

N153 Correlation between Doppler echocardiography of the main pulmonary arteries and ventilation/perfusion scintigraphy in a case of Swyer-James syndrome Toral T, González MC, Moral L, Vilaplana M, Martín I, Fernández A, Verdú J Hospital General Universitario de Alicante-Hospital General Universitario de Elda-Hospital Universitario Sant Joan d'Alacant

### INTRODUCTION

Swyer-James syndrome (SJS) is an infrequent entity sometimes diagnosed as a casual finding on a chest radiograph of a hyperlucent lung or lung lobe. It is considered as a form of bronchiolitis obliterans that emerge after an episode of viral pneumonia or bronchiolitis-bronchitis, which progresses to a fibrous obliteration of the bronchial lumen that leads to emphysema and a component of vasculitis obliterans. In the appropriate clinical setting, radiography and CT usually are sufficient to diagnose the condition. Ventilation-perfusion scintigraphy scans may contribute to diagnosis by showing displayed the characteristic pattern of a matched ventilation and perfusion defect. We have recently observed by Doppler echocardiography of the pulmonary main arteries, that pulmonary artery blood supply is markedly decreased to the affected lung in cases of complicated pneumonia (to be published).

# METHODS

A 2-year-old patient was studied during a clinical and radiological suspicion of SJS. Ventilation-perfusion scintigraphy is compared with Doppler echocardiography of the pulmonary main arteries in this case.

## RESULTS

A previously healthy 2-year-old boy with wheezing episodes triggered by upper respiratory tract infections underwent chest radiography in the context of acute bronchitis. Hyperinflation of the left upper lobe with complete atelectasis of the left lower lobe and bronchiectasis were disclosed (A). No changes in chest X-rays were observed after an oral course of amoxycillin-clavulanate. A pulmonary CT scan (B) showed atelectasis of the entire LLL with bronchiectasis and hypoattenuation of the rest of the lung segments due to air trapping, thickening of the bronchial tree, bronchiectasis in LUL and other findings compatible with SJS, including a decreased size of the left pulmonary artery and decreased vasculature of the left lung. A foreign body, intrabronchial lesions or abnormalities of segmentation were discarded by means of a bronchoscopy. Other studies (tuberculin test, sweat test and immune system evaluation) rendered normal results.

Ventilation-perfusion scintigraphy (C) showed a matched severe deterioration of ventilation and perfusion of the left lung (perfusion ratio between right and left lungs 9/1), contributing to the diagnosis of SJS. Doppler echocardiography (D) showed a clear flow asymmetry between the main pulmonary arteries with a markedly decreased blood flow in the left pulmonary artery (ratio 6.9/1).



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		Right pulmonary artery		MI 1,2 27/07/2017 PHILIPS TIS 0,7 12:36:10 Left pulmonary artery		MI 1,2 27/07/2017 TIS 0,7 12:35:37	
Right pulmonary artery	Left pulmonary artery	PEDI 8-3 + Vel. \$8-3 GP	1,62 m/s	+40 PEDI <b>58-3</b>	8-3 + Vel. 0,465 m/s GP 0,863 mmHg	+40	٦
		10cm × Vmáx derecha	$1,62 \mathrm{m/s}$	c 10cm		c c	



# CONCLUSIONS

SJS is considered to be a relatively uncommon and complex disease characterized by unilateral hyperlucency of a part of or the entire lung, with decreased vascularization and air trapping. In our patent, a non-invasive and accessible test (Doppler echocardiography) revealed a decrease in pulmonary artery flow on the affected side, which correlated with the degree of pulmonary hypoperfusion observed in the ventilation-perfusion scintigraphy. This finding suggests that Doppler echocardiography of the main pulmonary arteries could be a simple method to check the degree of pulmonary hypoperfusion in SJS and other unilateral or asymmetric pulmonary disorders.