

It is never too late. A call for research in pleural medicine

Nunca es demasiado tarde. Un llamado a la investigación en medicina pleural

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Twenty-five years have passed since the publication of the guidelines of the American College of Chest Physicians (ACCP)¹ for the management of parapneumonic pleural effusion. Despite being based on expert consensus, the classification remains a current reference for the treatment of pleural infections because it follows the pathophysiology of the disease step by step. In this issue of the *Revista de Neumología y Cirugía de Tórax*, Báez et al. decided to incorporate clinical variables associated with a poor prognosis (i.e., the development of empyema) into the ACCP classification.²

Using a robust methodology, they compared a cohort of 100 patients with empyema (category 4 in the ACCP classification) with 108 patients with pleural infection who did not develop empyema. This study revealed that patients who had more than 15 days between symptom onset and hospital admission were four times more likely to be classified as having empyema, highlighting diagnostic delay as a systemic public health problem in Latin America. It is clear that this delay in the clinical management of pleural infections is multifactorial – ranging from the lack of advanced diagnostic tools to the limited availability of therapeutic options, such as intrapleural fibrinolytic administration or video-assisted thoracoscopic surgery (VATS);³ consequently, this study is highly relevant.

Following multivariate analysis, Báez et al. identified hyperglycemia as a predictor of empyema (odds ratio [OR]: 2.93), a finding not previously described. However, prospective evidence also supports this association.

The RAPID score, developed from the MIST1 and MIST2 trials and prospectively validated in the PILOT study, integrates host clinical variables to predict three-month mortality.^{4,5} Although hyperglycemia and diabetes are not part of this score, the observed association suggests that metabolic status may provide additional prognostic information in pleural infection, particularly in populations with a high prevalence of metabolic disease.

One of the most clinically relevant findings is that microbiological identification was achieved in only 37% of patients and was associated with a greater risk of empyema (OR: 3.02). Although this may reflect a higher bacterial burden or a more advanced stage of disease, it also underscores a limitation of the traditional approach: a considerable proportion of patients with clinically relevant pleural infection may present with negative cultures. In this context, a simple and low-cost intervention, such as inoculating pleural fluid into blood culture bottles, emerges as a tool to improve microbiological yield. In the prospective study by Menzies et al., this strategy increased the pathogen identification rate from 37.7% to 58.5%, an absolute increase of 20.8%.⁶ Consequently, this practice has been incorporated into contemporary recommendations, including the European Respiratory Society (ERS)/European Society of Thoracic Surgeons (ESTS) guideline, which advocates the systematic submission of pleural fluid in aerobic and anaerobic blood culture bottles as part of standard processing.⁷

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Date of reception: 13-04-2026

Date of acceptance: 16-04-2026

DOI: 10.24875/NCTE.M26000032

Available online: 21-10-2026

Neumol Cir Torax (Eng). 2025;84(4):253-254

www.revistanct.org.mx

The article employs chest computed tomography (CT) as a tool for characterizing pleural effusion, identifying multiple loculations and pachypleuritis as risk predictors for the development of empyema – findings of clear clinical value. However, the authors acknowledge that during the study period, thoracic ultrasound was not in systematic use at their institution. In the context of pleural infection, a study that used medical thoracoscopy as the reference standard demonstrated a higher sensitivity of ultrasound compared with contrast-enhanced CT for the detection of septa (82.6% vs. 59.8%), with high specificity in both modalities.⁸ This is a clinically relevant finding, given that the presence of septa may modify the assessment of effusion complexity and guide therapeutic decisions. Unlike CT, ultrasound is repeatable, radiation-free, can be performed at the bedside, and allows real-time guidance of interventions. In current practice, the discussion no longer revolves solely around whether ultrasound can replace CT, but rather around defining the clinical scenarios in which CT provides additional information that modifies clinical management.

The practice described in the article also contrasts with contemporary developments in pleural drainage management. Currently, small-bore catheters (8-14 Fr), placed under image guidance, have become established as a first-line option in many clinical scenarios, in keeping with the recent recommendations of pleural disease guidelines.⁷ A recent systematic review reported variable failure rates with these devices, particularly in pleural infection, which reflects the intrinsic complexity of these cases rather than an absolute limitation of the method.⁹ In this context, current evidence favors a stepwise approach, in which drainage with small-bore catheters is combined with intrapleural therapies – such as fibrinolytics or irrigation – before more invasive interventions are considered.⁷ This paradigm shift suggests that drain caliber, rather than serving as an isolated determinant, should be interpreted within a comprehensive management strategy that includes early evaluation, image guidance, and timely therapeutic escalation.

Furthermore, a recent meta-analysis¹⁰ revealed that the use of intrapleural fibrinolytic therapy reduces the need for surgery from 23% to 11% in patients with empyema when compared with standard drainage treatment. In contrast, this study revealed that more than half of the patients required a surgical intervention. This remarkably high rate may be attributable to both the aforementioned diagnostic delay and the fact that

the cohort was analyzed prior to the widespread adoption of intrapleural fibrinolytic therapy. Given that fibrinolytics now constitute a fundamental component of the treatment of pleural infection, it will be relevant to evaluate the impact of this therapy on clinical factors in future studies.

This study has the strength of being one of the few existing Latin American series; however, it is unfortunately single-center and retrospective. The capacity to integrate Latin America into global studies through platforms such as IMPACT¹¹ or to generate cohorts for the study of our epidemiological reality represents an important need, as evidenced by this study – particularly in our context, where the prevalence of diabetes and referral timelines differ from those of European cohorts. Only through further research will we be able to offer our patients personalized clinical care that mitigates the risk of developing empyema following a pleural infection.

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