

Evaluation and experience of a newly established national navigational bronchoscopy service in Scotland

Millar FR¹, Giavedoni S¹, McCafferty JB¹, Marshall ADL¹

1. Department of Respiratory Medicine, Royal Infirmary of Edinburgh

WCBIP meeting, Marseille, 6-9th October 2022

E-poster P030

Background

- Electromagnetic navigation bronchoscopy (ENB) is a bronchoscopic technique that allows access to peripheral lung lesions not targetable with conventional flexible bronchoscopy.
- There are very few published performance/safety reports of ENB use in the UK.
- We report our initial experience of ENB in a UK teaching hospital servicing patients from across Scotland.

Methods

- We evaluated diagnostic performance and safety outcomes from the first 70 cases of ENB from a newly established national ENB service.
- All procedures were performed on an outpatient basis under conscious sedation using an Olympus 1T bronchoscope and the Medtronic SuperDimension™ navigation system.
- Sampling techniques including biopsy, needle aspiration, endobronchial brushing and endobronchial washing were performed at the discretion of the operator.



Results

Table 1. Patient demographics	
Age	69.32 +/- 11.24 (mean +/- SD)
Sex	57.1% female
Sedation	Midazolam 3 +/- 1mg (median +/- IQR) Alfentanil 500 +/- 300mcg (median +/- IQR)

Table 2. Safety outcomes	
Pneumothorax	1/70 (1.43%)
Minor bleeding (no intervention)	1/70 (1.43%)
Moderate bleeding (cold saline/adrenaline)	1/70 (1.43%)

Table 3. Diagnostic outcomes	
True positive	41
False positive	0
True negative	6
False negative	23
Diagnostic (TP+TN/total)	67.14%

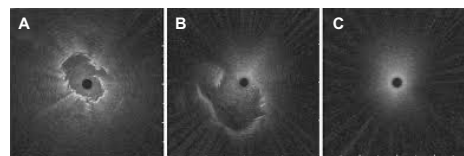
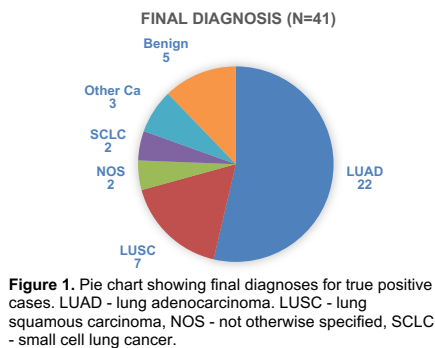


Figure 2. Radial EBUS images demonstrating concentric (A), eccentric (B) and no lesional visualization (C). Adjusted from Lee et al 2019. *Respir Res.*

Table 4. Lesion parameters (with diagnostic sampling percentage in red)	
Size	32.26 +/- 14.2mm (mean +/- SD) <30mm 15/27 (56%) vs >30mm 27/38 (71.1%)
Location	Proximal third 1/1 (100%) Middle third 25/34 (73.53%) Outer third 21/35 (60%)
Bronchus sign	Positive in 63/70 (90%)

Table 5. Radial EBUS (with diagnostic sampling percentage in red)	
rEBUS y/n	Without rEBUS 15/24 (62.5%) vs with 32/46 (69.6%)
Image	Concentric 16/19 (84.2%) Eccentric 9/14 (64.3%) Not visualized 1/5 (20%)
Lesion size	Without rEBUS 39.2+/-14.2mm vs with 30.1+/-12.9mm (mean+/- SD, p=0.011)

Conclusions

- Our data demonstrate that we have successfully established a national ENB service with relatively high diagnostic yield and low complication rates.
- Ongoing experience and learning are expected to lead to further improvements in these parameters.