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Letters to the Editor

Mini-Bronchoalveolar Lavage (Mini-BAL) in the Cytological Diagnosis of Interstitial Disorders with Acute Respiratory Failure and Mechanical Ventilation

Uso del minilavado broncoalveolar en el diagnóstico citológico de procesos intersticiales difusos que cursan con insuficiencia respiratoria aguda y requieren ventilación mecánica

To the Editor:

Mini bronchoalveolar lavage (mini-BAL) is a technique developed to diagnose ventilator-associated pneumonia (VAP) and guide antibiotic administration.[1]

We present the case of a 76 year-old female patient with a double valve lesion, aortic and mitral valve regurgitation, sent to the Cardiac Surgery Service for valve surgery. During the preoperative exam the most significant findings on chest X-ray were cardiomegaly at the expense of the left chambers and bilateral interstitial oedema, as also a moderate restrictive spirometry pattern. Forced vital capacity (FVC) of 1,650ml (60%), forced expiratory volume in the first second (FEV_1) of 1,340ml (71%) and FEV_1/FVC of 81% (119%).

During the second day of hospitalization the patient developed septic shock of respiratory origin. After ruling out emergency valve surgery, it was decided to admit the patient to the intensive care unit (ICU). After initial treatment with continuous positive airway pressure (CPAP) with elevated FiO_2, diuretics and empirical antibiotic treatment with imipenem, the patient suffered a worsening of her clinical condition and arterial blood gases that required orotracheal intubation and invasive mechanical ventilation. Samples from the respiratory tract were taken using mini-BAL and bronchial aspirate for microbiological study, and 5×10^5ufc/ml *Escherichia coli* and 10^4ufc/ml *Candida albicans* were found, therefore itraconazole was added to the patient's treatment based on the antibiogram. In the face of the persistence of the bilateral interstitial pattern, a chest CT was performed (Fig. 1). This showed a bilateral reticulonodular interstitial pattern located in the centre of the lobes and affecting some subpleural nodes compatible with sarcoidosis stage III or pulmonary lymphangitic carcinomatosis.

Since the patient's clinical condition did not allow a safe transbronchial biopsy procedure, it was decided to perform a mini-BAL to carry out a cytological study. In the smear it was possible to see an atypical cell population compatible with metastatic adenocarcinoma. In consultation with the patient's family, it was decided not to continue looking for the location of the primary tumour, and the patient died within a few days due to multiple organ failure (MOF).

Mini-BAL is a technique designed as a minimally invasive alternative to bronchoscopic techniques in patients receiving invasive mechanical ventilation with the object of establishing an aetiological diagnosis of their VAP.[1] During recent years, mini-BAL has also been used to measure antibiotic concentration in alveolar epithelial lining fluid in patients with VAP, with good agreement with the results obtained using bronchoscopic techniques.[2]

The usefulness of BAL for the diagnosis of pulmonary neoplasias is well known, especially adenocarcinomas and tumours with a lymphangitic growth pattern. Furthermore, BAL is also useful to diagnose diffuse interstitial processes.[3] Therefore, similarly to the use of mini-BAL as an alternative to BAL for microbiological studies, it could also be used for cytological studies in these two conditions.

Carcinoma of unknown origin accounts for 3-5% of all neoplasias; 60% of these are adenocarcinomas and 26% are pulmonary metastasis. New cytotoxic agents have increased response rates, that are now 22-63%, with a median survival of about 6-13 months.[4]

During recent years the concept of limitation of therapeutic effort has appeared which is defined as not initiating or discontinuing a certain treatment that does not benefit the patient.[5] It is applied to between 3-13% of the patients that enter an ICU and is related to factors such as severity of the pathological process, prior quality of life, health condition and age of the patient. The object is to achieve proportion in the treatment given in relation to its possible futility, assessing both technical aspects and personal values and resources.[5] In cancer patients, the integration of disease into their life project is of capital importance; in this sense, healthcare professionals must promote the benefits (what the patient considers best for themselves according to their values) to achieve so-called "modern excellence".[6]

Although the case considered did not have, strictly speaking, a carcinoma of unknown origin, the prognosis in any case was poor in the long term, aggravated by the poor secondary clinical condition due to infection, which worsened short term prognosis. The cytological study of the samples obtained by mini-BAL revealed the presence of a metastatic carcinoma. This diagnosis made us, in consultation with the family, decide to change the patient's treatment to establish an appropriate proportionality of therapeutic interventions applied in relation to her new clinical status. Therefore, on the one hand, we decided not to apply more intensive therapeutic measures than those in place and on the other, we did not continue to search for the primary tumour. Although this last is not encompassed by the definition of limitation of therapeutic effort, it could be considered a similar concept, which we could call limitation of diagnostic effort. In this way we hoped to prevent the following, which may or not, arise and is open to discussion: prolong the patient's suffering, the relatives' suffering, the frustration of healthcare personnel and the use of limited resources.[5]

In conclusion, in the case reported here we used mini-BAL for, in addition to its usual microbiological purposes, cytological assessment of an interstitial pattern; and a diagnosis of metastatic carcinoma was obtained. This finding was decisive to establish a procedure of limitation of effort, both diagnostic and therapeutic, required by the patient's new clinical status.

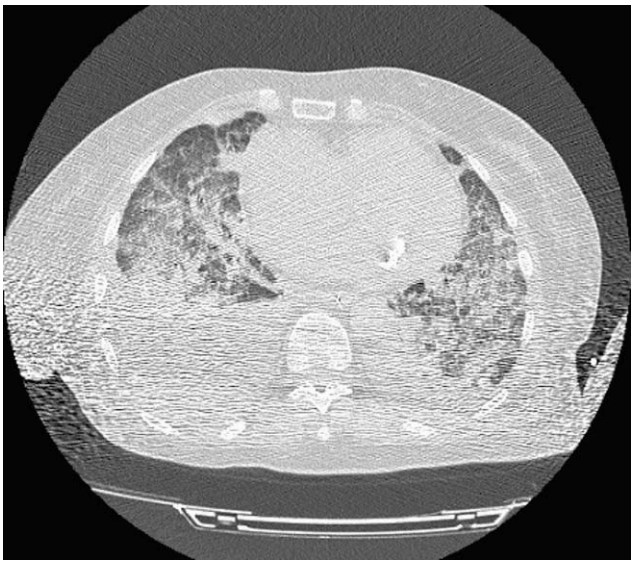

Figure 1. Chest computed tomography (CT) in which it was possible to see a bilateral reticulonodular interstitial pattern located in the centre of the lobes and affecting some subpleural nodes.

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Lung Resections in Patients with Only One Lung

Resecciones pulmonares en pacientes con pulmón único

To the Editor:

We have read the case report by Vázquez-Pellilo et al[1] "Surgical Treatment of Pulmonary Lesions in a Single Lung" in the May 2009 edition, with great interest. We would like to take this opportunity that this prestigious scientific publication gives us to communicate our experience in this field, given that it was the reason for a communication in the 41st SEPAR National Congress, held in Tenerife in June 2008, published in your journal.[2]

As pointed out by Vázquez-Pelillo et al, resections in patients who had previously undergone pneumonectomy are rare in medical literature, although there are, along with yours, 19 series that presented sample sizes from one to 24.

Vázquez-Pelillo et al described four cases of patients who had previously undergone pneumonectomy in a period of almost 15 years (1992-2007), of which 3 had undergone previous pneumonectomy for lung cancer and one for colon cancer. Our group presented a series of 9 cases treated in 9 years (1998-2007), during which the pneumonectomy had been performed solely for lung cancer (table 1).

Atypical resections were performed on 7 patients; 2 atypical resections were performed on one and 3 on another. Morbidity of the series was 44.4% due to the appearance of transitory auricular fibrillation in 2 cases, one case of respiratory failure that required temporary respiratory home oxygen therapy and one upper digestive haemorrhage, conservatively treated. There was no postoperative mortality in our series. The average postsurgical stay was 7.9 days (range: 3-14).

Of the 9 patients, 3 are alive and free of disease, with a survival of 11, 17 and 20 months, respectively. Of those deceased, the average survival was of 32 months (range: 23-44).

Table 1
Intervened Patient Data

Age (years)	FEV_1	Primary tumour		DFS	Histology 2nd surgery	Postoperative morbidity	Stay	SV	Current State
		Histology	TNM						
71	26	Scaly	T2N0M0	72	Scaly	–	14	10	Deceased
54	NA	Scaly	T3NOMO	12	Scaly	ACxFA	8	22	Deceased
65	59	Scaly	T2N2M0	24	Scaly	–	9	10	Deceased
78	54	Scaly	T3N0M0	24	Scaly	ACxFA	12	44	Deceased
78	68	Scaly	T3N0M0	79	Bladder cancer	–	6	20	Living
74	52	Scaly	T2N0M0	84	Scaly	Respiratory failure	8	29	Deceased
68	58	Adenocarcinoma	T2N0M0	26	Scaly	–	5	11	Living
77	61	Scaly	T2N0M0	20	MALT lymphoma	–	9	23	Deceased
81	NA	Scaly	T2N1M0	24	Nechrotic nodule	Digestive haemorrhaging	5	17	Living

ACxFA: cardiac arrhythmia from auricular fibrillation; FEV_1: forced expiratory volume in second 1; DFS: disease-free survival; MALT: muscosa-associated lymphoid tissue; NA: not available; SV: survival.