CASE REPORT

SPONTANEOUS PNEUMOMEDIASTINUM ASSOCIATED WITH SUBCUTANEOUS EMPHYSEMA CAUSING BRACHIAL PLEXUS PALSY IN A TERM NEWBORN

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ABSTRACT

Neonatal pneumomediastinum is a rare condition which often occurs in the setting of assisted ventilation in premature or diseased lungs. Brachial palsy occurs in cervical and thoracic nerve roots from birth-related trauma. We present a case of spontaneous pneumomediastinum with subcutaneous emphysema causing brachial plexus compression and palsy. A review of literature failed to reveal any similar case.

Key words: pneumomediastinum, neonate, subcutaneous emphysema, erb-duchenne, brachial plexus palsy

INTRODUCTION

Spontaneous pneumomediastinum in newborns is a rarely seen condition. It has been reported with underlying lung disease or with assisted ventilation[1]. Neonatal pneumomediastinum occurs in approximately 2.5 per 1000 live births[2]. In newborn brachial plexus injury is generally due to birth-related trauma with a reported incidence of 0.5 to 1 per 1000 live births[3]. Other causes except birth trauma are more rare and are also related to other kinds of trauma[4].

In this case report, pneumomediastinum occured spontaneously and the subcutaneous emphysema caused brachial palsy by compressing the brachial plexus.

CASE REPORT

A female baby weighing 3210 g with an uneventful antenatal follow-up, was delivered at term by an uncomplicated normal vaginal delivery. The Apgar scores were 7 at 1 min and 8 at 5 min. Mild respiratory distress was noted at birth and respiratory rate was 52/min.

Auscultation revealed crepitation over right lung and minimal reduction in breath sounds over the left lung. Heart rate was 117/min and cardiac auscultation was normal. Neonatal reflexes were normal, Moro reflex was active and symmetrically present on each side. There was a widespread protuberance at the temporoparietal region of the head and especially on the right side of the neck. On cervical ultrasound subcutaneous emphysema was visualized as thickened subcutaneous tissue with heterogenous radiolucencies over the cervical area. There were cervical subcutaneous emphysema and pneumomediastenum on the chest radiograph (Fig.1a,1b), pneumomediastinum and basal compression atelectasis on CT (Fig.2a,2b,2c). Echocardiography was normal. Full blood count, blood biochemistry and arterial blood gases were in normal range. The baby was put on hood oxygen and followed-up. After 6 hours, Moro reflex was weak but grasping reflex was normal and Erb's palsy, which wasn't present on initial examination was detected. By 2 days of age her respiratory distress, clinical and radiological findings caused by subcutaneous emphysema began to resolve. Chest x-ray films obtained at 2nd day revealed complete resorption of pneumomedistinum; Erb's palsy was still present. By day 12, the baby was discharged from the hospital and followed up by the neurology clinic.

DISCUSSION

Spontaneous pneumomediastinum is rare and often occurs during the setting of assisted ventilation of premature or diseased lungs or physical traction during delivery[1]. Alveolar rupture secondary to increased pressure or overdistension leads to air dissection along perivascular and peribronchic tissues up to the hilum of the mediastenum and to the soft tissues of the cervical region that results in subcutaneous emphysema[5, 6].

In our case none of the causes of pneumomediastinum was found and it was determined that the pneumomediastinum occured spontaneously. In literature, it is pointed that the cause of

spontaneous pneumomediastinum may lie in the rupture of the relatively underdeveloped alveoli coupled with vigorous respiratory efforts at birth[1]. The incidence of subcutaneous emphysema in spontaneous pneumomediastinum is 60%[5]. In our patient subcutaneous emphysema that occured just after birth, was prominent at the right side of the neck although it encased the whole neck and was the cause of brachial palsy. Congenital brachial palsy is the result of trauma at birth to the brachial plexus resulting in streching, rupture, or avulsion of some or all of the cervical and first thoracic nevre roots[3]. Brachial palsy occur usually in large babies. It is associated with a good prognosis. Recovery of neurologic function is usually spontaneous and may occur within 48 hours; however, it can take up to 6 to 18 months[7, 8].

In conclusion, we report a rare occurance of spontaneous pnemomedisatinum with subcutaneous emphysema causing brachial plexus palsy.

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Fig. 1a

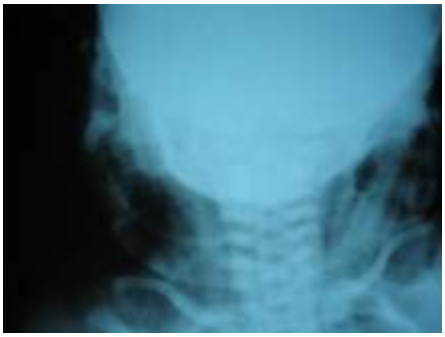

Fig. 1b

Fig 1a, 1b: **Cervical subcutaneous emphysema and pneumomediastenum in chest radiograph**

Fig. 2a

Fig. 2b

Fig. 2c

Fig 2a, 2b, 2c: Pneumomedeiastinum and basal patches of compression atelectasis on CT