

# BACTERIAL ETIOLOGY OF EMPYEMA THORACIS AND PARAPNEUMONIC PLEURAL EFFUSION IN THAI CHILDREN AGED LESS THAN 16 YEARS

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**Abstract.** This study aimed to identify the bacterial etiology of empyema thoracis or parapneumonic pleural effusions in Thai children, with a focus on pneumococcus. This hospital-based, descriptive study included children aged ≤16 years, diagnosed with empyema thoracis or parapneumonic pleural effusion, from whom a pleural fluid (PF) sample was taken between January 2008 and November 2009. PF and blood samples were cultured and PF samples were also tested by polymerase chain reaction (PCR) to assess whether evidence of an infection might be identified among culture-negative samples. Serotyping of *Streptococcus pneumoniae*-positive samples was performed by molecular techniques and Quellung reaction. In this study, 29 children with empyema thoracis and 42 children with parapneumonic pleural effusion were enrolled. Potentially pathogenic bacteria were cultured in 13/71 samples at local or central laboratories; the most common bacteria were *Staphylococcus aureus* (8 children) and *S. pneumoniae* (2 children). Molecular techniques detected one or more targeted respiratory pathogens in 18/71 PF samples. *S. pneumoniae* and *Haemophilus influenzae* were identified by PCR in 13 and 6 children, respectively; PCR for *S. aureus* was not performed. The pneumococcal serotypes identified were 1, 3, 5, 6A/B, 9A/V, 14, 15A, 19F and 23A. This study shows that among Thai children with empyema thoracis and parapneumonic pleural effusions, *S. aureus* and *S. pneumoniae* were the most common pathogens identified by culture and PCR, respectively. These findings confirmed that molecular techniques are more sensitive for identification of *S. pneumoniae* and *H. influenzae* and enhance detection of important bacterial causes of empyema.

**Keywords:** empyema thoracis, uncomplicated parapneumonic pleural effusion, etiology, Thai children

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