Endobronchial ultrasound access to the vasculature: systematic review and analysis of the literature

Abstract #P003

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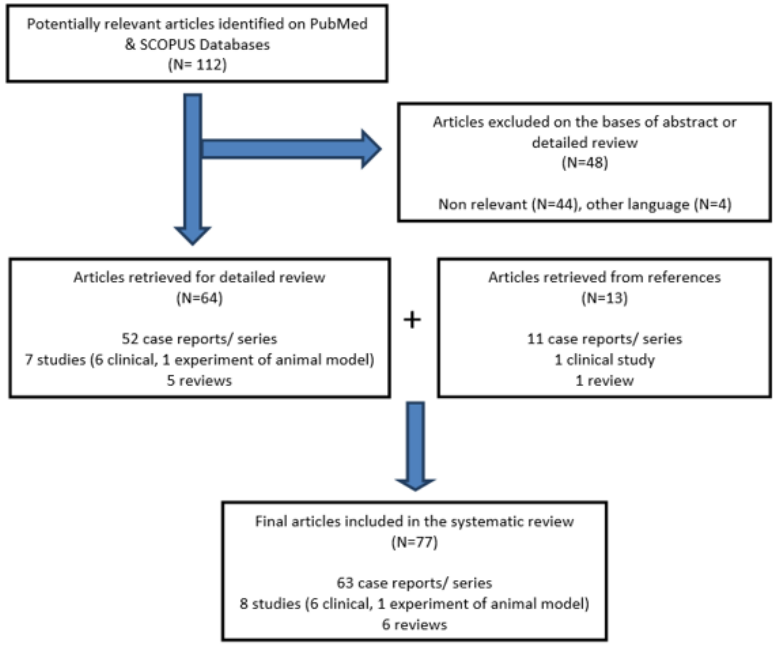
Background

EBUS allows to access the pulmonary vasculature. The aim of this review is to assess the role of EBUS for pulmonary embolism, non-thrombotic vascular lesions or vascular tumors, transvascular needle aspiration and T4 staging.

Methods

PubMed and SCOPUS databases were searched for articles in English language reporting the use of EBUS for the above indications. Their references were also searched for relevant articles The search was performed up to November 2021.



Results

112 articles were retrieved of which 44 were excluded due to non relevant topic and 4 due to non-English language. Another 13 articles were identified from references. Finally, 77 articled were included in the study.
A new systematic approach for the detection with EBUS of pulmonary artery filling defects has been proposed in the literature. Aumillier et al and Li P et al have proposed two possible models of vascular assessment.

Diagnostic accuracy for pulmonary embolism

- Casoni et al: first report of a PE diagnosed with an EBUS bronchoscope in 2008.
- Aumiller et al: clinical pilot study for central Pes in 2009. 96% accuracy and 100% diagnosis.
- 78 cases in total. Incidental findings and diagnosis of endovascular lesions.

Assessing T4 status

- Alici et al: sensitivity 100%
- Kuijvehoven et al: sensitivity 63,9%, specificity 92,6%, PPV 82,1% and NPV 82.9 %

Diagnosis of non-thrombotic endovascular lesions

- Blanc et al: first EBUS-TBNA diagnosed tumor embolism in 2011
- 9 cases of tumor embolism and 1 case of septic embolism. Most initially treated as PE
- 9 cases of pulmonary artery sarcomas diagnosed with EBUS
- 25 cases in total.

Transvascular needle aspiration of solid perivascular lesions

- Vincent et al: first EBUS TVNA in 2006
- 240 cases in total. Feasible. Low complication rates

Conclusions

- EBUS bronchoscope with color Doppler enables effective localization of the vessels adjacent to the bronchi.
- Cases reports of EBUS/EUS b assessing the vasculature are increasingly found in the literature.
- The combined endobronchial ultrasonography targeting the vascular or perivascular lesions and subsequent transvascular approach of various lesions could increase the diagnostic yield of this procedure without significantly affecting the safety profile.