

PREVALENCE OF PEDIATRIC PLEURAL EFFUSION IN A TERTIARY GOVERNMENT HOSPITAL IN MANILA; A 3-YEAR RETROSPECTIVE STUDY

Analyn P. Dizon, MD*, Pia Uzelle Garvida, MD, Jennie Ang-Wong, MD, MPH, FPPS, Kris Ian B. Mendoza, MD, FPPS, MMHOA



BACKGROUND

In the Philippines, a country with a considerable burden of pediatric respiratory illnesses, pleural effusion remain relatively under explored. Understanding the local epidemiology and clinical characteristics is crucial for optimizing patient care and resource allocation.

METHODOLOGY

This is a Retrospective descriptive study conducted in a tertiary government hospital in Manila, Philippines. Records from June 2020 to June 2023 of pediatric patients diagnosed with pleural effusion were assessed. Extracted data covered demographics, clinical symptoms, causes, treatment approaches, and outcomes.

CONCLUSION & RECOMMENDATION

Pleural effusion in children, thought of <u>low</u> <u>prevalence</u>, presents multifaceted challenges in Manila. This study highlighted the <u>utility and limits of chest</u> <u>radiographs</u> and showed <u>ultrasound</u> as promising tools for effusion evaluation. Manila's government hospitals, facing resource constraints and prevalent infectious diseases, must navigate pleural effusion intricacies, underscored by the microbial data and resistance patterns found in this study. Pleural effusion's varied mortality rates based on underlying conditions emphasize the need for vigilant, comprehensive care.

OBJECTIVES

The purpose of this study is to determine the prevalence of pediatric pleural effusion in a tertiary government hospital in Manila from 2020-2023.

RESULTS

The prevalence rate of pleural effusion is 0.8% based on overall number of admissions for the past three years. Most are males (63%), with 33% aged 0-5 years. Most (50.7%) stayed under two weeks. The primary symptom was a cough (23.8%), with pneumonia as the main cause (34.3%). Chest X-rays detected effusions in 67 patients, and 80% of ultrasounds confirmed this. Most effusions (80%) were exudative. Key microbes included a methicillin-resistant *Staphylococcus aureus* strain and others. Mortality was 22.3%, but 77.61% improved, with an average hospital stay of 20.20 days.

KETEKENCES		
1. Kriste K. Annue MI, Kaloppe M. Ferry Effects, in Suffert, Teasure Man (FL) Sufferts Falining 200 Jan Updated	ALL MAY IN. AN	tion has
https://www.achi.adm.mlt.gov/books/MEE448.00V		
2 Karkhanis VS, Joshi DE, Pleand effusion alugnosis, treatment, and management. Open Access Energy Med. 2012;4:31-52. doi:10.2147/0142M.8	20142 2040 27478	64. PMCRA
PAC(1987.		
5 Abharpainan S. et al. Pleani Ethnion in Children. International Journal of Medical Reviews, 2016;2(1).		
6. Agenton B, Zocchi L. Mechanical coupling and liquid exchanges in the plearal space. Clin Chest Med. 1998;19(2):201-80.		
5. Kudas L, Tonadorici L, Brochi-Peter C, Campbell H. Ukibal estimate of the incidence of clinical parameteria among children under fire years 2004;351(1):095-805.	of age, Bull World B	calls Organ.
6 Effect O. Barak A. Proval effectives in the polyaria supplication. Polyar Rev. 2012 Dec 2012): 617-28. PMID: 12476994.		
Palippes Polatic Society In: PD reports		
8. Aderbary S. Chernick V. Peneral infection in children. Semin Respir Infect. 1996;11(3):118-34.		
8 Calm E. Dise A. Canadell E. et al. Invasive presencescul disease aroung children in a health district of Barcelona surly impact of presencescul only	eptermanite. Clin Mar	entried limbure.
2006.12/9.067-32		
10. Desembars A, Prancis P, Pascel C, et al. (Epidemiology and classical characteristics of childhood paraparementic empression). Arch Pediam, 2017;34(1)	Ex1296-305.	
11. Arganino IK, Galilinan B, Sawin KD, Plans DR. Primary operative versus nonoperative therapy for pediatric empyrone: a neta-analysis. Pediatrics. 200	5.11NR) 1482-9	
12: Given DC, Higger H. Common pleneral efflusions in children. Clar. Chere Midd. 1990;19(2):363-71.		
13. Queroits SB, Glanson PV, Imaging of pleansi disease. Clin-Cheve Med. 2006;37(2):195-215.		
16. Wilson AG. Please and pleased disordies. In: Accessing P. Wilson AG, Die P. et al. Imaging of diseases of the chest. Lendon Modey, 1993;641-716.		
15. Macknew CC, Mack WC, Dahar IV, Crow IIC. Pleand fluid volume estimation: a chest tudiograph prediction rule. Acad Radisl. 1990;3(2):115-9.		
18. Persch JB, Whitisch DA, Ford/C, Kinney MC, Management of piroral officiants in children with malignant lymphoma. J Poliaty Surg. 1999;34(3):555-	A	
17. Forber B.R. Critical assessment of gene amplification approaches on the diagnosis of indexcations. Instead Invest. 1997;28(3-2):107-16.		
18. Calder R. Owens CM. Imaging of paraphromenic pleared effections and compressa in children. Pediatr Radiol. 2009;39(0):527-17.		
19. Julie A., Balliner Lynn DA. Management of emportus in children. Product Philmonel. 2017;40(2):148-54.		
 Kaplan H., Mason EO S. Wald ER, et al. December of torustron parameterized subcloses to children among 8 children's looptide in the United States. presencescoid conjugate succine, Pediatrics. 2014;11:50 Pt 11:443-9. 	after the percelution of	the 7-raises
21. Dela Crus. M. C., Rautista, J. A., Carcia, J. C., De Carenan, A. A., & Tan, L. M. (2023). Clinical profile and seasone of pediatic patients with paragent	second pleased effective	and pleased
emprova darie community acquired presentation is a tertiary government leopital. A five year netropective study, Philippine Realth Research Reports, 2	10023-004023	
12. IO Khodary, M. F. Al-Barras, W. A., Al-Daibi, A. A., R-Assati, A. A., & Al-Bohain, A. A. (2022). Clinical profile and networks of poliative patient	as with pieceral officiant	in a settiary
care temptial in Riyadh. Saudi Arabia. Insenal of Pediatric Hematology/Oncology, 66(2), 135-140.		
25. Oupra. A., Bhardweg, A., Agarwal, S., & Mittal, S. (2021). Chencel profile and outcome of pediatric patients with planed offloaton in a sortiary care's Pediatrics, 2021). 10-15.		
R. Cherry I. D. A. Teuberk Of Pollatric Information Diseases. 4th Edition 2009; 1:123-136.		SOC
and the stand of t	OUSDISEASI	CIE.
	av.	2

DEEEDENICES



BACKGROUND

In the Philippines, a country with a considerable burden of pediatric respiratory illnesses, pleural effusion remain relatively under explored. Understanding the local epidemiology and clinical characteristics is crucial for optimizing patient care and resource allocation.

OBJECTIVES

The purpose of this study is to determine the prevalence of pediatric pleural effusion in a tertiary government hospital in Manila from 2020-2023.

METHODOLOGY

This is a Retrospective descriptive study conducted in a tertiary government hospital in Manila, Philippines. Records from June 2020 to June 2023 of pediatric patients diagnosed with pleural effusion were assessed. Extracted data covered demographics, clinical symptoms, causes, treatment approaches, and outcomes.

RESULTS

The prevalence rate of pleural effusion is 0.8% based on overall number of admissions for the past three years. Most are males (63%), with 33% aged 0-5 years. Most (50.7%) stayed under two weeks. The primary symptom was a cough (23.8%), with pneumonia as the main cause (34.3%). Chest X-rays detected effusions in 67 patients, and 80% of ultrasounds confirmed this. Most effusions (80%) were exudative. Key microbes included a methicillin-resistant *Staphylococcus* aureus strain and others. Mortality was 22.3%, but 77.61% improved, with an average hospital stay of 20.20 days.

CONCLUSION & RECOMMENDATION

Pleural effusion in children, thought of low prevalence, presents multifaceted challenges in Manila. This study highlighted the utility and limits of chest <u>radiographs</u> and showed ultrasound as promising tools for effusion evaluation. Manila's government hospitals, facing resource constraints and prevalent infectious diseases, must navigate pleural effusion intricacies, underscored by the microbial data and resistance patterns found in this study. Pleural effusion's varied mortality rates based on underlying conditions emphasize the need for vigilant, comprehensive care.

REFERENCES

1. Krishna R, Antoine MH, Rudrappa M. Pleural Effusion. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2023 Jan. [Updated 2023 Mar 18]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK448189/

2. Karkhanis VS, Joshi JM. Pleural effusion: diagnosis, treatment, and management. Open Access Emerg Med. 2012;4:31-52. doi:10.2147/OAEM.S29942. PMID: 27147861; PMCID: PMC4753987.

3. Afsharpaiman S, et al. Pleural Effusion in Children. International Journal of Medical Reviews. 2016;3(1).

4. Agostoni E, Zocchi L. Mechanical coupling and liquid exchanges in the pleural space. Clin Chest Med. 1998;19(2):241-60.

5. Rudan I, Tomaskovic L, Boschi-Pinto C, Campbell H. Global estimate of the incidence of clinical pneumonia among children under five years of age. Bull World Health Organ. 2004;82(12):895-903.

6. Efrati O, Barak A. Pleural effusions in the pediatric population. Pediatr Rev. 2002 Dec;23(12):417-26. PMID: 12456894.

7. Philippine Pediatric Society. Inc. PPS registry.

8. Alkrinawi S, Chernick V. Pleural infection in children. Semin Respir Infect. 1996;11(3):148-54.

9. Calbo E, Diaz A, Canadell E, et al. Invasive pneumococcal disease among children in a health district of Barcelona: early impact of pneumococcal conjugate vaccine. Clin Microbiol Infect. 2006;12(9):867-72.

10. Desrumaux A, Francois P, Pascal C, et al. [Epidemiology and clinical characteristics of childhood parapneumonic empyemas]. Arch Pediatr. 2007;14(11):1298-303.

11. Avansino JR, Goldman B, Sawin RS, Flum DR. Primary operative versus nonoperative therapy for pediatric empyema: a meta-analysis. Pediatrics. 2005;115(6):1652-9.

12. Givan DC, Eigen H. Common pleural effusions in children. Clin Chest Med. 1998;19(2):363-71.

13. Qureshi NR, Gleeson FV. Imaging of pleural disease. Clin Chest Med. 2006;27(2):193-213.

14. Wilson AG. Pleura and pleural disorders. In: Armstrong P, Wilson AG, Dee P, et al. Imaging of diseases of the chest. London: Mosby; 1995:641-716.

15. Blackmore CC, Black WC, Dallas RV, Crow HC. Pleural fluid volume estimation: a chest radiograph prediction rule. Acad Radiol. 1996;3(2):103-9.

16. Pietsch JB, Whitlock JA, Ford C, Kinney MC. Management of pleural effusions in children with malignant lymphoma. J Pediatr Surg. 1999;34(4):635-8.

17. Forbes BA. Critical assessment of gene amplification approaches on the diagnosis of tuberculosis. Immunol Invest. 1997;26(1-2):105-16.

18. Calder A, Owens CM. Imaging of parapneumonic pleural effusions and empyema in children. Pediatr Radiol. 2009;39(6):527-37.

19. Jaffe A, Balfour-Lynn IM. Management of empyema in children. Pediatr Pulmonol. 2005;40(2):148-56.

20. Kaplan SL, Mason EO Jr, Wald ER, et al. Decrease of invasive pneumococcal infections in children among 8 children's hospitals in the United States after the introduction of the 7-valent pneumococcal conjugate vaccine. Pediatrics. 2004;113(3 Pt 1):443-9.

21. Dela Cruz, M. C., Bautista, J. A., Garcia, J. C., De Guzman, A. A., & Tan, L. M. (2023). Clinical profile and outcome of pediatric patients with parapneumonic pleural effusion and pleural empyema due to community acquired pneumonia in a tertiary government hospital: A five-year retrospective study. Philippine Health Research Registry, 211025-004025.

22. Al-Khodary, M. F., Al-Hazzaa, W. A., Al-Otaibi, A. A., Al-Ansari, A. A., & Al-Bekairi, A. A. (2022). Clinical profile and outcome of pediatric patients with pleural effusion in a tertiary care hospital in Riyadh, Saudi Arabia. Journal of Pediatric Hematology/Oncology, 44(2), 135-140.

23. Gupta, A., Bhardwaj, A., Agarwal, S., & Mittal, S. (2021). Clinical profile and outcome of pediatric patients with pleural effusion in a tertiary care hospital in New Delhi, India. Indian Pediatrics, 58(1), 10-15.

24.Feigin R, Cherry J, Et Al. Textbook Of Pediatric Infectious Diseases, 6th Edition 2009; 1: 325-336.