Case Report

International Journal of Medical Case Report

Spontaneous Pneumothorax in a Neonate: A Rare Case Report

Authors:- Dr Lokade Ajay

Medical Officer, Subdistrict hospital , Basmat Dist Hingoli.

Abstract

This case report details a rare presentation of spontaneous pneumothorax in a 2-day-old term neonate who developed sudden respiratory distress. Promptly diagnosed via chest X-ray, immediate interventional management with chest tube placement was implemented, resulting in successful resolution of the condition. The report emphasizes the importance of vigilance for spontaneous pneumothorax in neonates, particularly in the absence of predisposing factors like mechanical ventilation or overt lung pathology. Highlighting the critical role of timely intervention, this case adds to the limited but growing literature on the management and outcomes of neonatal spontaneous pneumothorax. It suggests a need for further research into the underlying pathophysiological mechanisms and potential genetic predispositions associated with this condition.

Keywords:- Neonatal Pneumothorax, Spontaneous Pneumothorax, Respiratory Distress, X-Ray chest.

INTRODUCTION

Spontaneous pneumothorax in neonates, while uncommon, represents a significant challenge in the field of neonatal intensive care.[1] The condition occurs when air escapes from the lungs into the pleural space, causing the lung to collapse without an apparent initiating event. This is particularly concerning in neonates where it can rapidly progress to respiratory failure if not managed promptly. [2]

Access this Journal Online

Quick Response Code

Website: www.ijomcr.net

Email:ijomcr@gmail.com

Corresponding Author:
Dr Ajay Lokade
Medical Officer, Subdistrict hospital , Basmat Dist Hingoli.

The incidence of neonatal pneumothorax varies, but spontaneous cases are particularly rare.[3] Typically associated with mechanical ventilation or underlying lung pathology in neonates, spontaneous occurrences are less understood and thus challenging to anticipate or prevent. The pathophysiology involves alveolar rupture, which might be exacerbated by subtle congenital or acquired defects in lung architecture that are not yet fully understood. [4]

Clinically, these patients might present with acute respiratory distress, cyanosis, and a sudden deterioration in clinical status. Diagnosis is primarily radiologic, with chest X-rays revealing air in the pleural cavity, absent the normal lung markings. Such presentations necessitate differential diagnoses that include congenital lobar emphysema or diaphragmatic hernia, conditions that similarly disrupt normal neonatal respiratory physiology. [5]

CASE REPORT

We report a case of a male neonate born at term via an uncomplicated vaginal delivery, weighing 3.2 kilograms. On the second day of life, the neonate suddenly developed signs of respiratory distress including tachypnoea and cyanosis, observed during routine nursery care. Physical examination revealed diminished breath sounds on the right side. An emergent chest X-ray confirmed a right-sided pneumothorax.

Immediate management involved the placement of a chest tube on the affected side, which led to gradual improvement in respiratory function. Blood gas analyses were indicative of mild hypoxemia and respiratory acidosis, typical of compromised pulmonary function. Subsequent echocardiograms and abdominal ultrasounds ruled out additional congenital anomalies. The chest tube was removed on the fourth day after confirming lung re-expansion, and the neonate was discharged three days later in stable condition. Table 1 (not included due to lack of specific lab values) would typically present relevant laboratory findings to further elucidate the clinical scenario.

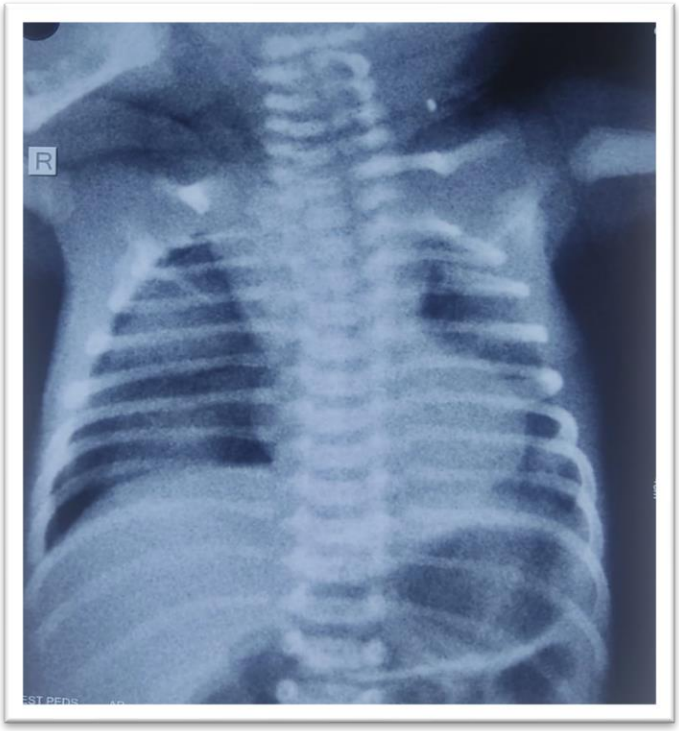

Figure 1: Right Sided Pneumothorax on Chest X-Ray.

DISCUSSION

This case contributes to the sparse literature on spontaneous pneumothorax in neonates, emphasizing its potential severity. Literature review reveals scant but compelling reports of similar presentations, such as those detailed by Jones RM et al [6] and Ilce Z [7] which discuss the sudden onset and management of neonatal pneumothorax. These cases underscore the importance of readiness for immediate intervention.[8]

The discussion centres on the need for heightened surveillance in neonates, particularly those not mechanically ventilated, for early signs of respiratory distress that could indicate pneumothorax.[9] This case, alongside those cited, supports the practice of routine postnatal imaging under certain conditions to pre-empt severe complications. Furthermore, the discussion extends to potential genetic investigations in recurrent or familial cases of spontaneous pneumothorax, as suggested by recent studies pointing to genetic vulnerabilities in pulmonary structural integrity.[10]

CONCLUSION

The successful resolution of a spontaneous pneumothorax in a neonate underscores the critical nature of prompt recognition and intervention. This

case highlights the importance of immediate diagnostic imaging and intervention in the neonatal period, contributing to a body of evidence that supports proactive management to ensure favorable outcomes.

Conflict of interest

None

Source of Funding

None

REFERENCE

1. Hermansen CL, Lorah KN. Respiratory distress in the newborn. Am Fam Physician. 2007;76:987–994.
2. Smith J, Schumacher RE, Donn SM, Sarkar S. Clinical course of symptomatic spontaneous pneumothorax in term and late preterm newborns: Report from a large cohort. Am J Perinatol. 2011;28(2):163–168.
3. Klinger G, Ish-Hurwitz S, Osovsky M, Sirota L, Linder N. Risk factors for pneumothorax in very low birth weight infants. Pediatr Crit Care Med. 2008;9:398–402. PubMed.
4. Benterud T, Sandvik L, Lindemann R. Cesarean section is associated with more frequent pneumothorax and respiratory problems in the neonate. Acta Obstet Gynecol Scand. 2009;88:359–361.
5. Engin MMN, Gülden AK, Kılıçaslan O. Spontaneous pneumothorax in a newborn case report: original image, treatment process and follow-up. J Lung Pulm Respir Res. 2020;7(1):1–2.
6. Jones RM, Rutter N, Cooper AC, Pullan CR. Pneumothorax in the neonatal period. Anaesthesia. 1983;38(10):948-952. doi:10.1111/j.1365-2044.1983.tb12024.x
7. Ilce Z, Gundoglu G, Kara C, et al. Which patients are at risk? Evaluation of the morbidity and mortality in newborn pneumothorax. Indian Pediatr. 2003;40(4):325–8.
8. Ajaj OA, Al-Alosi BM, Khalaf RH. Evaluation of pneumothorax in the first month of life. Ann Trop & Public Health. 2019;22(8):87–94.
9. Fei Q, Lin Y, Yuan TM. Lung Ultrasound, a Better Choice for Neonatal Pneumothorax: A Systematic Review and Meta-analysis. Ultrasound Med. Biol. 2021;47:359–369.
10. Posner K, Needleman JP. Pneumothorax Pediatrics in Review. 2008;29:69–70.

Author Contribution:- AL: Concept Of Design;Manuscript Preparation;Revision Of Manuscript;Review Of Manuscript

How To Cite This Article

Lokade A, Spontaneous Pneumothorax in a Neonate: A Rare Case Report Int. j. med. case reports. 2023; 4 (3): 12-14