



## Case report

## Esophagus leiomyoma diagnosed with convex endobronchial ultrasound (EBUS)



Paul Zarogoulidis<sup>a,b,\*</sup>, Stella Laskou<sup>b</sup>, Athanasios Katsaounis<sup>b</sup>, Efstathios Pavlidis<sup>b</sup>, Dimitrios Giannakidis<sup>b</sup>, Charilaos Koulouris<sup>b</sup>, Stylianos Mantalovas<sup>b</sup>, Ioanna Kougioumtzi<sup>c</sup>, Nikolaos Katsikogiannis<sup>c</sup>, Fotis Konstantinou<sup>d</sup>, Wolfgang Hohenforst-Schmidt<sup>e</sup>, Haidong Huang<sup>f</sup>, Chong Bai<sup>f</sup>, Alkis Euthimiou<sup>g</sup>, Dimitris Hatzibougas<sup>h</sup>, Iota Fiteli<sup>h</sup>, Chrysanthi Sardeli<sup>i</sup>, Aggeliki Rapti<sup>j</sup>, Isaak Kesisisoglou<sup>b</sup>, Konstantinos Sapalidis<sup>b</sup>

<sup>a</sup> Pulmonary-Oncology Unit, “Theageneio” Cancer Hospital, Thessaloniki, Greece

<sup>b</sup> 3rd Department of Surgery, “AHEPA” University Hospital, Aristotle University of Thessaloniki, Medical School, Thessaloniki, Greece

<sup>c</sup> Surgery Department (NHS), University General Hospital of Alexandroupolis, Democritus University of Thrace, Alexandroupolis, Greece

<sup>d</sup> Thoracic Surgery Department, University General Hospital of Alexandroupolis, Democritus University of Thrace, Alexandroupolis, Greece

<sup>e</sup> Sana Clinic Group Franken, Department of Cardiology /Pulmonology /Intensive Care /Nephrology, “Hof” Clinics, University of Erlangen, Hof, Germany

<sup>f</sup> Department of Respiratory and Critical Care Medicine, Changhai Hospital, The Second Military Medical University, Shanghai, China

<sup>g</sup> Gastroenterology Department, “Saint Luke” Private Hospital, Thessaloniki, Panorama, Greece

<sup>h</sup> Microdiagnostics, Private Pathology Lab, Thessaloniki, Greece

<sup>i</sup> Department of Pharmacology & Clinical Pharmacology, School of Medicine, Faculty of Health Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece

<sup>j</sup> Pulmonary Department, “Sotiria” Hospital of Chest Diseases, Athens, Greece

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## ABSTRACT

Esophageal leiomyoma are rare benign tumors of the esophagus and they remain usually undiagnosed until local compression symptoms occur in the esophagus. Gastroscopy or esophageal ultrasonography (EUS) are usually the methods of choice for diagnosis. Moreover; surgery is the solution for this entity. In our case we present diagnosis of esophageal leiomyoma using convex probe endobronchial ultrasound (EBUS) with a fine needle aspiration of 22G.

### 1. Introduction

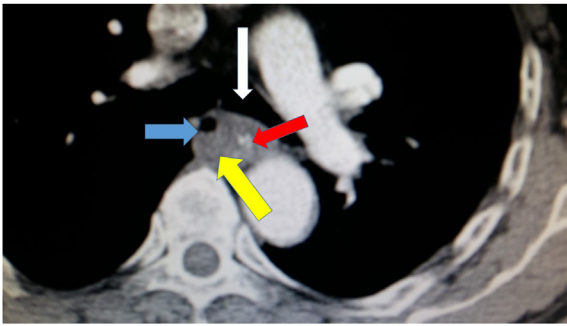
Interventional pulmonology has new and emerging technologies and techniques for diagnosis of lesions (central and peripheral). Regarding central lesions we can use the convex probe endobronchial ultrasound (EBUS) [1–3]. Regarding peripheral lesions we use the radial endobronchial ultrasound [4]. Moreover; electromagnetic navigation and bronchoscopy under cone beam CT are also valuable and efficient for peripheral lesions [5–7]. Gastroenterologists have their own diagnostic equipment such as; gastroscopy, colonoscopy and esophageal ultrasonography (EUS) with radial and convex probes. Different systems from different companies are also in the market for many years now. There are several lesions in the thorax mainly in central positions around the trachea-esophagus or even around large vessels and stem bronchus that can be diagnosed with both EBUS and EUS. The tool and technique that a doctor can use depends on the diameter of the lesion, possible diagnosis (large needle diameter for lymphoma) and safety of

the patient.

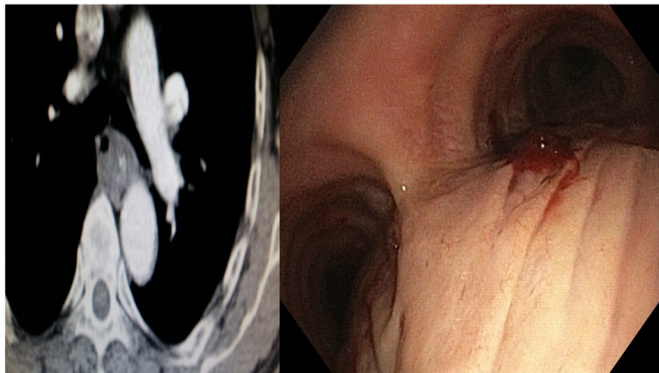
### 2. Case presentation

We present a case of a 67 year old man who presented in the outpatient cabinet of our pulmonary-oncology department with reported symptoms of dysphagia. The patient was directed to our cabinet after having a CT of the thorax and afterwards a diagnostic gastroscopy which was not diagnostic, there were no findings except from compression signs in a specific regions of the esophagus (Figs. 1–3.). Due to lack of esophageal ultrasound (EUS) and due to the position of the CT findings we chose to perform convex probe endobronchial ultrasound (EBUS) with a fine needle aspiration 22G, since we have a PENTAX EBUS system EB-1970UK. The pathological findings were esophagus leiomyoma and the patient had gastro-esophageal anastomosis (Figs. 4–6).

\* Corresponding author. Pulmonary Oncology Unit, “Theageneio” Cancer Hospital, Thessaloniki, Greece.  
E-mail address: [pzarog@hotmail.com](mailto:pzarog@hotmail.com) (P. Zarogoulidis).



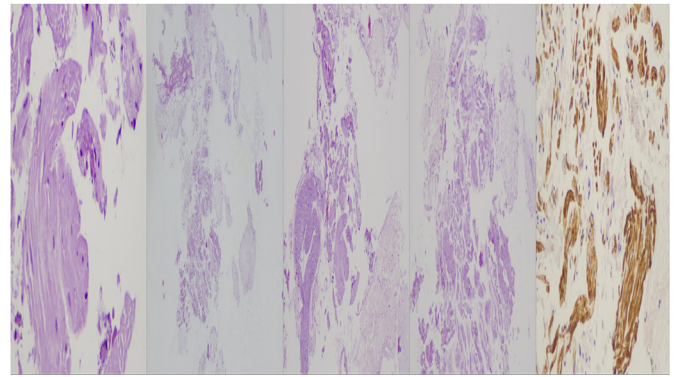
**Fig. 1.** Blue arrow: indicates esophagus, Red arrow: indicates necrosis within lyomyoma, White arrow: indicates left stem bronchus, Yellow arrow: indicates lyomyoma.



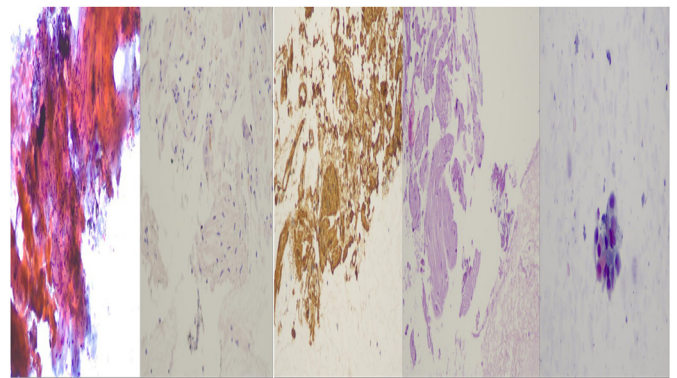
**Fig. 2.** Left: CT of the thorax, Right: endoscopic image (blood site of puncture).

### 3. Discussion

In any case the choice of the equipment that a medic can use for diagnosis depends on the equipment available and site of the lesion. As we already know there are limitations of the needle diameter that we can use based on the equipment. In the case of EUS we can use 19G, 21G and 22G needle and in the case of EBUS we can use again 19G, 21G and 22G needle. So based on the possible diagnosis we can either choose a large diameter needle or a smaller one. Moreover; the choice of the needle has to do with the site of the lesion and safety. It has been observed that with 19G needle a Hodgkin lymphoma can be diagnosed

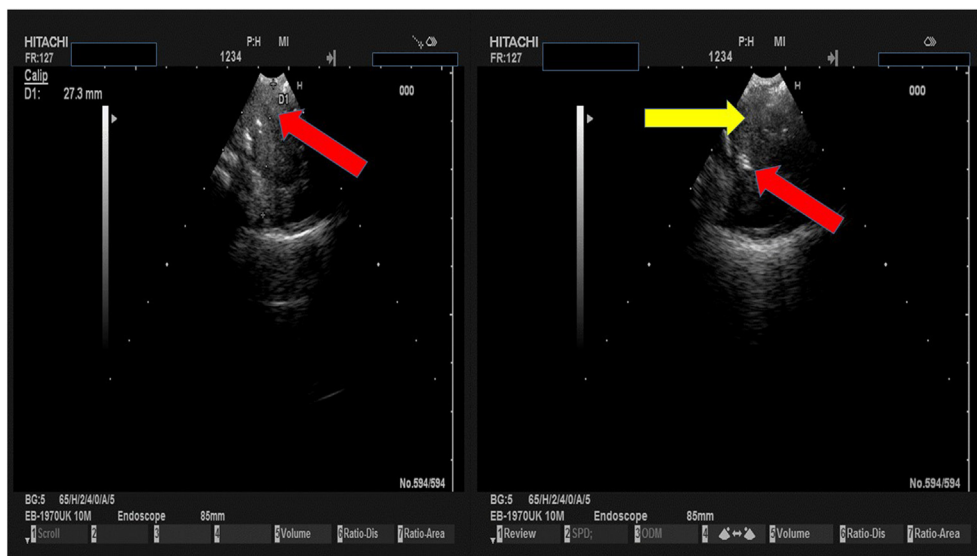


**Fig. 4.** A) Cell block preparation showing spindle-shaped cells with cytoplasm (H/E stain  $\times 400$ ), B) Cell block preparation showing spindle-shaped cells (H/E stain  $\times 40$ ), C) Cell block preparation showing spindle-shaped cells (H/E stain  $\times 100$ ), D) Cell block preparation showing spindle-shaped cells (H/E stain  $\times 100$ ), E) DESMIN are strongly positive in neoplastic cells.

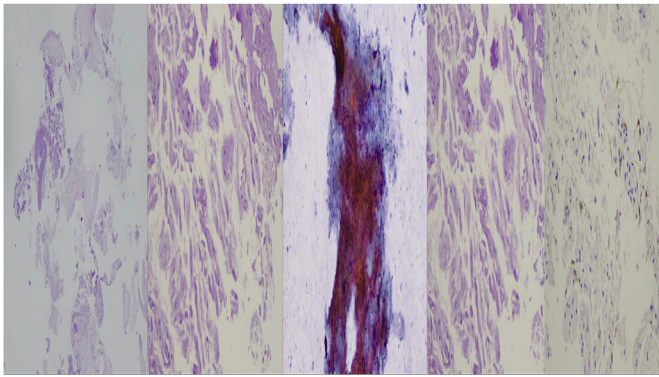


**Fig. 5.** A) Conventional smear showing clusters of spindle-shaped cells (Pap stain  $\times 200$ ), B) DOG-1 is negative in the neoplastic cells ( $\times 200$ ), C) SMA is strongly positive in the neoplastic cells, D) CELLBLOCK, E) conventional smear showing clusters of spindle-shaped cells with round nuclei (Pap stain  $\times 400$ ).

[8,9]. The main issue with large lymph nodes or lesions in the thorax is whether they could be lymphoma or sarcoma, or another entity that needs a large tissue sample in order to be diagnosed [10–12]. Regarding non-Hodgkin lymphomas, diagnosis can be made even with 21G or 22G



**Fig. 3.** Left: arrow indicates the lyomyoma, Right: yellow arrow indicates lyomyoma and red arrow indicates the tip of the 22G needle.



**Fig. 6.** A) and B) CELLBLOCK (X 200), C) conventional smear (Pap stain  $\times 200$ ), D) CELLBLOCK  $\times 200$ , E) CD 117 is negative in the neoplastic cells ( $\times 200$ ).

needle [3]. However; there are cases that even with a 19G needle diagnosis cannot be made and surgery is necessary [13,14]. It is not always necessary to use a large diameter needle at our initial diagnostic approach, this also depends on our equipment as some companies do not have 19G needles for their equipment. This information is regarding EBUS (convex probes), not all EBUS (convex probes) can use 19G needles [15]. In our case the 22G needle sample was enough to diagnose the esophagus lyomyoma and the patient had the gastro-esophageal anastomosis as treatment. The clear message is that ebus convex probe can be used to diagnose entities of the esophagus, if esophageal ultrasound convex probe is not available. Moreover; 22G needle can be used to diagnose esophagus entities.

#### Disclosure

The authors declare no conflict of interest.

#### Acknowledgments

The biopsy was performed in the private clinic “Biohellenica”, Thessaloniki, Greece with a Pentax-EB-1970UK EBUS Convex Probe system.

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