



Pneumoperitoneum: Think above Gut Perforation

Dr. R. Praveen, Dr. V. Prakash, Dr. Arasar Seeralar

1Resident, DM (Neonatology), Department of Obstetrics & Gynaecology, Institute of Obstetrics & Gynaecology, Madras Medical College, Chennai

2Assistant Professor, Department of Neonatology, Institute of Obstetrics & Gynaecology, Madras Medical College, Chennai

3HOD, Department of Neonatology, Institute of Obstetrics & Gynaecology, Madras Medical College, Chennai

ABSTRACT

Pneumoperitoneum is a surgical emergency. Commonest cause in a neonate is hollow viscus perforation either secondary to Neonatal enterocolitis (NEC) or spontaneous perforation. The usual management of this is an exploratory laprotomy. We report 2 rare cases of pneumoperitoneum, one with pneumoscotum, secondary to air leak (pneumothorax) in the congenital diaphragmatic hernia. Both babies were managed with chest drain, with a resolution of pneumoperitoneum preoperatively.

Keywords: *Pneumoperitoneum, Gut Perforation.*

INTRODUCTION

Air leak in any form or place is an emergency. The cardiovascular compromise as a consequence of this necessitates immediate intervention. Pneumoperitoneum in the neonate is a surgical emergency. The treatment of this condition had evolved from laprotomy to all neonatal pneumoperitoneum in 1970's to selective paracentesis for sick perforated NEC, to conservative management. The evolution of these treatment options followed the insight into various benign and non-surgical causes of pneumoperitoneum. We present 2 rare cases CDH presenting with air leak syndrome in the form of pneumoperitoneum.

Case – 1

Male neonate diagnosed antenatally to have Left Congenital Diaphragmatic Hernia at 2nd trimester scan. The baby was born at 37 weeks period of gestation, delivered by elective caesarean section with the Birth weight of 2.4 kilograms. Baby required resuscitation at birth requiring Bag and tube ventilation. The baby was on High Frequency ventilation. The baby developed a bilateral pneumothorax, progressed to pneumoperitoneum. The baby was treated with a bilateral chest drain and ventilator strategies. Baby succumbed to post op complication, with PPHN. [Fig.1, 2]

Case – 2

A female neonate born at 36 weeks period of gestation, the baby was delivered by emergency caesarean section, for fetal distress. Birth weight of the baby was 2.1 kilograms, detected to have Left sided CDH postnatally. The baby developed a left sided pneumothorax, on mechanical ventilation, further worsened with pneumoperitoneum. Baby deteriorated progressively, succumbed to illness with refractory shock. [Fig.3, 4]

DISCUSSION

The incidence of congenital diaphragmatic hernia is 1 in 2000–5000 live births. Pulmonary hypoplasia is an important component in congenital diaphragmatic hernia [1]. The management strategies of this entity evolved from aggressive ventilation and early surgery to gentle ventilation, stabilization, and elective surgery. In spite of these changes, pneumothorax remains one of the main complications, with an incidence ranging from 18 – 36% [2]. This predicts a 50% mortality in pneumothorax complicating CDH [3].

The causes of pneumoperitoneum in a neonate include perforation of hollow viscous due to complicated Neonatal enterocolitis (NEC), idiopathic gut necrosis, secondary to volvulus, complicated meconium ileus, Hirschprung’s disease or Meckel’s diverticulum [4]. We present, a rare cause of pneumoperitoneum in a neonate - caused secondary to pneumothorax in CDH. The proposed Mechanism of pneumoperitoneum secondary to ventilation. [Fig .5]

To the best of our knowledge, there is a paucity of literature in neonates for this entity.

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Figure 1: Pneumothorax with Pneumoperitoneum



Figure 2: Pneumoperitoneum Drained with ICD



Figure 3: Case No 2: Pneumothorax with Pneumoperitoneum



Figure 4: Case No 2: Pneumoperitoneum drained with intercostal tube

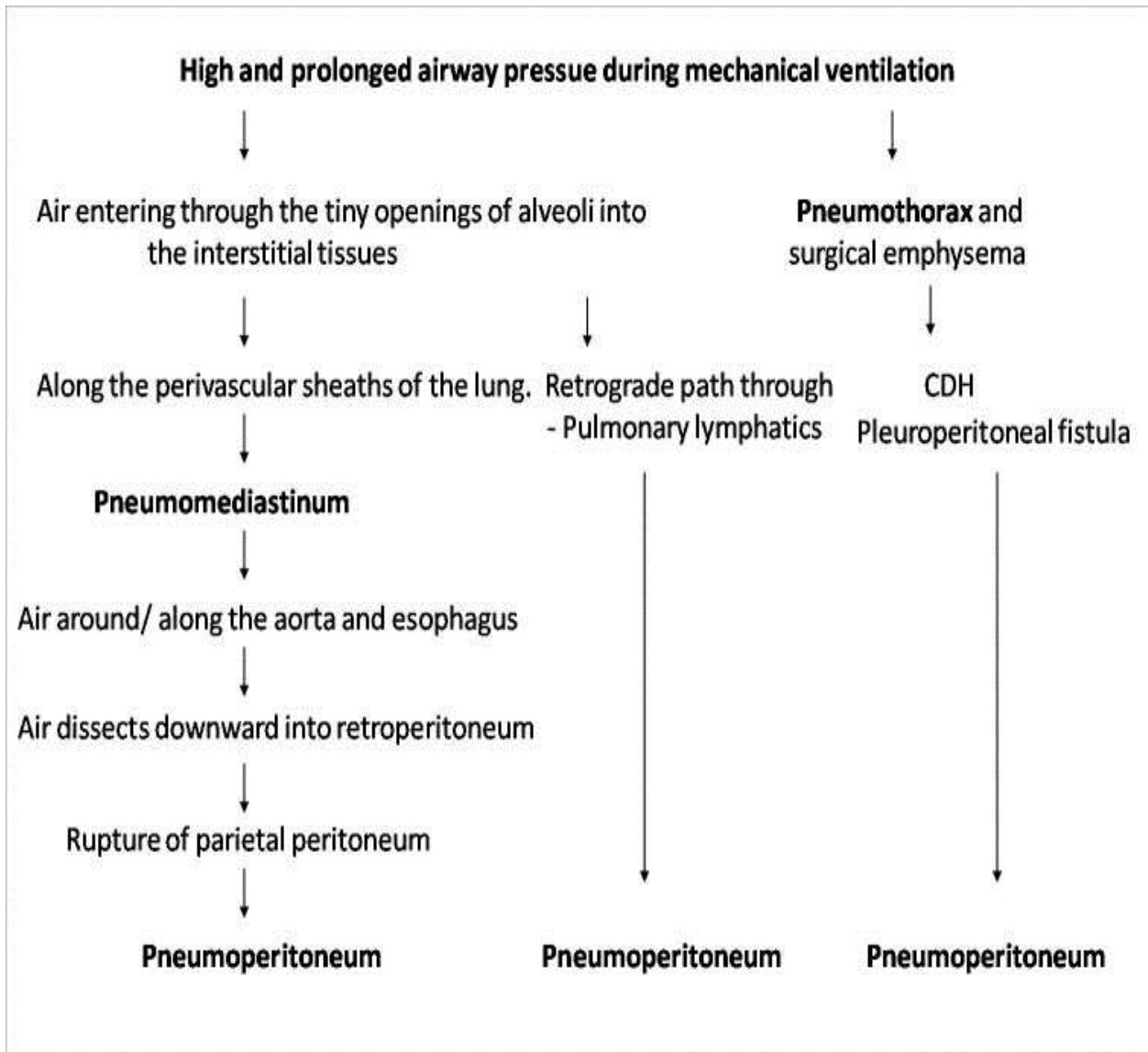


Figure 5: Pneumothorax as a Source for Pneumoperitoneum