

4. Coco S, Truini A, Vanni I, Dal Bello MG, Alama A, Rijavec E, et al. Next generation sequencing in non-small cell lung cancer: new avenues toward the personalized medicine. *Curr Drug Targets*. 2015;16:47–59.
5. Hinrichs JWJ, Marja van Blokland WT, Moons MJ, Radersma RD, Radersma-van Loon JH, de Vos CMA, et al. Comparison of next-generation sequencing and mutation-specific platforms in clinical practice. *Am J Clin Pathol*. 2015;143:573–8, <http://dx.doi.org/10.1309/AJCP40XETVYAMJPY>.

D. Reis<sup>a,\*</sup>, C. Marques<sup>a</sup>, M. Dias<sup>b</sup>, S. Campainha<sup>b</sup>, L. Cirnes<sup>c</sup>, A. Barroso<sup>b</sup>

<sup>a</sup> Pulmonology Department, Vila Nova de Gaia-Espinho Hospital Center, Conceição Fernandes Street, 1079 Vila Nova de Gaia, Portugal

<sup>b</sup> Thoracic Tumors Multidisciplinary Unit, Pulmonology Department, Vila Nova de Gaia-Espinho Hospital Center, Conceição Fernandes Street, 1079 Vila Nova de Gaia, Portugal

<sup>c</sup> Institute of Molecular Pathology and Immunology of the University of Porto (IPATIMUP), Portugal

\* Corresponding author.

E-mail address: [daniel.reis91@hotmail.com](mailto:daniel.reis91@hotmail.com) (D. Reis).

<https://doi.org/10.1016/j.pulmoe.2019.05.003>

2531-0437/

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## Long-life relationships always bring trouble



A 58-year-old woman, a butcher from her youth and a history of hemoptysis related to respiratory infection at the age of 30, was admitted into Intensive Care Unit for life-threatening hemoptysis and respiratory hypoxemic insufficiency. The bronchoscopy identified bleeding coming from the lower right lobe with an incipient clot. Computerized thoracic tomography revealed ground glass opacities in the middle and lower right lobes, probably indicative of blood filling alveoli. She was extubated 24 h later and continued on antitussive treatment and amoxicillin/clavulanic acid until hemoptysis diminished in the following days. It was assumed that the risk of life-threatening rebleeding was high, so bronchial arterial embolization was performed. The arteriography detected the presence of a fistula connecting right bronchial (Fig. 1A) and pulmonary arteries and it was occluded with bead-block particles of 500–600 µm. The subsequent control demonstrated flow extinction, the fistula was completely blocked (Fig. 1B). A week later, in the absence of hemoptysis, the patient was discharged.

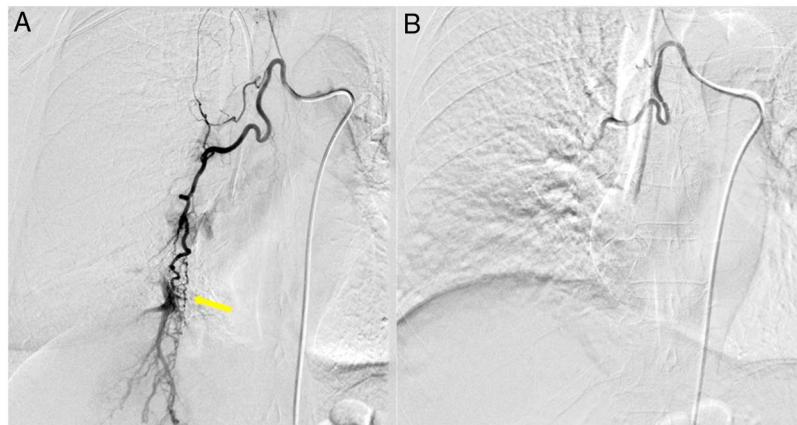
Arterial malformations are commonly found in angiography conducted in hemoptysis.<sup>1</sup> Cases of systemic-pulmonary circulation shunts have been reported within parenchymal lung involvement, mostly due to bronchiectasis<sup>2</sup> or tuberculosis sequelae,<sup>3</sup> and rarely due to hereditary haemorrhagic telangiectasia.<sup>4</sup> We present an elderly woman with a congenital bronchial-pulmonary artery fistula and life-threatening hemoptysis, who was embolized with immediate successful angiographic result. Embolization is seen as a safe and effective treatment for life-threatening hemoptysis, recurrence rates depend on different etiologies.<sup>1</sup> Our patient has a considerable risk of rebleeding, that may lead to repeat embolization or elective surgery in the future.

## Conflicts of interest

The authors have no conflicts of interest to declare.

## Funding

There is no funding for this manuscript.



**Figure 1** Description. Angiography preprocedure (A) shows hypertrophy of right bronchial artery and the presence of a fistula between bronchial artery and pulmonary artery. Angiography postprocedure (B) shows the absence of flow to pulmonary artery.

## References

1. Liu H, Zhang D, Zhang F, Ying J. Immediate and long-term outcomes of endovascular treatment for massive hemoptysis. *Int Angiol.* 2016;35:469–76.
2. Yakushiji E, Ota S, Komatsu T, Ayaori M, Ikewaki K. Massive hemoptysis due to right inferior phrenic artery-to-right pulmonary artery fistula in the right middle lobe of the lung. *Intern Med.* 2017;56:687–9.
3. Gorospe Sarasúa L, Farfán-Leal FE, García-Latorre R. Embolization of acquired bronchial artery-pulmonary artery fistula in a patient with HIV infection. *Arch Bronconeumol.* 2016; 52(10).
4. Wong HH, Chan RP, Klatt R, Faughnan ME. Idiopathic pulmonary arteriovenous malformations: clinical and imaging characteristics. *Eur Respir J.* 2011;38:368–75.

A.M. Mutiozabal<sup>a,\*</sup>, M.D. Santiañez<sup>b</sup>, J.I. De Granda Orive<sup>a</sup>

<sup>a</sup> *Respiratory Medicine, Hospital Universitario 12 de Octubre, Avda. De Córdoba s/n, 28041 Madrid, Spain*

<sup>b</sup> *Internal Medicine, Hospital Universitario 12 de Octubre, Avda. De Córdoba s/n, 28041 Madrid, Spain*

\*Corresponding author.

E-mail address: [\(A.M. Mutiozabal\).](mailto:adriana.manrique.mutiozabal@gmail.com)

<https://doi.org/10.1016/j.pulmoe.2019.07.002>

2531-0437/

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## Practice of spirometry among physicians caring for children with asthma in Portugal – The EspiroPed survey



### KEYWORDS

Children;  
Spirometry;  
Asthma

## Introduction

Spirometry is a key component of the asthma management guidelines' workup for diagnosis, assessment and monitoring of severity and control.<sup>1</sup> However, evidence from practice pattern studies and surveys suggests there is limited use of spirometry in patients of all ages with asthma,<sup>2</sup> for reasons that remain unclear.<sup>3,4</sup> In Portugal, the National Program for Respiratory Diseases warns that this is also the case for chronic obstructive pulmonary disease.<sup>5</sup>

Our main objective was to evaluate and compare current knowledge and practice of spirometry prescription and interpretation among the four groups of physicians caring for children/adolescents with asthma in Portugal: Paediatricians (Ped), Pulmonologists (Pn), Allergologists (Al) and General Practitioners (GP). Secondary objectives were to identify determinants of spirometry prescription and limitations of use, and to assess the need for a training program.

## Methods

### Study design

The EspiroPed survey was a cross-sectional electronic survey targeting Ped, Pn, Al and GP who follow asthmatic children/adolescents and work in Portugal. These were current members of their respective scientific societies i.e.:

*Sociedades Portuguesas de Pediatría, de Pneumología e de Alergología e Imunología Clínica and Associação Portuguesa de Medicina Geral e Familiar.* Each scientific society reviewed and approved the research protocol.

### Questionnaire

A questionnaire on various topics of spirometry use in asthmatic children/adolescents was developed in Portuguese through informal consensus and with different response formats (multiple choice, 5-point Likert items and categories of frequency of use) (available as a supplementary appendix). We collected anonymized data on physicians' training and workplace; knowledge of national asthma guidelines and ATS/ERS spirometry recommendations; accessibility to and practices of spirometry prescription. The survey was developed using the SurveyMonkey platform ([www.surveymonkey.com](http://www.surveymonkey.com)) and was pilot tested for acceptability and feasibility.

### Implementation

The survey ran for six weeks in 2015 (July-August for Ped/Pn, and October-November for Al/GP) An invitation with an open link was sent to each society's mailing list. Four reminder e-mails were used to optimize the response rate. Consent was implied by survey completion. The Ethics Committee of *Centro Académico de Medicina de Lisboa* approved this study.

### Statistical analysis

Descriptive analysis, stratified by physician specialty, was performed on fully completed surveys. We compared results between physician specialties using univariable analysis (Chi-square test), considering a significance level of 5%. Statistical Package for the Social Sciences 21.0 (SPSS®, Chicago, USA) was used to perform all tests.