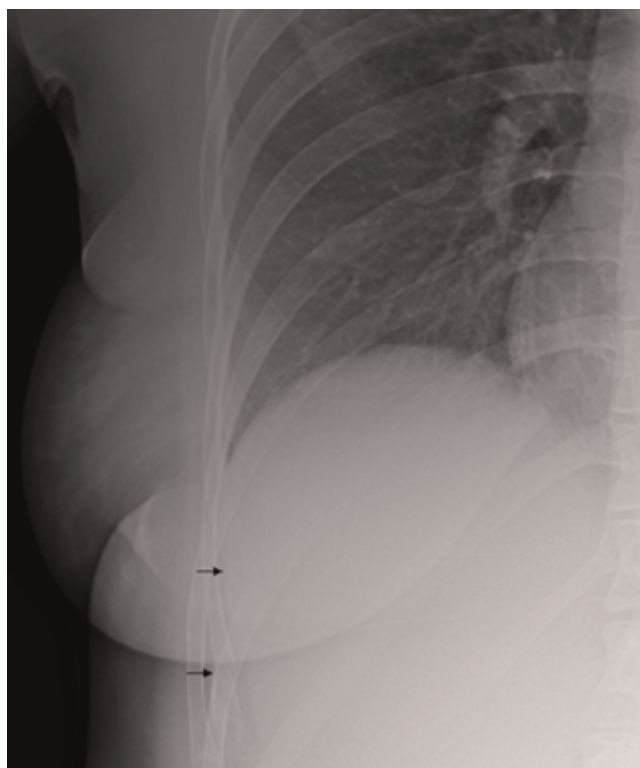


Figure 2. Right rib cage X-ray of the patient showing fractures of the 8th and 9th rib.

complications that can even be life-threatening, as is the case in uterine rupture, while delivery can be adversely prolonged [2-4]. The benefit of this maneuver in the progression of the delivery is controversial [8]. However,

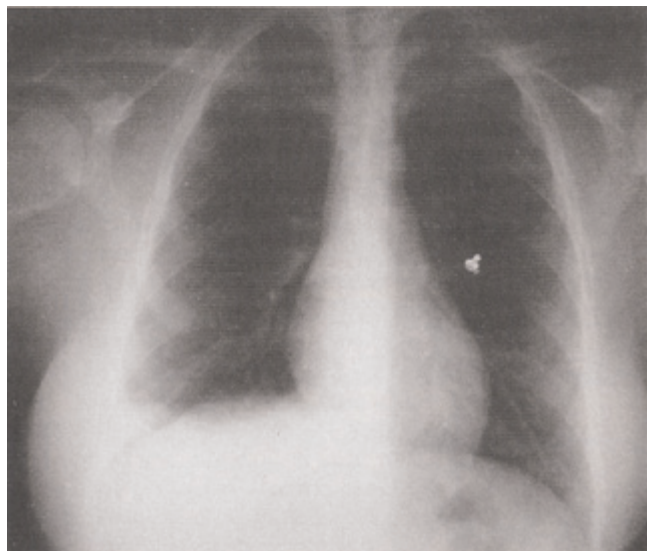


Figure 1. Chest X-ray of the patient showing right-sided haemothorax.

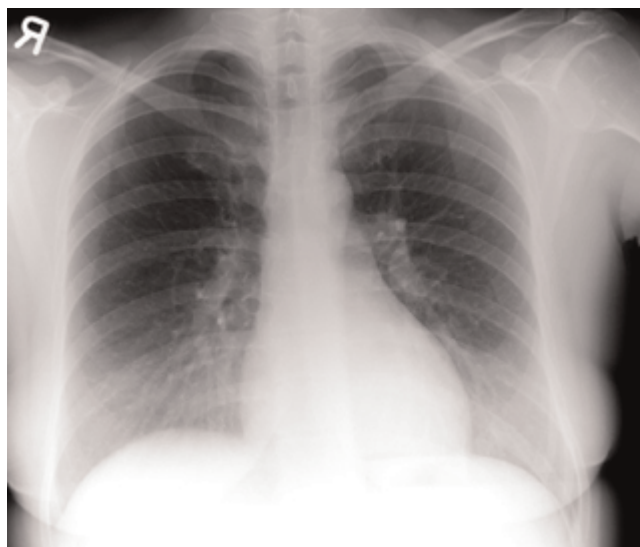


Figure 3. Chest X-ray of the patient on follow up.

expulsive force can be increased up to 86% if fundal pressure and Valsalva maneuver are used simultaneously [9]. Moreover, fundal pressure seems to be associated with uterine prolapse [10], perineal lacerations [10], or even rupture of the unscarred uterus [11]. In general, the current trend leans with the avoidance of fundal pressure application [2]. Obstetric maneuvers seem to be correlated with increased incidence of perineal lacerations, cephalohematoma and caput succedaneum [3], while their application in shoulder dystocia cases did not adversely affect maternal outcome [12]. In addition, the indecision upon the need of a cesarean section may also lead to adverse effects for either the mother or the child.

Unusual maternal complications, apart from the genital system, during labor have been previously published. Zimmermann reported a diaphragmatic rupture when the obstetrician applied force over the upper abdomen of a patient [7]. A case of chylothorax has also been reported; this was generated by the Valsalva maneuver which was done when the obstetrician asked the patient to "push". The patient eventually required thoracotomy, thoracic duct ligation and pleurodesis [6].

To our knowledge, thoracic trauma of the mother during delivery is unusual and never reported before although complications such as the development of a pleural effusion due to great intra-pleural forces acting during labor are possible [5]. The development of a chylothorax during delivery needed vigorous treatment that ended up in ligation of the thoracic duct, as mentioned before [6]. Rib fractures can be a serious traumatic finding which may be complicated by hemothorax or pneumothorax and which can lead to thoracentesis or chest tube insertion. Of course such a complication is possible to surcharge negatively to the postpartum recovery of the mother and lead to possible prolonged in-hospital stay as well as further complications may arise as is possible after thoracic trauma.

Doctors or specialized perinatal personnel should always bear in mind possible complications arising from maneuvers made for the benefit of patients in critical conditions as is the case in complicated deliveries. In such cases, 'heroic' maneuvers, wrongly, might be applied. In general, many cases do not make it to publicity due to medical – legal implications of the perinatal team involved [13]. Despite the reluctance to publish such cases, anecdotal cases are published indicating the presence of the problem [13]. Experience and training is needed in order to perform any maneuvers correctly and safely, if not possible to do otherwise. In addition, a controlled environment when possible is needed, where help and/or operating theatre facilities can be sought. Classic examinations should be ordered after thorough

identification of the traumatic mechanism. Finally, personnel dealing with deliveries should more diligently investigate postpartum complaints, in order to diagnose, treat and soothe the patient.

Conclusion

In conclusion, medical interference in critical situations such as a complicated childbirth should be careful and concurrent with the good interest of both mother and infant. The benefit of maneuvers are under discussion, but always need to be applied with care (not with hard force), and knowing that there are possible complications, that must be excluded if the patient has pain or complaints.

Competing interests

The authors declare that they have no competing interests.

Consent

We were unable to gain consent for publication, but the following conditions are met: all reasonable attempts to gain consent have been made the patient is anonymous there is no reason to think that the patient or their family would object to publication.

Authors' contributions

All authors had substantial contribution to patients management and treatment.

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