Diagnosis of 10mm eccentric lesion

Dr. Kyle Hogarth

CASE STUDY

Fig 1. Biopsy needle penetrates an airway wall during biopsy of peripheral 10mm superior segment nodule with the aid of continuous vision and robot-assisted tip control. Data on File

BACKGROUND

A 62 year old male with a history of lower rectal adenocarcinoma (4 years prior) underwent a CT scan in November that revealed scattered 7mm nodules in the lung. A follow-up CT scan in February revealed a slight increase in a single RLL nodule to 8mm, and the next follow up scan in May revealed the nodule was now 10mm. Initial concern was either a primary lung cancer or a slow growing rectal cancer metastasis. The patient was initially referred to Thoracic Surgery for resection, but after realizing the difficult location of the nodule and potential surgical procedure restrictions, the patient was referred to Pulmonary for a diagnosis.

PROCEDURE

Pre-Procedural Plan

Examination of the CT scan showed no discernible bronchus sign. However, an airway appeared to pass by the location in question just before the nodule appeared on CT. The pre-procedural plan involved gaining access to this tough superior segment airway, stabilizing position with the Monarch™ sheath, and using robot-assisted controlled scope movements to orient to the nodule and biopsy from a distance of 2-3 cm.

Monarch Procedure

Confidence in providing a positive diagnosis was high in this case for two reasons: Pathology would provide instantaneous feedback on biopsy specimens, and the Monarch endoscope would provide the opportunity to make small adjustments to biopsy location based on the Pathologist's feedback. Approximately 3 minutes after introducing the bronchoscope, the sheath and scope were positioned in the desired location. Radial EBUS revealed an eccentric pattern, which literature shows typically leads to a diagnosis in 40-50% of cases[1]. In this case, by utilizing feedback from Pathology and making fine adjustments to the scope tip location, biopsies were obtained in a grid-like pattern. A diagnostic specimen was obtained on the 5th needle pass. Pathology confirmed the nodule as a rectal cancer metastasis.

NODULE CHARACTERISTICS

Lobar Location
Superior Segment, RLL

Size (Maximum Diameter)
10mm

Bronchus Sign
Negative

REBUS
Eccentric

Nodule visible with fluoro
No

Nodule visible with Monarch™ Platform?
No

CASE INFORMATION

Navigation Time
00:03:50

Total Procedure Time
00:40:08

Biopsy Tools Used
Biopsy needle

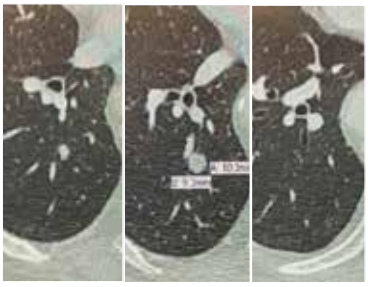

Fig 2. CT images showing lung nodule and nearby bronchi

> *The small, eccentric lesion is where the robot really shines.*

Fig 3. Camera view with REBUS probe present in upper left yielding eccentric pattern

Fig 4. Dr. Hogarth using Monarch Platform.

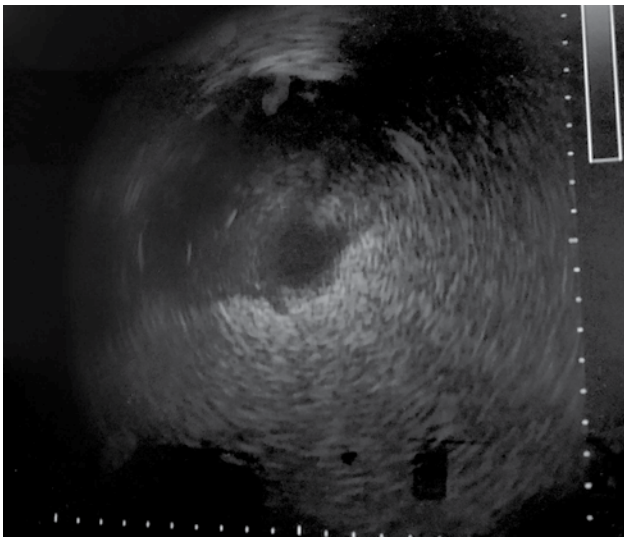

Fig 5. Eccentric REBUS pattern

CONCLUSIONS

Fine robot-assisted distal control of the endoscope tip, combined with the ability to watch biopsy tools enter through the airway wall at the intended location, facilitated a diagnosis of this small peripheral lesion located in a difficult-to-access area of the lung.

Due to the location of the nodule and potential this may be a new diagnosis of primary lung cancer, Thoracic Surgery felt the best option for this patient was a right lower lobectomy. The ability to reach the nodule and make a diagnosis ahead of the planned surgery changed this patient's treatment plan. This patient went on to have a tissue-sparing wedge resection.

About Kyle Hogarth, MD, FCCP

Dr. Hogarth is a Professor of Medicine and Director of Bronchoscopy in Chicago, IL

1. Chen AC, Loiselle A, Zhou L, Baty J, Misselhorn D. Localization of peripheral pulmonary lesions using a method of computed tomography-anatomic correlation and radial probe endobronchial ultrasound confirmation. Ann Am Thorac Soc 2016;13:1586–1592.

Indications for Use: The Monarch™ Platform and its accessories are intended to provide bronchoscopic visualization of and access to patient airways for diagnostic and therapeutic procedures.

Important Safety Statement: Complications from bronchoscopy are rare and most often minor, but if they occur, may include breathing difficulty, vocal cord spasm, hoarseness, slight fever, vomiting, dizziness, bronchial spasm, infection, low blood oxygen, bleeding from biopsied site, or an allergic reaction to medications. It is uncommon for patients to experience other more serious complications (for example, collapsed lung, respiratory failure, heart attack and/or cardiac arrhythmia).

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Dr Kyle Hogarth is compensated by and writing on behalf of Auris Health and must present information in accordance with applicable FDA requirements.

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