

uneventful, and the patient was discharged on postoperative day 7. Histopathological analysis of the abdominal tumor confirmed the diagnosis of a 12-cm pleomorphic lung cancer metastasis (pT2bN0M1b).

Finally, after histological analysis of the lung lesions, it was concluded that they were 2 synchronous tumors: LUL squamous cell carcinoma (pT1bN0) and LLL giant cell pleomorphic carcinoma (pT2bN0M1b). McNeill et al. and Berger et al. conducted studies with a total of 1975 lung cancer patients, where only 0.5% and 0.1%, respectively, showed intestinal symptoms due to metastases.<sup>4,5</sup> Studies such as the one by Ito et al. based on the behavior of pleomorphic lung carcinoma in 22 patients showed metastases in up to 10 of them (45%) in the course of follow-up.<sup>6</sup>

Bowel metastases should be considered in the differential diagnosis of patients with lung cancer and gastrointestinal symptoms, with a higher degree of suspicion in cases of pleomorphic carcinoma.

Urgent surgical treatment seeks to improve prognosis and short-term survival.

The interest of this case lies not only in the diagnosis of the intestinal metastasis itself, but in the false negative of the extension study—completed 6 weeks before the surgery—that unusually did not show the abdominal lesion, which would have changed the initial therapeutic strategy. This could be attributed to the aggressiveness described in this histological lineage.<sup>7,8</sup>

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Javier Varela Recio,<sup>a,\*</sup> Violeta Camacho Marente,<sup>a</sup> Ana Triviño Ramírez,<sup>b</sup> Dionisio Espinosa Jimenez,<sup>b</sup> Jose Manuel Pacheco García<sup>a</sup>

<sup>a</sup> Servicio de Cirugía General y Digestivo, Hospital Puerta del Mar, Cádiz, Spain

<sup>b</sup> Servicio de Cirugía Torácica, Hospital Puerta del Mar, Cádiz, Spain

Corresponding author.

E-mail address: [javier\\_vr22@hotmail.com](mailto:javier_vr22@hotmail.com) (J. Varela Recio).

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## Surgical Treatment of Chylothorax After Lung Transplantation for Lymphangioliomyomatosis<sup>☆</sup>



### Tratamiento quirúrgico de quilotorax postrasplante pulmonar por linfangioleiomiomatosis

To the Editor,

We present the case of a 64-year-old woman who had undergone single right lung transplantation for lymphangioliomyomatosis (LAM), with no intraoperative or immediate postoperative complications. On postoperative day 7, pleural fluid drainage was milky in appearance, with exudative lymphocytic characteristics and triglycerides 630 mg/dL, and she was therefore diagnosed with right chylothorax. Dietary treatment was established with enteral nutrition, medium chain triglycerides and octeotride for one week. However, given the persistence of the chylothorax (Fig. 1B), surgical treatment was indicated.

One hour before the surgical procedure, an oral solution of milk with butter was administered to enable macroscopic localization of the chylous fistula during the surgery. After dissection of the paraesophageal and periaortic space, a chylous fistula was located in the thoracic duct and its afferent vessels (Fig. 1A); these were ligated and hemostatic surface sealants were applied. The patient recovered well, with complete resolution of the chylothorax, and was in good health 12 months after the surgery.

LAM is a rare multisystem disease that predominantly affects women, and is classified as a low-grade neoplastic disease. It is characterized by progressive respiratory failure, recurrent pneumothorax, renal angiomyolipomas, and lymphatic disease (chylothorax, chylous ascites or lymphangioliomyomas).<sup>1,2</sup>

Radiologically, it is characterized by the presence of multiple round, thin-walled interstitial cysts.<sup>3</sup> According to the European Respiratory Society, the diagnosis of LAM is established when characteristic radiological findings are present, associated with renal angiomyolipomas, chylothorax, chylous ascites, lymphangiomyolipoma or adenomegaly.<sup>4</sup> In the absence of these, lung biopsy is recommended.

Lung transplantation is indicated in advanced stages of the disease, refractory to medical treatment, with 65% survival at 5 years post-transplantation, accounting for only 1% of the indications for lung transplantation according to the International Registry.<sup>5</sup>

Between 7% and 10% of patients with LAM develop chylothorax, which should be treated promptly since it leads to malnutrition, immunosuppression, respiratory and metabolic failure, and electrolyte imbalance, which can be fatal.<sup>6</sup>

In our case, the diagnosis was suspected after changes were noted in the macroscopic characteristics of the pleural drainage fluid, which coincided with the start of oral tolerance, and was confirmed by the determination of triglycerides in the pleural exudate. Treatment with a fat-free diet, medium chain triglycerides and octeotride was initiated to reduce gastrointestinal secretions and splanchnic blood flow.<sup>7,8</sup> Sirolimus has also demonstrated effectiveness in the control of chylothorax,<sup>9</sup> but was not used in our particular case due to risks in the healing process after recent surgery. However, conservative measures were not sufficient, suggesting the presence of a considerably large opening in the thoracic duct. For this reason, revision surgery was indicated.

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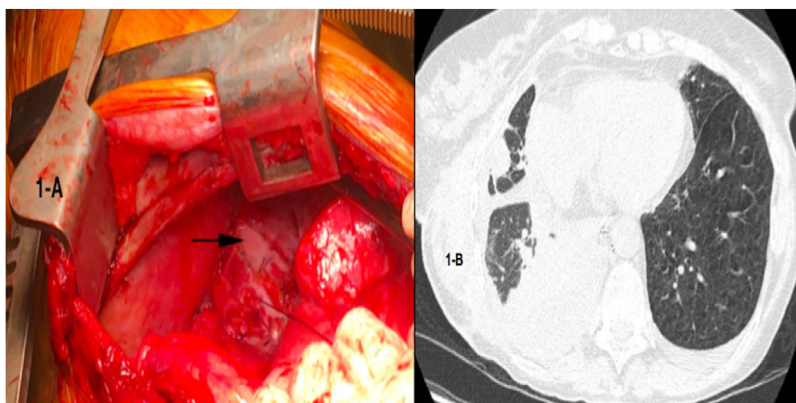


Fig. 1. (A) Identification of a chylous fistula in the surgical procedure. (B) CT scan showing the chylothorax refractory to medical and dietary treatment.

When conservative treatment fails, as in the present case, invasive procedures such as surgery, chemical pleurodesis, bypass systems, or percutaneous lymphatic embolization are indicated.<sup>10</sup> These procedures are considered when the chylothorax volume is greater than 1 L/day for more than 5–7 days.

The surgical procedures described are ligation of the thoracic duct or, if not located, ligation of the fatty tissue between the aorta, vertebral bodies, esophagus, and azygos vein. In some cases, mechanical pleurodesis has been proposed as an equally effective method; however, in the present case, this procedure was ruled out, since the patient presented anatomical and morphological anomalies of the afferent lacteal vessels of the parietal pleura due to her underlying condition.

In summary, the presence of chylothorax in the postoperative period of lung transplantation for LAM initially requires early instigation of conservative, dietary and pharmacological treatment. If, despite these measures, the chylothorax is persistent or recurrent after reintroducing the enteral diet, surgical exploration is necessary. In our case, as a newly transplanted patient, sirolimus treatment was discouraged due to the high possibility of suture dehiscence following the recent lung transplant.

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Francisco Javier González García,<sup>a,\*</sup> Carlos Baamonde Laborda,<sup>b</sup> Anna Muñoz Fos,<sup>a</sup> Paula Moreno Casado,<sup>a</sup> Javier Redel Montero,<sup>b</sup> Javier Algar Algar,<sup>a</sup> Francisco Cerezo Madueño,<sup>a</sup> David Poveda Chaves,<sup>a</sup> Eloisa Ruiz López,<sup>a</sup> Ángel Salvatierra Velázquez,<sup>a</sup> Antonio Álvarez Kindelán<sup>a</sup>

<sup>a</sup> Servicio de Cirugía Torácica y Trasplante Pulmonar, Hospital Reina Sofía, Córdoba, Spain

<sup>b</sup> Servicio de Neumología y Trasplante Pulmonar, Hospital Reina Sofía, Córdoba, Spain

\* Corresponding author.

E-mail address: [fjaviergonzalez@outlook.com](mailto:fjaviergonzalez@outlook.com) (F.J. González García).

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## Coping With Low Mortality and Exacerbation Rate Differences Between COPD Triple Therapy Studies, and a Proposal for Upcoming Studies



### Hacer frente a la baja mortalidad y las diferencias en la tasa de exacerbación entre los diferentes estudios de triple terapia para la EPOC, y una propuesta para próximos estudios

Dear Editor:

The management of chronic obstructive pulmonary disease (COPD) is a challenge, particularly for patients with a low FEV<sub>1</sub> where long-acting muscarinic antagonist (LAMA), or a combination

of a long-acting  $\beta_2$  agonist (LABA) plus an inhaled corticosteroid (ICS) therapies are not able to reduce exacerbation rates. In recent years, triple therapy in one inhaler, consisting of a fixed-dose combination of an ICS, a LAMA, and a LABA, has been proposed for patients with COPD in whom earlier regimens have failed to reduce the rate of exacerbation. To date, six randomized clinical trials have been published with promising results showing altogether a reduction of exacerbation rates or a lower mortality when triple therapy was compared with other alternatives. Nevertheless, the methodology (i.e. inclusion criteria, follow-up), the treatments compared, the endpoints considered, and co-variables collected were different among them, making difficult to decide which triple therapy should fit better for which type of patient.<sup>1</sup> We