

Value of electromagnetic navigation bronchoscopy combined with radial ultrasound in diagnosis of small peripheral lung lesions

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Purpose

To study the application of electromagnetic navigation technology (ENB) combined with radial ultrasound (r-EBUS) in the diagnosis and treatment of small peripheral pulmonary lesions.

Methods

ENB was performed by fiberoptic bronchoscopy; the location of the lesion was determined by radial ultrasound after navigation, and biopsy specimens were obtained through the working channel.

Results

A total of 33 lesions in 32 cases, the navigation success rate was success rate was 87.87% (29/33). The sensitivity, specificity, agreement rate, negative predict value and Youden index were 50% (6/12), 100% (21/21), 81.82% (27/33), 77.7% (21/27) and 0.5, respectively. The consistency of ENB combined with r-EBUS and gold standard was moderate (Kappa = 0.56).

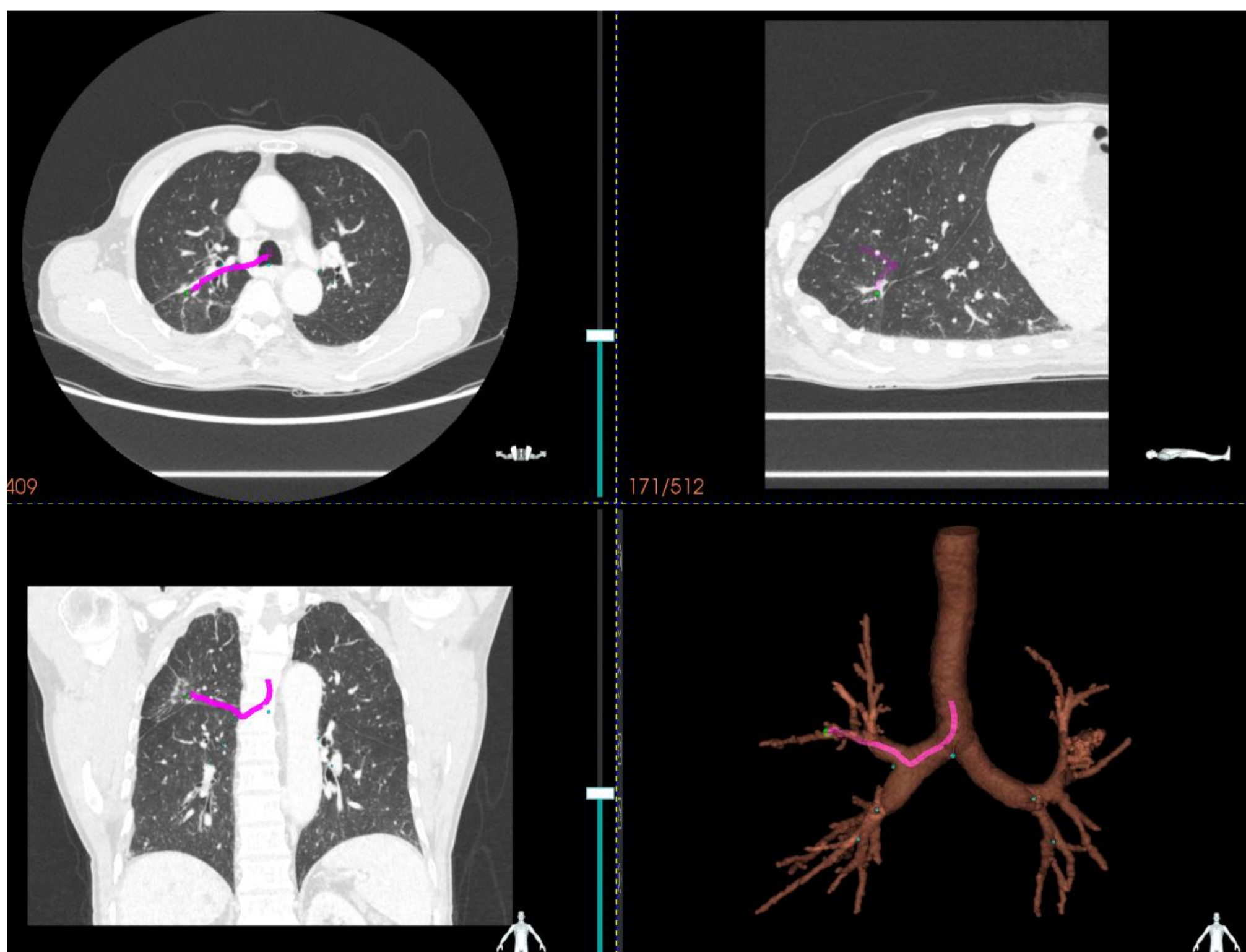


Figure1: Three-dimensional images of the lung and airways were generated based on thin-section CT and then the path to the target nodule was planned.

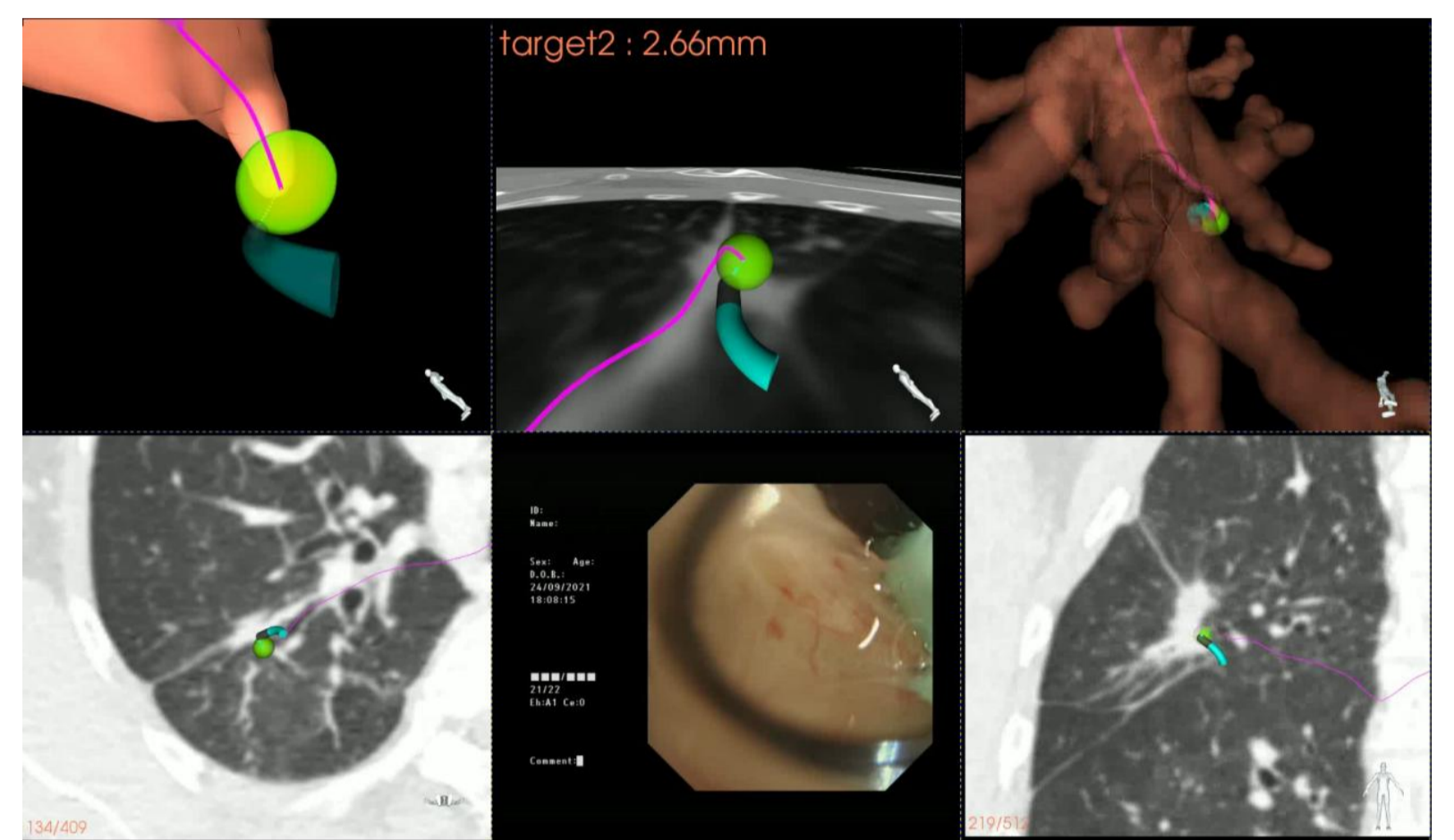


Figure2: Under electromagnetic navigation guidance, the extended working channel reached the position 2.66 mm away from the lesion, locked the extended working channel, withdrawn the locatable guide, and introduced the biopsy instruments through the EWC into the lesion.

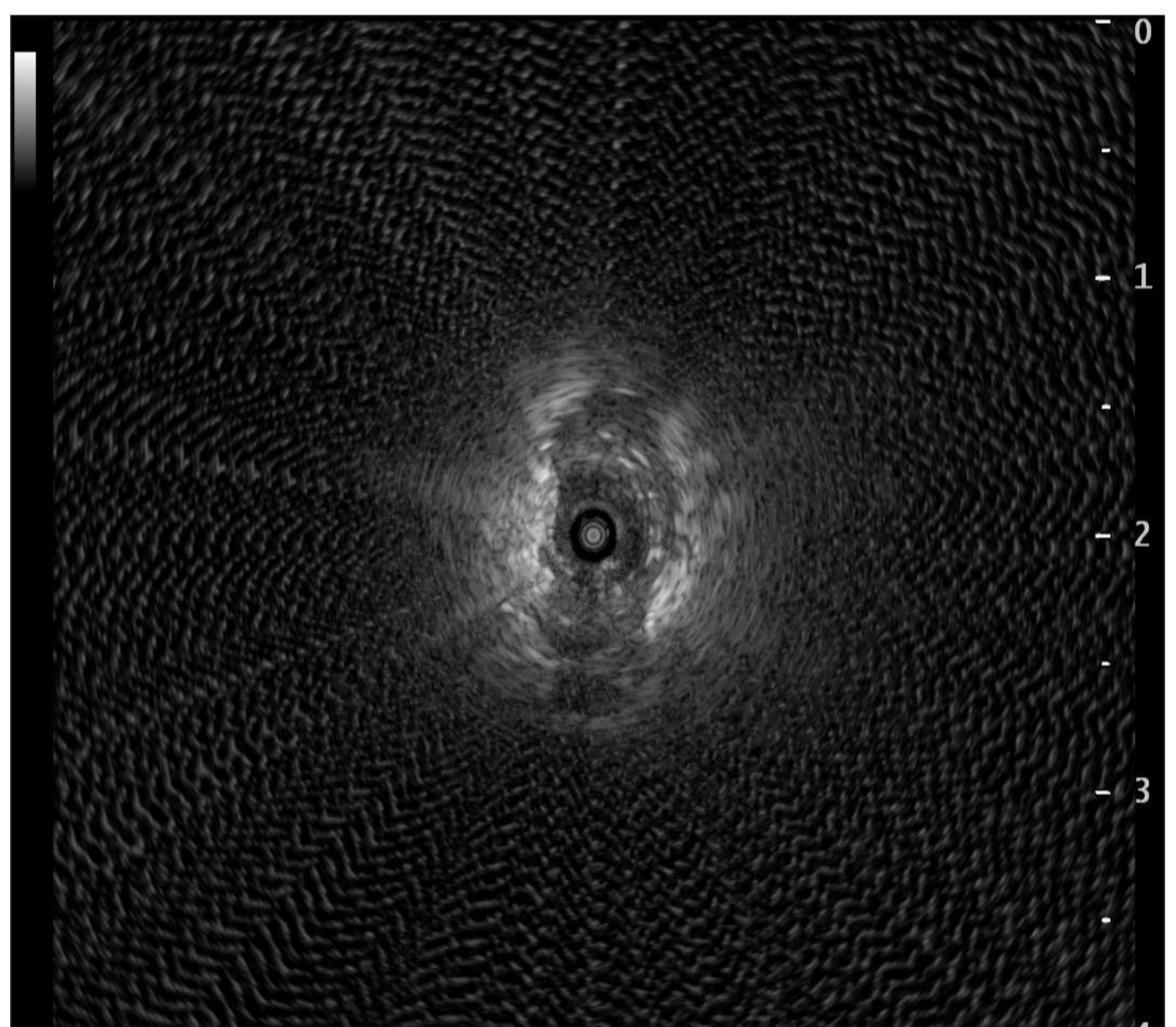


Figure3: Before biopsy, a R-EBUS is passed through the extended working channel with a snowstorm sign at the target location, confirming that the lesion was reached, and biopsy was performed.

Conclusions

For small peripheral pulmonary lesions, ENB can be promoted as a new effective bronchoscopy technique in combination with radial ultrasound.

Conflicts of Interest

None of the authors have potential conflicts of interest to declare.