

## Letters to the Editor

**Closure of a Fistula in the Main Bronchus After Pneumonectomy With an Occlutech Figulla Flex ASD<sup>☆</sup>*****Cierre de fistula del bronquio principal tras neumonectomía con un dispositivo Figulla Flex Occlutech ASD***

Dear Editor:

Post-pneumonectomy bronchopleural fistula (BPF) is a problem that is difficult to manage and requires thoracotomy as a palliative measure, with daily treatment and recurring infections of the pleural cavity.

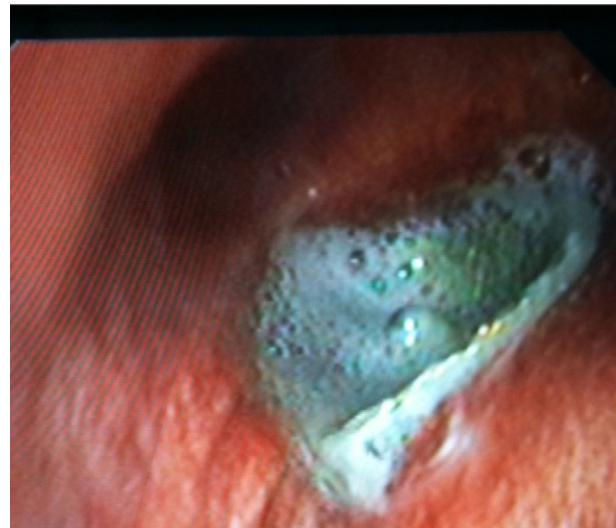
The existence of fistulas in the main bronchus means that it is impossible to close the thoracotomy cavity as it is chronically infected. Several techniques have been reported for closing fistulas<sup>1,2</sup> (stents, coils, bioadhesives...) with uneven results.

The use of the Figulla® Flex device (Occlutech® Izasa, Werfen Group), which was originally designed for the closure of heart defects, has been described in this situation.<sup>3</sup> Its double-umbrella design and central area with its smaller diameter make it ideal for becoming anchored in the fistula and sealing the existing tissue defects.

Very few cases have been described in the literature, and all of them recently (Table 1). We contribute a case of post-pneumonectomy right bronchial stump fistula that was closed using this method.

We present the case of a 67-year-old male who underwent right pneumonectomy some 19 months ago due to endobronchial squamous cell carcinoma (T2N0M0). Four weeks later, he was readmitted due to fever with productive cough. Diagnosed with bronchial stump fistula, thoracostomy was performed.

We confirmed the persistence of a stump fistula measuring 12 mm in diameter with irregular edges that required closure with surgical compresses through the thoracostomy. The patient presented fair general health, with chronic respiratory failure and recurring infections. His baseline state and the oncological disease-free interval led us to consider closing the fistula with a Figulla® Flex device (Occlutech®).



**Fig. 1.** Endoscopic image once the device was anchored in the right main bronchus.

Given the fact that it was impossible to correctly insert a double-lumen tracheal tube due to the great distortion of the tracheobronchial tree that was a consequence of the previous surgery and the retraction of the mediastinum, there was difficulty for ventilation with positive pressure due to the air leak through the BPF. Therefore, we carried out selective intubation of the left main bronchus, placing a tracheal tube through the left nasal cavity (pre-formed 6F), which was guided with a bronchoscope.

With a second bronchoscope inserted through the thoracostomy cavity, the fistula was located. This enabled us to insert a metallic guide through the bronchoscope inserted in the right nasal cavity to the bronchial fistula. Through the guide, the introducer sheath was inserted (12F diameter) with the 18-mm Figulla® Flex ASD (Occlutech® Ref 24ASD 18). Once it was within the fistula, the device was deployed (Fig. 1), but before it was released

**Table 1**  
Cases Treated With Umbrella Devices for Closure of Post-surgical Bronchial Fistulas.

Case	Author	Pathway for Placement of Device	Diameter of Fistula, mm	Previous Lung Surgery	Diameter of Device
1	Kramer <sup>1</sup>	Tracheal	5	Right pneumonectomy	14
2	Kramer <sup>1</sup>	Tracheal	—	Upper left lobectomy	5
3	Tedde <sup>2</sup>	Tracheal	12	Upper right lobectomy	15
4	Gulkarov <sup>3</sup>	thoracostomy	3	Right pneumonectomy	10
5	This paper	tracheal	12	Right pneumonectomy	18

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from the guide, X-ray confirmed that it was correctly placed. A nearly complete reduction of the bronchial air leak was observed. After extubation, the patient remained in the Intensive Care Unit for 24 h and was sent home 48 h after the procedure had been completed.

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## Lung Cysts as Radiological Manifestations of Benign and Malignant Diseases: Pitfalls in the Diagnosis<sup>☆</sup>

### *Quistes pulmonares como manifestación radiológica de enfermedades benignas y malignas: errores en el diagnóstico*

Dear Editor:

We have read with great interest the recently published article by Dr. Singh and Dr. Bal<sup>1</sup> about lung cancer in heavy smokers that presents as symptomatic solitary lung cysts. Their article shed new light on lung cysts as a common radiological manifestation of squamous carcinoma of the lung on computed tomography (CT).

Earlier studies had suggested that lung cyst lesions could be an initial radiological sign of bronchogenic carcinoma on thoracic CT. According to Lan *et al.*,<sup>2</sup> their patient was a 27-year-old woman who did not smoke, while the Singh and Bal patient was a 45-year-old male who was a heavy smoker. Both cases describe lung cancer that presents as solitary cystic lesions in the lower lung lobes. In contrast, the histologic pattern of the lung cancer was an adenocarcinoma in the case of Lan *et al.*, while it was only a squamous carcinoma in the present case. More recently, we have identified disseminated thin-walled cystic lesions as a new radiographic sign of pulmonary adenocarcinoma.<sup>3</sup> In our case, we have reported a 39-year-old male who was a non-smoker with the growth of a centrally located mass in the upper left lobe and rapidly progressive diffuse cystic lesions in both lungs. We also observed hilar and mediastinal lymphadenopathies as well as an elevation in the tumor markers in circulating blood (CEA and CA-125). We performed a transbronchoscopic lung biopsy together with histologic tests and immunohistochemistry. These data have finally established the diagnosis of pulmonary adenocarcinoma.

What make these cases interesting are not only their uncommon forms of presentation but also their diagnostic difficulties. Cystic lung lesions, they being either solitary or diffuse, are mainly observed in benign disorders. However, other authors and we have demonstrated the presence of cystic lung lesions as being signs of malignant thoracic diseases.<sup>1-5</sup> The diagnostic challenge arises from the prevalence of cystic lung lesions in several thoracic disorders (Table 1). Thus, although it is not frequent, the presence of

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Jose Marcelo Galbis,<sup>a,\*</sup> Fernando Sánchez,<sup>b</sup> Miriam Estors<sup>a</sup>

<sup>a</sup> Servicio de Cirugía Torácica, Hospital Universitario de La Ribera, Alcira, Valencia, Spain

<sup>b</sup> Servicio de Anestesiología, Hospital Universitario de La Ribera, Alcira, Valencia, Spain

\* Corresponding author.

E-mail address: [jgalbis@hospital-ribera.com](mailto:jgalbis@hospital-ribera.com) (J.M. Galbis).

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**Table 1**  
Causes of Cystic Lung Lesions.

<b>Congenital</b>	<b>Immunological</b>
Cystic adenomatoid malformation	Wegener's granulomatosis
Lung cyst	Lymphocytic interstitial pneumonia
Birt-Hogg-Dubé syndrome	Follicular bronchiolitis
	Autoimmune disease
<b>Infectious</b>	<b>Neoplasms</b>
Pneumonia due to <i>Staphylococcus aureus</i>	Squamous carcinoma
Melioidosis	Adenocarcinoma
Histoplasmosis	Metastatic cancer
Cystic bronchiectasis	
<b>Various</b>	<b>Idiopathic</b>
Centrilobular emphysema	Pulmonary histiocytosis X
Lymphangiomyomatosis	Amyloidosis
	Light chain deposition disease

cystic lung lesions can also be associated with malignant diseases. The access to lung biopsy can be key in the precise diagnosis of these patients.

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Ming-Xiang Ye,<sup>a</sup> Yi-Lin Zhao,<sup>b</sup> Jian Zhang<sup>a,c,\*</sup>

<sup>a</sup> Department of Pulmonary Medicine, Xijing Hospital, Fourth Military Medical University, Xi'an, PR China

<sup>b</sup> Department of Pulmonary Medicine, Tangdu Hospital, Fourth Military Medical University, Xi'an, PR China

<sup>c</sup> Massachusetts General Hospital Cancer Center, Harvard Medical School, Charlestown, MA, United States

\* Corresponding author.

E-mail address: [zhangjian197011@gmail.com](mailto:zhangjian197011@gmail.com) (J. Zhang).

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