September 23rd, 2023 08:00 - 09:00

POSTER WALK – LUNG 6

# ID 857. Lung agenesis in a preterm infant: follow-up and lung function test findings in the first months of life.

**Doctor Stefano Nobile**[1], Dr. Chiara Di Sipio Morgia[1], Dr. Roberto Chioma[1], Dr. Paola Catalano[1], Dr. Francesca Riitano[1], Dr. Letizia Patti[1], Dr. Alessandro Perri[1], Dr. Alessandra Lio[1], Prof. Giovanni Vento[1]

[1]Fondazione Policlinico Universitario A. Gemelli Irccs, Rome, Italy

Background

Lung agenesis is a rare, non–syndromic malformation characterized by unilateral complete absence of lung tissue, bronchi, and pulmonary vessels. It may be isolated or associated with congenital malformations. Presentation is variable including stridor, respiratory distress, recurrent respiratory tract infections, and pulmonary hypertension. Lung agenesis may be associated with progressive lung function impairment secondary to the poor development of the tissues, associating skeletal alterations and recurrent respiratory infections. Some patients are asymptomatic in infancy thanks to the compensatory hyperinflation of the contralateral lung. Thus, serial assessment of lung mechanics and pulmonary gas volumes are important to assess prognosis and guide management.

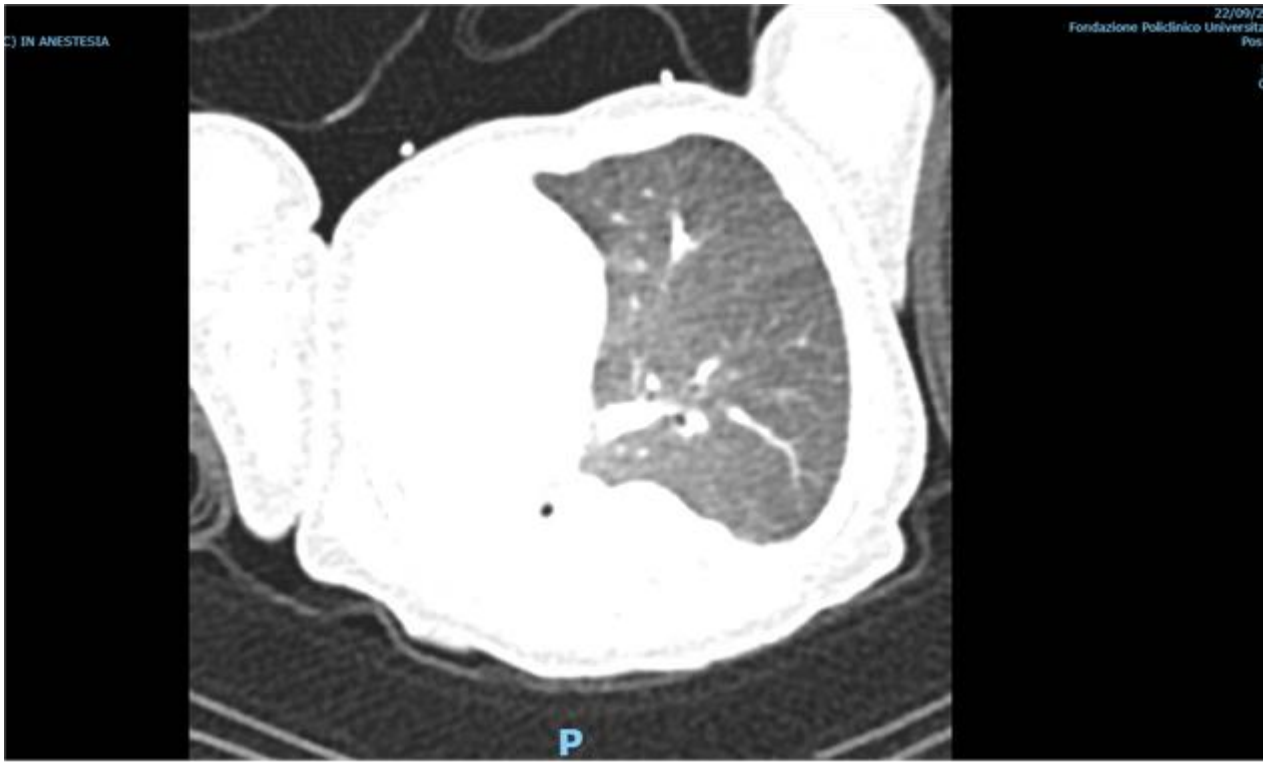
Case report

We report a female preterm infant (323/7 weeks of gestation) born by planned caesarean section from a monochorial biamniotic pregnancy, characterised by polyhydramnios and suspected congenital pulmonary malformation with right mediastinal shift in this twin. Parents are not related and family history was

uneventful. The infant developed RDS soon after birth and was treated with nasalCPAP for 48 hours (no oxygen need). Chest CT scan indicated right lung agenesis with left lung hyperplasia, right mediastinal shift, anomalous origin of left common carotid artery from innominate artery. A right supernumerary rib was noted, and no other malformations. The infant had transient moderate thrombocytopenia and received caffeine for apnoea of prematurity. She was discharged at term–equivalent age in good conditions and reported uneventful follow–up at 8 months' chronological age (apart from paucisymptomatic COVID–19 infection at 7 months); she got scheduled vaccines and palivizumab prophylaxis. Genetic analysis is pending. Tidal breathing flow volume analysis was performed with the ExhalyzerD (Ecomedics, Switzerland) at 1 and 4 months' chronological age. Tidal volume was stable (8  7 ml/kg), respiratory rate markedly decreased (120  60 breaths/min), time to peak expiratory flow/expiratory time ratio physiologically decreased (36.9  23.5), end–tidal CO2 increased (1.51  3.35), respiratory quotient was stable (0.7  0.75). Strict follow–up is planned.

Conclusion

We report a rare case of a moderate preterm infant with right lung agenesis with mild respiratory symptoms at birth. Respiratory follow–up suggests catch–up growth of the contralateral lung and is useful to assess lung function development.




CT scan showing right lung agenesis.

CT scan showing right lung agenesis.

None declared.

# ID 658. CONGENITAL DIAPHRAGMATIC HERNIA: A RETROSPECTIVE STUDY OF 22 CASES

Doctor Khlifi Ameni[1], **Doctor Barka Meriam**[1], Doctor Mghirbi Oussama[1], Doctor Taamli Maha[1], Doctor Brahem Donia[1], Professor Nouri Sonia[1], Professor Mahdhaoui Nabiha[1]

[1]Neonatology department of Farhat Hached University Hospital In Sousse–tunisia, Sousse, Tunisia

Background: Congenital diaphragmatic hernia (CDH) is a congenital defect in the diaphragm that allows herniation of abdominal viscera into the thorax. It's a life–threatening disease associated with a variable degree of pulmonary hypoplasia and persistent pulmonary hypertension (PPH). Despite remarkable advances in neonatal resuscitation and intensive care, the rates of mortality and morbidity in the newborn with CDH remain high as the result of severe respiratory failure.

Methods: Retrospective study during a period of 10 years (January 2013–December 2022) that concerned 22 newborns with CDH hospitalized in the NICU of Sousse.

Results: We identified 22 cases of CDH: 13 were left and 9 right. A male predominance was noticed. The antenatal diagnosis of CDH was made in only 4 cases. Four of our patients were premature and 18 were born at term. The route of delivery was by caesarean section in 7 cases and normal delivery in 15 cases. Clinical symptoms were immediate neonatal respiratory distress in 20 cases and delayed distress in the other 2 cases. Clinical symptomatology was dominated by heart sound deviation in all cases, bulging thorax in 6 cases, flat abdomen in 5 cases. Four patients had the classic triad of CDH. Thoraco–abdominal radiography had confirmed the diagnosis in all cases. OHF was the ventilatory mode used in first intention in

86% of cases. The median age of surgery was 2.5 days. 1/3 of our patients were operated after clinical stabilization. The abdominal contents are reduced, and the edges of the diaphragm are then approximated. The other 15 patients did not undergo surgery due to complications of CDH with impossibility of displacement (average age of death was 52 hours). PPH requiring NO was present in 12 patients. Vasoactive drugs were indicated immediately for 17 cases. For the 6 survivors, extubation was successful on average at around the age of 9 days with total weaning of oxygen at day 30 and discharge at day 40 of life.

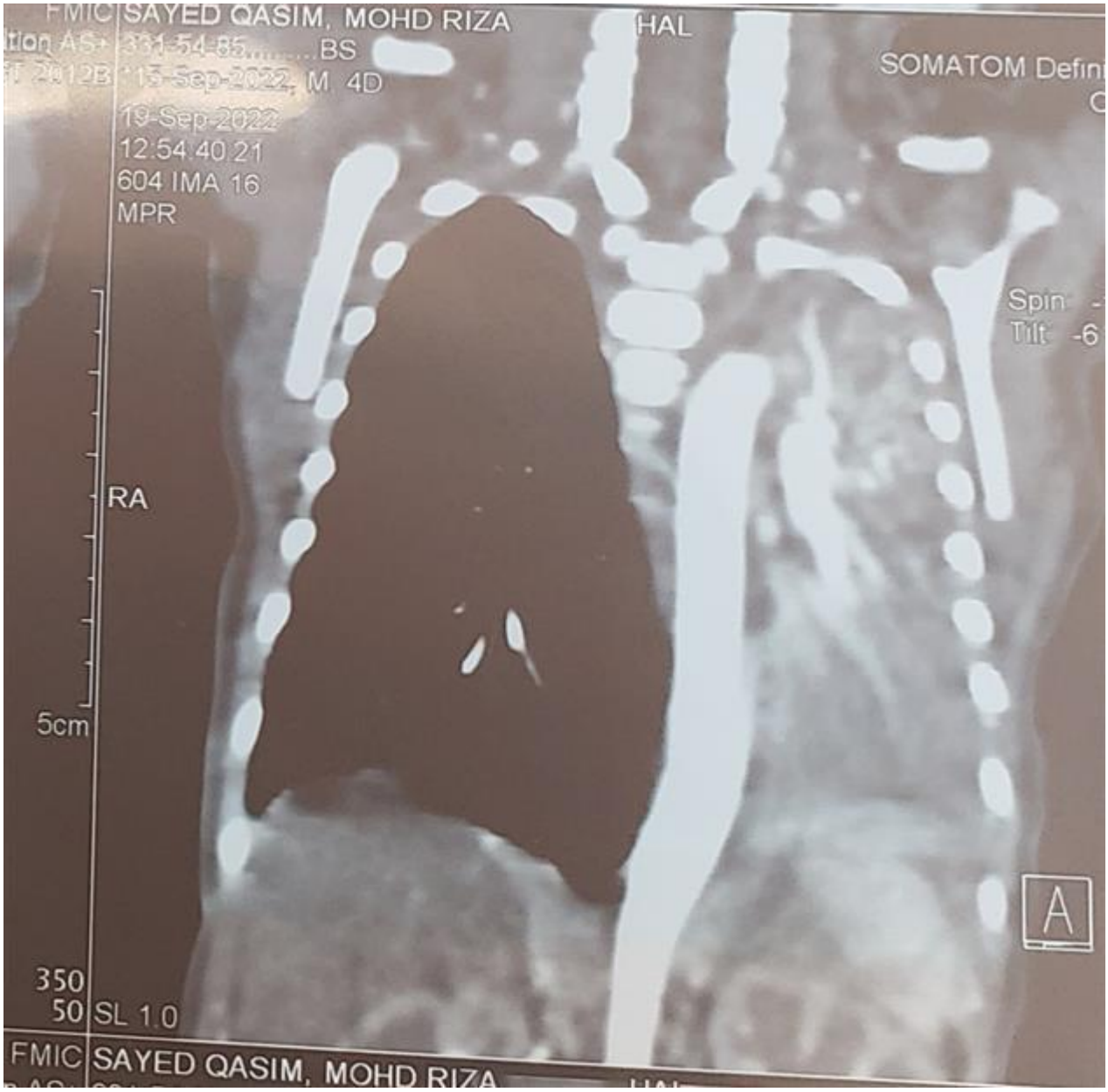
Conclusion: Well–managed CDH reduces the immediate mortality related to complications of the disease and ensure an optimal stabilization of the clinical status in order to allow an early surgical cure.

None declared

# ID 82. LEFT LUNG APLASIA WITH PATENT DUCTUS ARTERIOSUS IN A TERM INFANT: A CASE REPORT

**Professor Mansoor Aslamzai**[1]
[1]Kabul University of Medical Sciences, Kabul, Afghanistan

Pulmonary aplasia is very rare congenital anomaly identified by the absence of lung parenchyma or vessels. This malformation mostly accompanies other anomalies, and chest computed tomography is a useful diagnostic tool.  We present a rare case of left lung aplasia with patent ductus arteriosus and neonatal sepsis in a term neonate who had respiratory distress. The clinical features were observed during the first week of life, and the diagnosis of these anomalies was established by clinical, laboratory, chest x–ray, thoracic computed tomography, and echocardiographic findings. After the management of neonatal sepsis and patent ductus arteriosus, he was discharged from the hospital in good condition. Since the index case of lung aplasia was associated with congenital heart disease and had strong parental consanguinity, a genetic basis may have been involved in the pathogenesis of pulmonary aplasia.




None declared

# ID 31. Inhaled Corticosteroids in the Management of Chronic Lung Disease: Our Experience.

Doctor Daniel Keen[1], Doctor Huda Al-Zubaidi[1], **Doctor Kwok Sean Mun**[1]

[1]William Harvey Hospital, East Kent Hospitals University NHS Foundation Trust, Ashford, United Kingdom

Background

Chronic Lung Disease (CLD) is a well-established complication of prematurity with a multi-factorial etiology in which pulmonary inflammation is a central theme. Corticosteroids have been extensively investigated as therapeutic agents for pulmonary inflammation, however there remains debate over the timing, agent and optimal dosing.

Inhaled corticosteroids (IC) are an attractive option with localized effects, sparing premature babies the side effects of systemic steroids. There is some evidence that budesonide helps reduce the incidence of developing BPD at 36 weeks in infants of extreme prematurity and extreme low birth weight.

Here we present our experience with inhaled corticosteroids in the management of CLD.

Methods

We collected retrospective data on premature infants treated with inhaled corticosteroids within a 5year period (2018-2022) at our tertiary neonatal center. We analysed antenatal risk factors for CLD, Respiratory Support, Chest X-ray findings, episodes of sepsis, bacterial colonization, changes in respiratory support/oxygen requirements during treatment and their outcomes.

Results

32 infants were included; gestations ranging from 23 to 36weeks with a mean birth weight of 898g. Courses of IC were started on average on D35 (11–86) with a mean duration of 16days (4–40). All infants had evidence of chronic lung disease on chest x–ray at the point of initiation. Most ventilated infants had a radiographic score[1] of 3 or more. At initiation, 18 infants were ventilated and 16 on non–invasive ventilation. During the course of treatment 72% infants were able to achieve a step–down in respiratory support. 84% infants had a reduced FIO2 during treatment, outlined in Table 1. 4 infants were diagnosed with culture positive sepsis during treatment. In ventilated infants, endotracheal colonizing organisms remained similar pre and post treatment.

Conclusions

Our experience with the late use of IC has generated observational data that would suggest that their use may reduce oxygen requirements and facilitate the weaning of respiratory support. Further large–scale randomized trials are required to investigate this hypothesis.

[1] Weinstein et al. 1994. A New Radiographic Scoring System for Bronchopulmonary Dysplasia. Pediatric Pulmonology. 18:284–289.

| | All Infant Data (24) | Ventilated (14) | NIV (8) |
|---|---|---|---|
| Average FIO2 Pre-Treatment | 41% | 43% | 37.5% |
| Average FIO2 Post Treatment | 28.5% | 31.7% | 23% |
| | All Infant Data (25)* | Ventilated (16) | NIV (9) |
| Mean Days until 5% drop in FIO2 Achieved | 4days | 4days | 4days |
| Infants with No effect | | 3 (not included in average) | 1 (not included in average) |
| | All Infant Data (18)** | Ventilated (12) | NIV (6) |
| Mean Days until 10% drop in FIO2 Achieved | 4.8days | 6.2days | 3.3days |
| Infants with No effect | | 2 (not included in average) | |

*In infants with a starting FIO2 >25%, **in infants with a starting FIO2 >31%

None Declared

# ID 1041. Collaborative working between Neonatal Intensive Care Units across the region and our local tertiary respiratory referral unit for babies with severe life-threatening chronic lung disease (CLD)

**Doctor Hayley Djemai**[1], Dr Rob Negrine[1], Dr Isobel Brookes[2], Dr Nadir Kiddo
[1]Birmingham Womens Hospital, Birmingham , United Kingdom, [2]Birmingham Childrens Hospital, Birmingham, United Kingdom

Background

Life–threatening CLD in preterm infants <32 weeks is defined as the need for positive pressure/ high flow oxygen or pulmonary vasodilators at 38 weeks corrected gestational age, (cGA) in the absence of intercurrent illness.(1) We know life–threatening CLD has multiple sequalae for extreme preterm infants who survive.(4). When these infants are beyond term (cGA) they need ongoing care from local paediatric teams and tertiary paediatric services(3). In the West Midlands region, our tertiary respiratory referral unit is physically located on a different site.

Methods

A collaborative(CLD) working group was established with a lead tertiary respiratory consultant from Birmingham Children's Hospital (BCH)and the lead neonatal respiratory consultant from Birmingham Women's Hospital(BWH). Its purpose was twofold, to discuss infants nearing discharge with severe life–threatening CLD to i,prove communication to paediatric teams (multiple specialties as these infants often have significant complex needs, feeding support, respiratory support, neurological impairment secondary to intraventricular haemorrhage etc)(3). It was also to discuss among the team the risks vs. benefits of late postnatal steroid use which remains controversial(2,6) (3 days of high dose IV methlyprednisolone).

Results

From its initiation in October 2021 over a 1–year period there have been 28 patients discussed. 13 of these met the criteria for life–threatening CLD. 8 of these 13were given a 3 day pulse of high dose IV methylprednisolone, 2 were transferred to BCH during discussions. We have further analysed this data to look for any themes which may have attributed to the development of CLD.

Conclusions

From the literature it is noted that there is significant variation in practise regarding the use of late postnatal steroid administration.(2,5) It is beneficial for patients and clinicians to streamline the process of referrals and have a multidisciplinary approach to ongoing management of infants with life–threatening CLD. It is also useful to have a multi–census opinion on the administration of late postnatal steroids use The recent Cochrane review from 2017 identified the quality of longer–term outcome studies was limited.(5) This option to bring infants to the CLD working group has since been opened up for other Neonatal Consultants.

None Declared

# ID 836. STRIDOR AT BIRTH – TIME TO THINK OUTSIDE THE BOX

**Doctor Aishath Rizma MOOSA**[1], Doctor Jyoti Kapur[1]

[1]University Hospitals Of North Midlands Nhs Trust, Birmingham, United Kingdom

BACKGROUND

Neonatal inspiratory stridor is a significant clinical finding demanding prompt evaluation of underlying aetiology as it signifies a potential airway obstruction. Timely initiation of a comprehensive diagnostic workup is crucial to exclude life–threatening causes.

Although laryngomalacia remains the most prevalent cause of neonatal stridor, it remains a diagnosis of exclusion. We present a case series of congenital stridor with alternative diagnoses requiring urgent intervention highlighting the importance of detailed evaluation in this group of babies.

CASE REPORT

CASE ONE

A term neonate presented with inspiratory postnatal stridor immediately after birth. Severe inspiratory stridor with increased work of breathing was observed, leading to intubation and mechanical ventilation. Unsuccessful initial extubation attempts necessitated reintubation due to significant stridor and increased work of breathing. Flexible nasolaryngoscopy ruled out supraglottic pathology. Further examination through laryngotracheal bronchoscopy revealed evidence of bilateral vocal cord palsy. The baby required tracheostomy to facilitate extubation.

CASE TWO

A term infant developed stridor at six minutes of life, accompanied by increased work of breathing and oxygen requirement necessitating admission to the neonatal unit. Prone positioning improved sternal recessions and minimised stridor. The inspiratory stridor subsequently progressed to biphasic stridor with subcostal recessions requiring respiratory support with CPAP. Microlaryngoscopy revealed evidence of a right supraglottic cyst. Microlaryngoscopy and decompression of the cyst were carried out, and the stridor improved postoperatively.

CASE THREE

A girl born at term presented with stridor at six hours of life, which worsened with crying and led to desaturations during these episodes. She was admitted to the neonatal unit for observations. On day two, stridor with desaturations occurred during feeding, necessitating nasogastric tube feeding. Preliminary Microlaryngoscopy and bronchoscopy revealed severe laryngomalacia. Subsequently, further laryngotracheobronchoscopy with aryepiglottoplasty at the tertiary centre resulted in stridor's resolution. Microarray analysis later also revealed Angelman's syndrome with severe oromotor dysfunction.

CONCLUSION

Neonatal stridor that presents soon after birth needs a stepwise approach to investigation to rule out rare causes and enable early identification to initiate treatment. The cause can range from non–life–threatening pathologies to critical conditions requiring immediate intervention. Early liaison with ENT specialists is vital to managing these babies effectively.

Nine declared

# ID 70. Trainee survey regarding use of iNO across the UK

**Doctor Aoife Hurley**[1], Dr Cath Harrison[1]

[1]Leeds Teaching Hospitals Trust, Leeds, United Kingdom

Background

Inhaled nitric oxide (iNO) is a selective pulmonary vasodilator, used to treat infants with hypoxaemic respiratory failure (HRF) associated with persistent pulmonary hypertension of the newborn (PPHN). It has been shown to reduce the need for extracorporeal membrane oxygenation (ECMO) or death. At present, routine use of iNO in preterm infants is not recommended, though there are some circumstances its use could be considered such as HRF with prolonged rupture of membranes or oligohydramnios.

Methods

A google form survey was distributed via a mailing list to all Neonatal GRID trainees (ST6–8) in the UK.

Results

30 responses out of 231, from across the country (graph 1). 93.3% started iNO at 20ppm, 3.3% reported starting at 5ppm and 3.3% starting at 1ppm. 73.3% monitored methaemoglobin levels. 56.7% reported using iNO if clinically indicated in any gestational age (22+0 and above), 23.3% would use in any infant greater than 24+0 weeks, 10% in any infant greater than 28+0 and 10% in any infant greater than 32+0. 73.3% would use maximum 20ppm, 13.3% would use maximum 30ppm and 13.3% would use 40ppm maximum. 60% report weaning protocol for iNO. 80% wean from 20ppm to 15, then 10 then 5 then wean by 1ppm every few hours until off. 6.7%

report weaning from 20ppm to 10ppm then 5ppm, subsequently would wean by 1ppm every few hours until off. 13.3% report multiple different strategies, see table 1.

Conclusion

Despite a response rate of only 13%, this is still valuable information as it shows there is a nationwide variation in units use of iNO in terms of maximum amount of iNO initiated, weaning strategies and its use in extreme preterm infants. This is despite no clear evidence supporting iNO use in the preterm infant, but a finding in keeping with Subhedar et als 2021 work demonstrating increasing use of iNO in the UK, most noticeable in the most preterm infant.

Reasons as to why this variation exists was not explored and could be examined in further detail, along with its use in the most extreme preterm of infants.

none declared

# ID 630. Experience of the neonatal resuscitation service of the Farhat Hached University Hospital of Sousse in the management of meconium fluid inhalation syndrome in newborns.

**Doctor Mariem Barka**[1], Doctor Achich Yosra[1], Doctor Mghirbi Oussema[1], Doctor Brahem Donia[1], Doctor Khelifi Amani[1], Professor Nouri Sonia[1], Professor Mahdhaoui Nabiha[1]

[1]Department Of Neonatology And Neonatal Resuscitation Of Sousse, Sousse, Tunisia

Background:The birth of a newborn (NN) in a context of meconium fluid (LM) is a frequent situation in which the The occurrence of severe respiratory distress (RD) depends on the degree of inhalation of this fluid. Strict policies of care in the delivery room have led to a spectacular improvement in the frequency and frequency and severity of meconium inhalation.

Methods: Descriptive, retrospective study of the files of NN having been cared for a neonatal respiratory distress related to meconium inhalation, during a period of 10 years and 4 months (January 2012 – April 2023).

Results:We collected 84 cases of meconium inhalation meconium inhalation syndrome (MIS).A little female predominance was observed, with a sex ratio of 0.9.The median gestational age was 39 weeks' gestation + 6 days with two premature babies and 28 postmature babies (33%). The average age of mothers was 31±5 years. The maternal diseases in pregnancy were, in order of frequency maternal infection in 17.9% of cases, pregnancy toxemia in 6% of cases and gestational diabetes in 6% of cases. An emergency caesarean section was performed in 58.3% of cases, the indication for which was a pathological FHR in 41.7% of cases. Thirty–nine NN (46%) required immediate resuscitation with the need for intubation in

42.9% of cases, external cardiac massage and vasoactive drugs in 5 cases. The reason for hospitalization was immediate neonatal DR in all our patients, 70% of whom required mechanical ventilation with an average duration of 42 hours for the OHF mode and 49 hours for the conventional mode. Exogenous surfactant administration was indicated in 19% of patients (n=16) . The MIS was complicated by PAH in 28.6% of cases, with the use of nitric oxide in 23.8% of cases and sildenafil in 6.8% of cases. Early neonatal bacterial infection was confirmed in 61.9% of cases. The outcome was fatal in 8 cases. The average duration of hospitalization was 15.25 days.

Conclusion: The MIS is a frequent cause of neonatal respiratory distress. The severity of the clinical presentation depends on the precocity of the management, which explains the need to optimize the therapeutic means.

None declared

# ID 522. Chronic respiratory insufficiency of term newborn

**Doctor Alen Švigir**[1], doctor Vinko Vrdoljak[1], doctor Mirta Lamot[1], doctor Lorita Mihovilović Prajz[1], doctor Jasna Tumbri[1], doctor Stella Radina Jurčić[1], doctor Ivančica Škarić[2], doctor Karmen Kondža[2], doctor Ivan Pavić[2], doctor Snježana Gverić[1]
[1]Sestre milosrdnice University Hospital Center, Zagreb, Croatia, [2]Children's Hospital Zagreb, Zagreb, Croatia

BACKGROUND

Respiratory distress in term newborns occurs in about 6% of live births. The cause of most cases is transient tachypnea of the newborn and non–pulmonary etiology like sepsis and congenital heart disease (CHD). Rarely, term neonatal respiratory distress is caused by hereditary primary lung disease.

CASE REPORT

A term male newborn with a birth weight appropriate for gestational age was a second–born twin from an uncomplicated pregnancy and vaginal delivery.
Four hours after birth, newborn developed signs of respiratory distress, hence he was treated with supplemental oxygen, empiric antibiotic treatment and eventually continuous positive pressure ventilation. Further workup showed normal blood results, pediatric cardiologist excluded CHD and initial chest X–ray showed a diffusely accentuated interstitium. Due to worsening of tachypnea surfactant was administered but without clinical benefit. On the 11th day, because of deterioration of respiratory function patient was intubated, mechanically ventilated, and received iNO therapy for 5 days.
Due to progressively worsening respiratory function despite the therapy, the suspected diagnosis was chronic pulmonary diseases that can manifest in newborn

age, most likely interstitial lung disease. Therefore, the newborn was referred to a pediatric pulmonologist and at the age of 25 days underwent a lung biopsy.
The finding fits the image of congenital pulmonary airway malformation type 3. CMA and CES were also done, and the results showed heterozygous gene duplication NKX2–1: c.344dupG (p. Tyr116LeufsTer323) whose function is to encode protein TTF1 which mediates the transcription of genes specific to thyroid gland and play a role in surfactant homeostasis and lung development.

CONCLUSION

The disorder found in our patient is called “Brain–lung–thyroid syndrome”, and according to current published literature, there have been only 50 diagnosed cases around world. It can be a de novo, or it can be inherited AD. Other possible associated symptoms can be hypothyroidism and neurological disorders.
Sometimes respiratory distress in term newborns can be caused by hereditary lung diseases, which have their characteristic clinical presentation and are important to recognize because they require a special approach to care and have lifelong consequences.

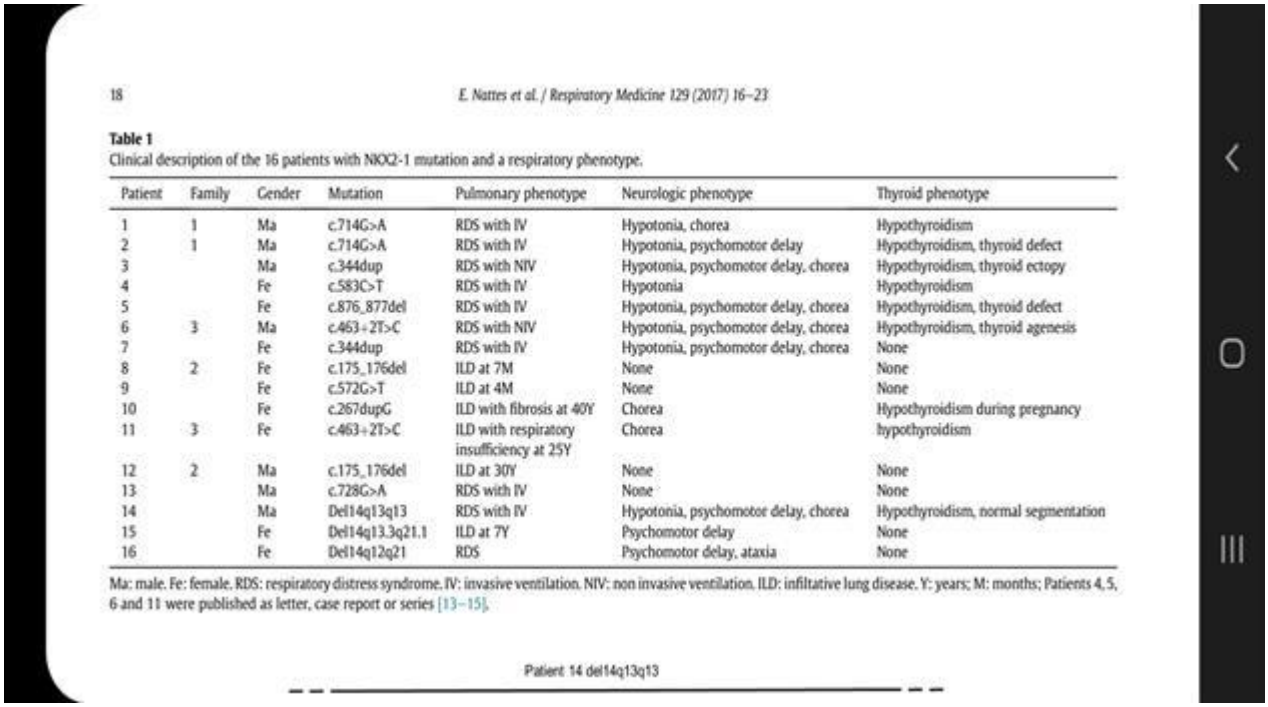




**Table 1**
Clinical description of the 16 patients with NKX2-1 mutation and a respiratory phenotype.

| Patient | Family | Gender | Mutation | Pulmonary phenotype | Neurologic phenotype | Thyroid phenotype |
|---|---|---|---|---|---|---|
| 1 | 1 | Ma | c.714G>A | RDS with IV | Hypotonia, chorea | Hypothyroidism |
| 2 | 1 | Ma | c.714G>A | RDS with IV | Hypotonia, psychomotor delay | Hypothyroidism, thyroid defect |
| 3 | | Ma | c.344dup | RDS with NIV | Hypotonia, psychomotor delay, chorea | Hypothyroidism, thyroid ectopy |
| 4 | | Fe | c.583C>T | RDS with IV | Hypotonia | Hypothyroidism |
| 5 | | Fe | c.876_877del | RDS with IV | Hypotonia, psychomotor delay, chorea | Hypothyroidism, thyroid defect |
| 6 | 3 | Ma | c.463+2T>C | RDS with NIV | Hypotonia, psychomotor delay, chorea | Hypothyroidism, thyroid agenesis |
| 7 | | Fe | c.344dup | RDS with IV | Hypotonia, psychomotor delay, chorea | None |
| 8 | 2 | Fe | c.175_176del | ILD at 7M | None | None |
| 9 | | Fe | c.572G>T | ILD at 4M | None | None |
| 10 | | Fe | c.267dupG | ILD with fibrosis at 40Y | Chorea | Hypothyroidism during pregnancy |
| 11 | 3 | Fe | c.463+2T>C | ILD with respiratory insufficiency at 25Y | Chorea | hypothyroidism |
| 12 | 2 | Ma | c.175_176del | ILD at 30Y | None | None |
| 13 | | Ma | c.728G>A | RDS with IV | None | None |
| 14 | | Ma | Del14q13q13 | RDS with IV | Hypotonia, psychomotor delay, chorea | Hypothyroidism, normal segmentation |
| 15 | | Fe | Del14q13.3q21.1 | ILD at 7Y | Psychomotor delay | None |
| 16 | | Fe | Del14q12q21 | RDS | Psychomotor delay, ataxia | None |

Ma: male. Fe: female. RDS: respiratory distress syndrome. IV: invasive ventilation. NIV: non invasive ventilation. ILD: infiltative lung disease. Y: years; M: months; Patients 4, 5, 6 and 11 were published as letter, case report or series [13–15].

Patient 14 del14q13q13

None declared.

# ID 42. Pneumothorax in the newborn

**Professor Kamel Boudhar**[1], Master assistant Faiza Benmati[1], Master assistant Saida Mecheri[1], Associate professor Chelirem Djamel[1], Master assistant Abdeldjalil Brahimi[1]
[1]NICU – Central Hospital Of Army, Algeries, Algeria

Background :

Pneumothorax occurs more frequently in the newborn period than at any other time of life and it can be a cause or complication of respiratory distress.

Three situations can occur:

- Primary spontaneous pneumothorax in the absence of any underlying pulmonary pathology (rare situation of 0.5–2%).
- Secondary spontaneous pneumothorax complicating pulmonary pathology.
- Pneumothorax caused secondary to barotrauma or volotrauma.

Our objectives are to study the different causes of pneumothorax and propose ways to reduce the incidence and improve the quality of care.

Methods :

A retrospective study was conducted in the neonatal intensive care unit of the Central Hospital of Army, 19 cases of newborns with pneumothorax were collected over a period of 20 months.

Results :

102 newborns were treated for respiratory distress out of 460 hospitalized (22%), 62 of them required mechanical ventilation (60%).

19 newborns presented with pneumothorax of which 84% were on mechanical ventilation, among them 12 unilateral pneumothorax and 7 bilateral.

Mortality directly related to pneumothorax was 21%.

Conclusion :

Reducing the incidence of pneumothorax requires improvements not only in mechanical ventilation strategy, but also in delivery and neonatal resuscitation techniques and early treatment.

None declared

# ID 996. Clinical characteristics and treatment of pneumothorax in preterm newborns in a level III NICU

**Doctor Francisco Meza**[1]
[1]T S C U H, Dublin, Ireland

BACKGROUND AND AIMS

Pneumothorax (PTX) occurs in up to 10% of newborns in NICU. The aim of the study was to compare the clinical outcomes of PTX in preterm babies attended in a single level III NICU in Dublin, Ireland in a four–year period and to determine the risk factors related with the prognosis.

METHODS

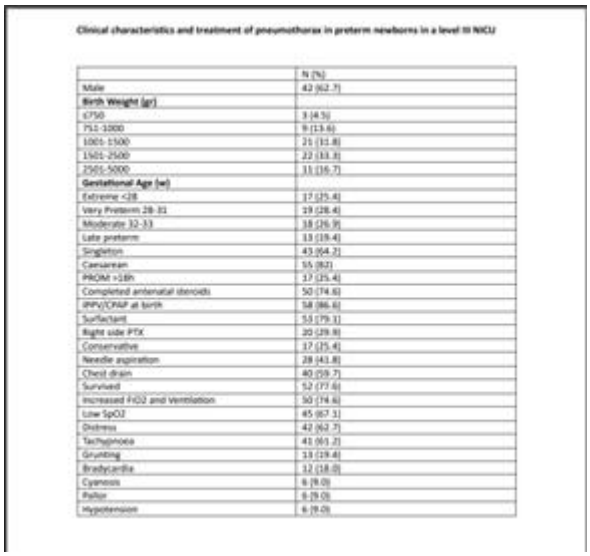
Clinical audit, retrospective, single–centre observational study in Coombe Women and Infant University Hospital (CWIUH), HSE, Dublin, Ireland, between January 1, 2016, and December 31, 2019. We reviewed the medical records of all the preterm patients with diagnosis of PTX identified through the CWIUH database. The audit was approved by Ethics Review Committee.

RESULTS

A total of 67 preterm neonates with PTX were identified in the database. The left side of pneumothorax was present in 29 cases (43.4%), in 17 patients (25%) the treatment was conservative. Increased in FiO2 and ventilatory support was observed in 50 babies (75%). Pulmonary hypertension, mode of ventilatory support at diagnosis and birth weight were the variables associated in non survivors in the univariate analysis.

CONCLUSIONS

The clinical characteristics of PTX in preterm babies in this series differs with other reports, conservative management should be considered. The association with Pulmonary hypertension need more analysis.



Clinical characteristics and treatment of pneumothorax in preterm newborns in a level III NICU

| | N (%) |
|---|---|
| Male | 42 (62.7) |
| **Birth Weight (gr)** | |
| ≤750 | 3 (4.5) |
| 751-1000 | 9 (13.6) |
| 1001-1500 | 21 (31.8) |
| 1501-2500 | 22 (33.3) |
| 2501-5000 | 11 (16.7) |
| **Gestational Age (w)** | |
| Extreme <28 | 17 (25.4) |
| Very Preterm 28-31 | 19 (28.4) |
| Moderate 32-33 | 18 (26.9) |
| Late preterm | 13 (19.4) |
| Singleton | 43 (64.2) |
| Caesarean | 55 (82) |
| PROM >18h | 17 (25.4) |
| Completed antenatal steroids | 50 (74.6) |
| IPPV/CPAP at birth | 58 (86.6) |
| Surfactant | 53 (79.1) |
| Right side PTX | 20 (29.9) |
| Conservative | 17 (25.4) |
| Needle aspiration | 28 (41.8) |
| Chest drain | 40 (59.7) |
| Survived | 52 (77.6) |
| Increased FiO2 and Ventilation | 50 (74.6) |
| Low SpO2 | 45 (67.1) |
| Distress | 42 (62.7) |
| Tachypnoea | 41 (61.2) |
| Grunting | 13 (19.4) |
| Bradycardia | 12 (18.0) |
| Cyanosis | 6 (9.0) |
| Pallor | 6 (9.0) |
| Hypotension | 6 (9.0) |

Table 1 Demographic and Clinical characteristics

Table 1 Demographic and Clinical characteristics

None declared

# ID 713. CONGENITAL DIAPHRAGMATIC HERNIA: ANTENATAL AND POSTNATAL MANAGEMENT

Doctor Stavroula Parastatidou[1], Dr Konstantinos Bogiatzis[1], Dr Kyriaki Velali[1], Dr Maria Oikonomou[1], **Dr Panagiota Katti**[1], Dr Anastasia Kapetanaki[1], Dr Eirini Koutsounaki[1], Dr Iosif Saouakit[1], Dr Spyros Spyrakos[2], Dr Iraklis Salvanos[1]
[1]NICU, General Maternity Hospital Elena Venizelou, Athens, Greece, [2]Pediatric Surgery Unit, General Maternity Hospital Elena Venizelou, Athens, Greece

Background: Congenital diaphragmatic hernia (CDH), a severe disorder with high mortality and morbidity, accounts for approximately 1 in 4,000 live births. Right-sided location is rarer (13% of all cases), with poor prognosis. Fetal intervention aiming to reverse pulmonary hypoplasia is attempted in selected patients. In fetoscopic endoluminal tracheal occlusion (FETO) a balloon is inserted under sono-endoscopic guidance and inflated in the trachea. This procedure allows for accumulation of lung fluid and enhanced pulmonary growth. The occlusion is reversed prenatally to reduce the relative surfactant deficiency which may occur subsequently.

Case report: A female neonate was born at 37 weeks of gestation, with birth weight 2,580g, by cesarean section due to previous c-section and CDH. The condition had been diagnosed by routine antenatal ultrasound testing at 24 weeks. Amniocentesis and karyotype analysis followed, with normal findings. Subsequently, FETO was conducted during the 28th week of gestation. Balloon removal was achieved endoscopically at 34 weeks. The procedure was completed without complications and the antenatal indexes monitoring for pulmonary hypoplasia substantially improved. At birth, the neonate cried and was immediately intubated. Right-sided CDH with presence of the liver in the right hemithorax and significant mediastinal shift was demonstrated on chest radiograph. On the 2nd day of life, after initial patient

stabilization, surgical restoration was conducted. The post-surgical course was uneventful. During her hospital stay, the neonate remained hemodynamically stable. Prior to the surgery, she had presented pulmonary hypertension, which gradually resolved. Full enteral feeding was achieved on the 14th day of life, and weaning from supplemental O2 on the 16th day of life.

Conclusion: Successful intrauterine management of CDH with poor prognosis seems to positively and significantly impact neonatal outcome, reducing mortality and severe morbidity.

None declared.