been avoided because it has, probably, led to the placement of intercostal tube twice in patients undergoing MT (an initial tube of a small size followed by a large tube after MT).

Regarding the performance of the MT, the authors have not mentioned the sedation protocol used for the MT, as it will affect the patient discomfort, procedure duration, ability to complete the procedure, and success achievement in pleural clearance. The proportion of patients undergoing rigid versus semirigid medical thoracoscopy is also not clear. The instrument used may also affect the procedure performance and success (4). The closed forceps used for adhesiolysis are usually large in case of rigid thoracoscope and may be more effective in comparison to thin forceps used with the semirigid instrument. Similarly, the use of a suction irrigation device may also affect the pleural clearance, and it cannot be routinely used for semirigid instruments. In the discussion, the authors have mentioned the utility of obtaining a pleural biopsy during MT to increase the microbiological yield. It is worth mentioning here that the pilot study quoted by the authors used ultrasound-guided pleural biopsies, which are feasible in the intrapleural fibrinolytic arm as well (5). There is no added advantage of MT in obtaining a pleural biopsy to increase the microbiological yield when it can be safely performed under ultrasound guidance.

In view of these issues, we suggest that the trial results should be interpreted with caution while applying in routine clinical practice.

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Reply: Medical Thoracoscopy for Pleural Infection: Are We There Yet?

From the Authors:

We thank Dr. Pahuja and colleagues for their interest in our manuscript (1). Length of stay (LOS) has been suggested as a meaningful outcome measure for quality of care (2). LOS following intervention is an indirect measure of clinical improvement in pleural infection. If LOS decreases, then intervention is efficient and effective, as patients with extended LOS often consume substantial hospital resources, increase healthcare costs, and increase the risk of nosocomial infections. In pleural infection, radiological changes can often persist after clinical improvement and should not be the sole criteria for continuation of therapy or would be the only indication of treatment failure. Furthermore, treatment of either intrapleural fibrinolytic therapy or medical thoracoscopy (MT) have been shown to be effective in clinical practice, with only up to 15% requiring any further surgical intervention or referral (3, 4), making a clinical trial design with such primary outcome impractical. It is well recognized that patients with early-stage pleural infection who were initially admitted or referred for evaluation will be eventually be discharged home once they have clinical improvement and do not require chest tube or further intervention. Regarding the duration before enrollment, the inclusion criteria clearly mentions that MT could be performed within 48 hours from the time of chest tube placement, or patients would not be considered for enrollment in either arm.

Although historically large-bore chest tubes have been used for drainage of pleural infection, clinical evidence from a large prospective cohort indicated that small-bore chest tubes (≤14 F) are as effective and are better tolerated owing to less pain (5). Based on current evidence and extensive experience, our practice is to insert small-bore chest tubes in all patients with an infected pleural space before deciding whether intrapleural fibrinolytic or MT is even needed.

Regarding MT, as mentioned in the Methods section, thoracoscopy was performed under moderate sedation and local anesthesia, which was consistently done in all centers. The use of either semirigid or rigid thoracoscope, number of ports, and suction irrigator were left to the operator's preference. However, rigid MT was almost exclusively used by all operators with the goal to mechanically remove any adhesions and break down loculations. In any case, the study mentioned by the group (6) confirmed that diagnostic yield and technical success was similar. Furthermore, pleural biopsy can be safely performed using

ultrasound-guided technique or during MT if such a procedure is already planned for pleural infection.

In summary, as concluded by our study, MT can be used safely in selected patients for pleural infection and might shorten hospital stay as compared with intrapleural fibrinolytic therapy. The performance of such a procedure in pleural infection must consider the operator's expertise as well as the patient's preference and medical comorbidities during routine clinical practice.

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