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Endobronchial Ultrasound-Guided Transtunnel Forceps Biopsy of Intrathoracic Lymph Nodes (TUNNEL): A Multicenter Clinical Study

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*AI Use Disclosure: No AI tools were used in the preparation of this presentation.

Science Without Boundaries: **Uniting the World Against Thoracic Cancer**

Introduction

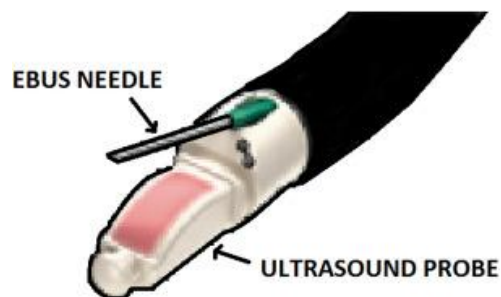
Chest, 2016, 149(3): 816–835.
Ann. Am. Thorac. Soc. 2019, 16, 1432–1439.
Respirology. 2015;20(2):226-234.
Chest, 2018, 154(4): 827–837.
Ann. Thorac. Surg. 2020, 109(3): 894–901.

EBUS-TBNA

(Endobronchial ultrasound-guided
transbronchial needle aspiration)

Current standard

- Standard method for diagnosing and staging lung cancer
- Inadequate tissue acquisition may limit histological diagnosis and molecular testing

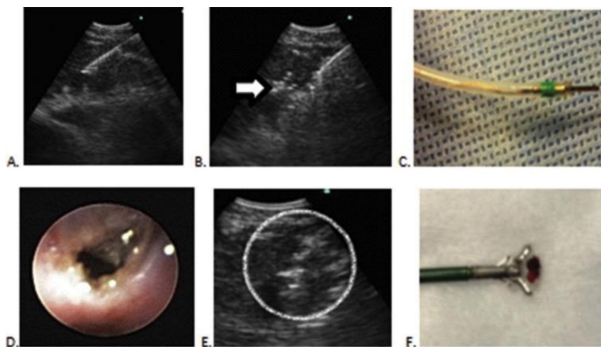


EBUS-IFB

(Endobronchial ultrasound-guided
intranodal forceps biopsy)

Additional tissue acquisition

- Provides larger tissue samples with preserved architecture
- May require electrocautery, increasing technical complexity



EBUS-TTFB

(Endobronchial ultrasound-guided
transtunnel forceps biopsy)

Our approach

- Creates a tunnel using a puncture dilation catheter
- Enables direct forceps biopsy after inadequate EBUS-TBNA sampling

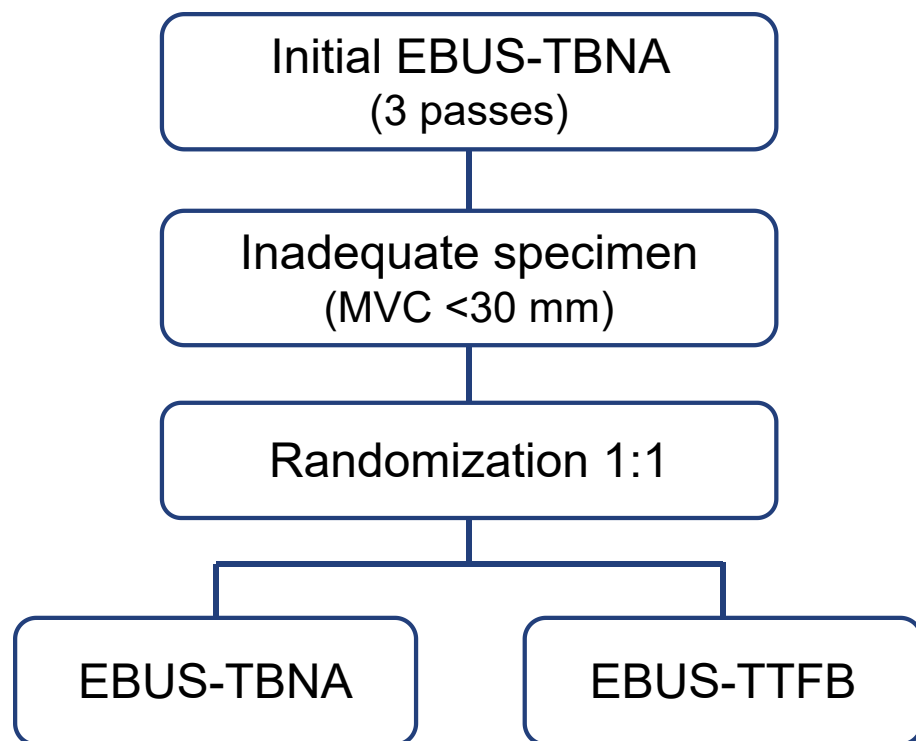


Objective: To compare the efficacy and safety of EBUS-TTFB with EBUS-TBNA after inadequate initial sampling

Method

- Prospective, multicentre, randomized controlled trial

Study design



Endpoints

Primary endpoint
Diagnostic yield*

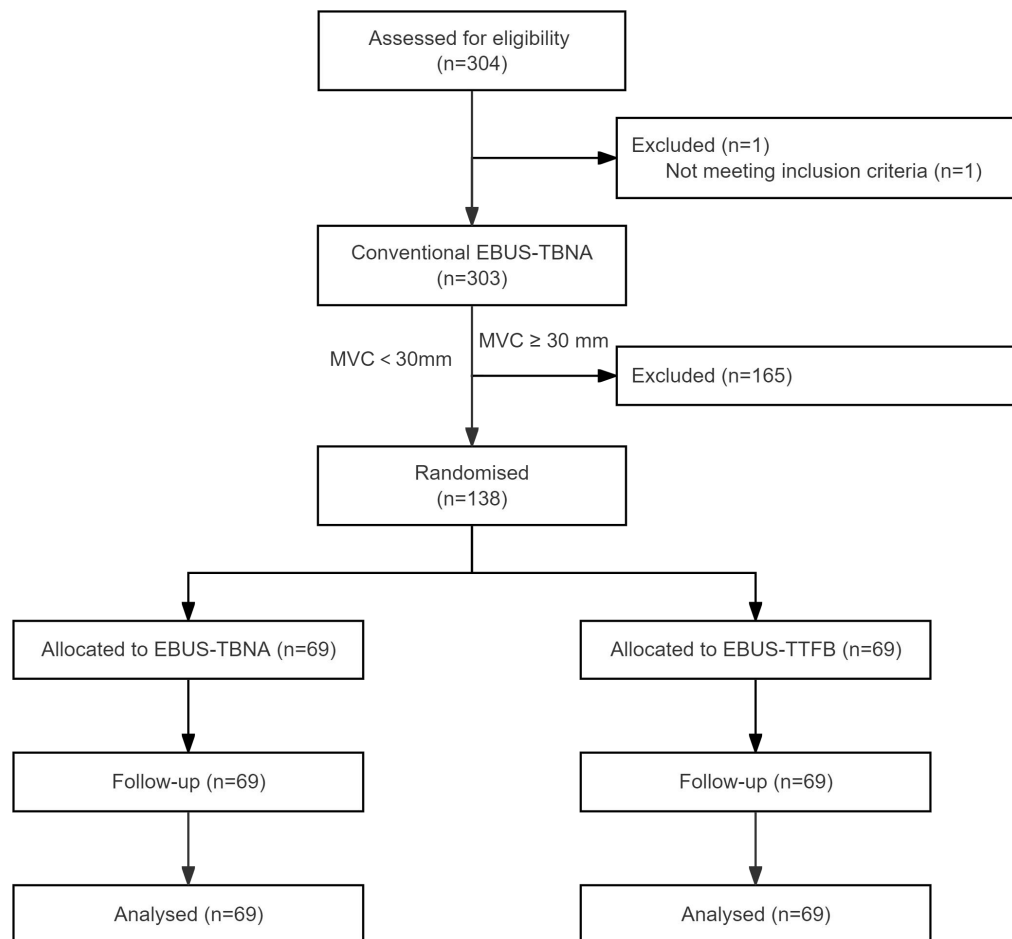
Secondary endpoints

- Specimen adequacy for lung cancer next-generation sequencing
- Procedure time
- Tunnel creation success rate
- Safety

* The definition of the diagnostic yield was based on *Am J Respir Crit Care Med.* 2024;209(6):634-646.

Results

Patient disposition

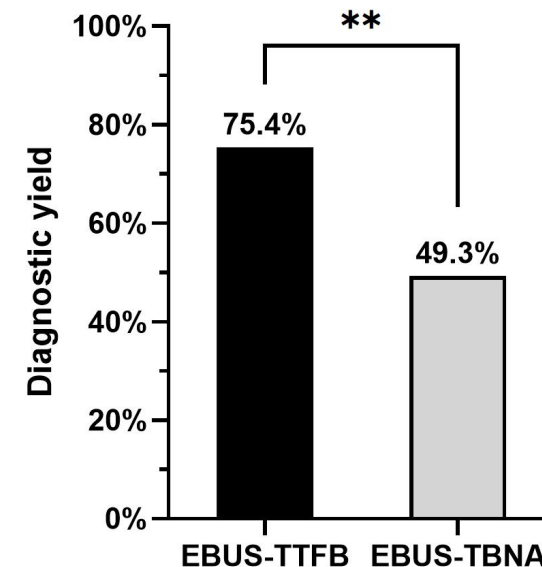


Primary endpoint

Diagnostic yield

- EBUS-TTFB **75.4%**
- EBUS-TBNA 49.3%

$$p = 0.0016$$



Secondary endpoints

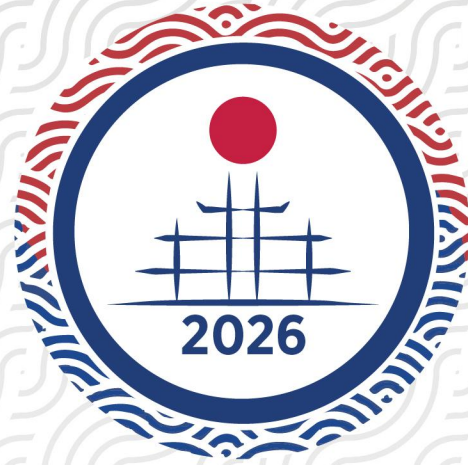
	EBUS-TBNA (n=69)	EBUS-TTFB (n=69)	p-value
Total procedure time (s)	851 (725, 976)	1200 (1041, 1560)	< 0.001
Tunnel creation success rate	/	100.0% (69/69)	/
Biopsy specimen adequacy for next-generation sequencing	71.4% (10/14)	100.0% (17/17)	0.032
Adverse event			1.000
Bleeding	1.4% (1/69)	0	
Pneumothorax	0	0	
Infection	0	0	
Mediastinal hematoma	0	0	
Emphysema	0	0	

Take-home message

- EBUS-TTFB achieved a higher diagnostic yield than EBUS-TBNA after inadequate initial sampling.
- EBUS-TTFB improved specimen adequacy and achieved a 100% tunnel creation success rate.
- The improved tissue acquisition was accompanied by a longer procedure time, with no severe adverse events observed.

Conclusion

- EBUS-TTFB might be a potential alternative for patients with insufficient specimens from EBUS-TBNA.



Thank You.●