

MATTERS ARISING

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Beyond routine bronchoscopy during percutaneous dilatational tracheostomy: should systematic ultrasonography be considered?

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The recent article by Nachshon et al., entitled “The Impact of Bronchoscopy on the Safety of Percutaneous Tracheostomy: A Randomized Controlled Trial,” provides valuable evidence regarding the role of bronchoscopic guidance during percutaneous dilatational tracheostomy (PDT) [1]. In this prospective randomized trial, the authors demonstrated that routine bronchoscopy did not reduce major procedural complications or mortality but was associated with longer procedural duration and greater resource requirements, supporting the safety and feasibility of PDT without routine bronchoscopic assistance in experienced centers [1]. These findings represent an important contribution to the ongoing discussion regarding optimal procedural guidance during PDT. However, the role

of ultrasonography as an alternative or complementary imaging modality deserves further consideration.

Although the study provides compelling evidence against routine bronchoscopy, its findings should be interpreted within the context of patient selection. Patients with anatomical features associated with difficult percutaneous access, including poorly defined cervical anatomy, cervical instability, neck masses, or extensive scarring, were excluded [1]. Therefore, the study population represented patients with relatively favorable anatomical conditions, limiting extrapolation to situations in which imaging guidance may provide the greatest benefit.

One of the most feared complications of PDT is vascular injury, which, although uncommon, can result in catastrophic hemorrhage. Anatomical variations of the brachiocephalic artery, thyroid vessels, and anterior cervical vasculature may place significant vascular structures within the intended puncture pathway [2]. Reliance solely on anatomical landmarks and external examination may fail to detect these variations [3]. In contrast, pre-procedural ultrasonography enables direct evaluation of cervical anatomy, including identification of the tracheal midline, tracheal rings, thyroid structures, and potentially hazardous vessels before needle insertion [4].

Evidence supporting ultrasound-guided PDT has progressively expanded [5]. In the TRACHUS randomized

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trial, Gobatto et al. demonstrated that ultrasound-guided PDT was noninferior to bronchoscopy-guided PDT regarding procedural safety and complication rates [6]. More recently, Taha et al. showed comparable outcomes between real-time ultrasound-guided laryngeal mask-assisted PDT and bronchoscopy-guided PDT in critically ill patients [2]. These findings suggest that ultrasonography may provide important anatomical information traditionally unavailable with landmark-based approaches while avoiding some limitations associated with bronchoscopy, including airway obstruction, impaired ventilation, and increased procedural complexity [5].

Importantly, bronchoscopy and ultrasonography should not be viewed as interchangeable techniques because they address different procedural risks. Bronchoscopy provides intraluminal visualization, confirms needle and guidewire positioning, and assists with final cannula placement. Conversely, ultrasonography provides extraluminal assessment before puncture, particularly regarding vascular anatomy and selection of the safest entry site [6]. Therefore, the central question may no longer be whether bronchoscopy should be routinely used during PDT, but rather how imaging modalities can be selectively incorporated according to patient-specific procedural risks.

Nachshon et al. appropriately conclude that bronchoscopy may remain useful in anatomically complex or high-risk cases [1]. Future investigations should move beyond comparisons of bronchoscopy versus no bronchoscopy and evaluate individualized, risk-adapted strategies incorporating ultrasonographic assessment. Such approaches may better define how to maximize procedural safety while minimizing unnecessary complexity, resource utilization, and cost during PDT.

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Competing interests

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