References

1. Klugman KP, Madhi SA. Pneumococcal vaccines and flu preparedness. Science. 2007;316:49-50.
2. Centers for Disease Control and Prevention (CDC). Surveillance for pediatric deaths associated with 2009 pandemic influenza A (H1N1) virus infection-United States, April–August 2009. MMWR Morb Mortal Wkly Rep. 2009;58:941-7.
3. Centres for Disease Control and Prevention (CDC). Bacterial coinfections in lung tissue specimesn from fatal cases of 2009 pandemic influenza A (H1N1)–United States May–August 2009. MMWR. 2009;58:1071-74.
4. Kumar A, Zarychanski R, Pinto R, Cook DJ, Marshall J, Lacroix J, et al. Critically ill patients with 2009 influenza A (H1N1) infection in Canada. JAMA. 2009;302: 1872-9.
5. The ANZIC Influenza Investigators. Critical Care Services and 2009 H1N1 Influenza in Australia and New Zealand. N Engl J Med. 2009;361:1925-34.
6. Delgado A, Martinón-Torres F. Enfermedad Neumocócica. In: Baca Cots M, Bernaola Iturbe E, De Juan Martín F, Díez Domingo J, Garcés Sánchez M, Giménez Sánchez F, et al, editors. Manual de Vacunas en Pediatría 2008. 4th ed. Imprenta Boán: Bilbao; 2008. p. 392-406.

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The Need for New Techniques in the Diagnosis and Staging of Lung Cancer

Necesidades de las nuevas técnicas en el diagnóstico y estadificación del carcinoma de pulmón

To the Editor:

The right mediastinal staging of lung cancer (LC) is essential to assess the prognosis of non-microcytic lung cancer (NMLC) and design a therapeutic strategy. The low sensitivity and specificity of non-invasive radiological techniques mean that, for correct staging and, in many cases, an accurate diagnosis of the pathology, it is necessary to resort to cytohistological techniques.[1-2] To do this, at the present time, there are various more or less invasive techniques, such as conventional transbronchial needle aspiration (TBNA) or those guided by endoscopic ultrasound (EUS-TBNA) and, more recently, endobronchial ultrasound (EBUS-guided TBNA). There are also different surgical mediastinal exploration techniques (SME) such as mediastinoscopy, mediastinostomy and video-assisted thoracoscopy.[1,2] Several studies have shown that the combination of relatively recent techniques, such as positron emission tomography/computerized tomography (PET-CT) and real-time endoscopic ultrasound-guided needle aspiration improve the diagnostic and mediastinal staging process and make it possible to avoid more aggressive and costly diagnostic tests, such as the different SME techniques[1]. For this reason, different scientific societies and experts on the matter have published algorithms which already include these initial assessment techniques with patients with suspected LC.[1,3] However, hardly any studies have been performed which analyse in depth the relationship between the real cost and effectiveness of the general application of these diagnostic algorithms. A recent study based on a theoretical cohort of patients with NMLC concluded that the most cost-effective strategy in the cytological confirmation of possible mediastinal lymph node lesions was to perform standard TBNA in steps, EBUS-guided TBNA if the standard TBNA did not provide with a diagnosis and, lastly, mediastinoscopy in cases where EBUS-guided TBNA results were negative or inconclusive.[4] But we must take into account that these new techniques are more complex to perform, requiring specific infrastructure and more specialized healthcare professionals.[4-6] This has raised the question about the need or not to centralize these techniques in certain hospitals which handle a minimum volume of patients in order to improve cost-effectiveness.[4-6] Up until now, no studies have been published which have estimated how many patients of a real cohort of suspected LC cases would need these techniques for their disease to be correctly diagnosed and staged. The arrival at the beginning of the year of EBUS-guided TBNA and PET-CT to our centre has meant us changing our handling algorithm for these patients (fig. 1), which is very similar to the one proposed by Disdier et al[6] in an excellent review, recently published in *Archivos* de Bronconeumologia. Until now, PET was performed in another centre in Galicia and, if the suspected N2 or N3 disease was not confirmed by standard TBNA, the SME technique appropriate to each case was then carried out. In order to estimate the required number of patients for these new techniques, we performed a retrospective study of a cohort of 380 patients strongly suspected of having LC who were treated in one of the hospitals forming the University Hospital of Vigo Complex over the last 4 years. The average age of the patients was 65 years, 78% of whom were males. The most frequent clinical presentation was general syndrome or cough (? 40% each) and the most common radiological alterations were the presence of a nodule or lung mass (71%). Following the algorithm shown, after performing the CT scan and fibrobronchoscopy (FB) with standard TBNA, or other cytohistological techniques when necessary, we diagnosed 60 patients (15.7%) with other types of pathologies (mainly inflammatory or infectious); 56 (14.7%) had microcytic LC, and we diagnosed and staged 51 cases of NMLC in stage IIIB (13.6%) and 117 (30.7%) in stage IV. That is, using the classic techniques which are accessible to most pulmonologists and centres, it is possible to correctly diagnose and stage 75% of patients. In 31 cases (8.1%) it was necessary to follow the central branch of the algorithm and in 65 (17.1%) the right branch. By applying the diagnostic yield described for the PET-CT and the EBUS real time TBNA,[1-3] it would only have been necessary to perform EBUS-guided TBNA and/or EUS-TBNA in 30 or 40 (8-10 a year) patients in order for them to have been dealt with correctly. Based on the algorithm shown, in our centre, PET would be necessary to study appropriately 25% of the patients with a strong suspicion of LC and endoscopic ultrasound techniques, only for 8-11% of these cases. The results of this study could answer the doubts raised by Disdier et al[6] regarding whether it is necessary to use ultrasound bronchoscopy with all patients subsidiary of diagnosis and mediastinal staging as most cannot be operated due to the presence of comorbidities (an aspect not considered in our analysis), distant metastases, microcytic lung cancer or gross adenopathies. This number of patients is

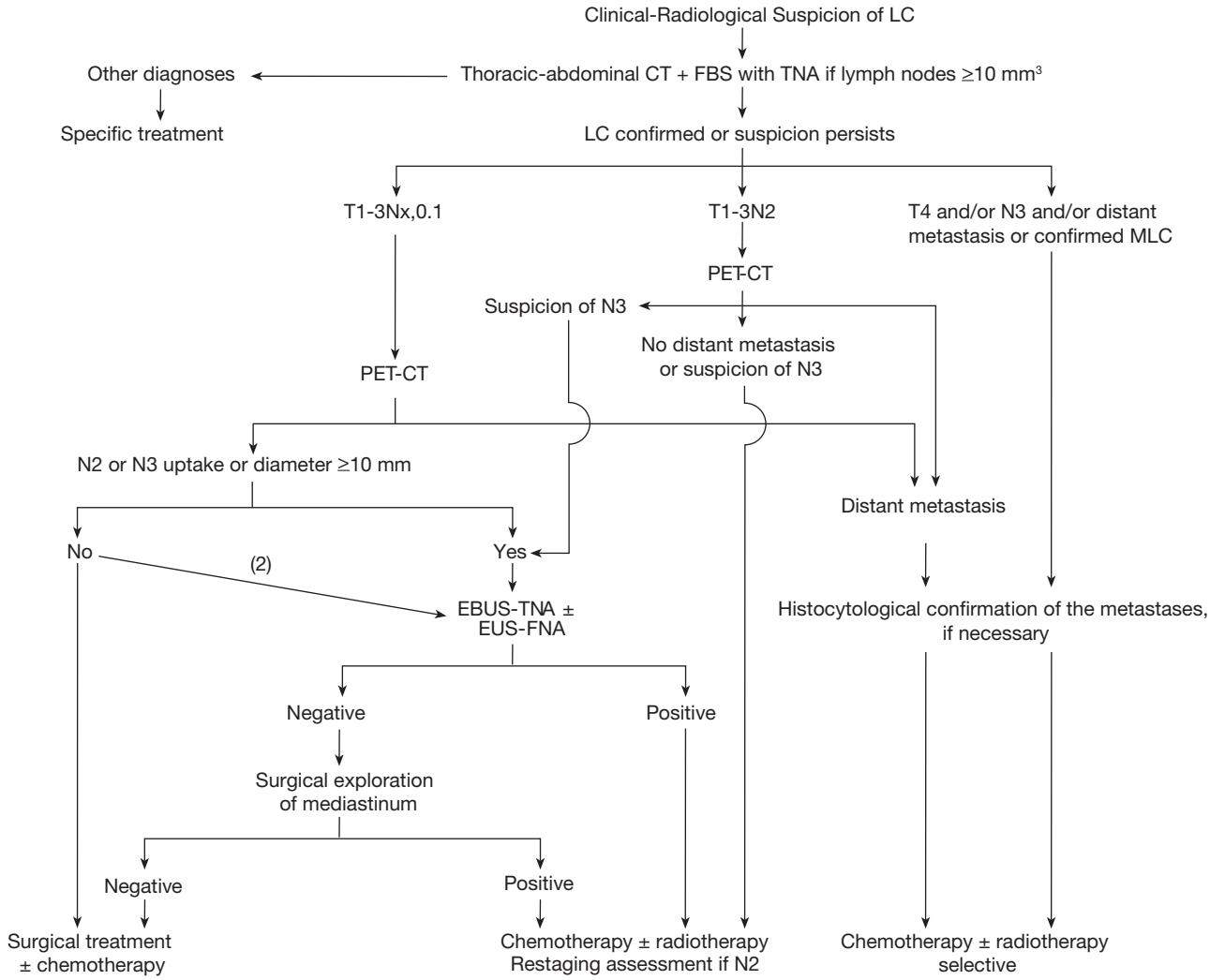

Figure 1. Algorithm for the diagnosis and staging of patients with a strong suspicion of lung carcinoma.
LC: Lung cancer;
MLC: microcytic lung cancer;
FB: fibrobronchoscopy;
PET-CT: positron emission tomography-CT;
TBNA: standard transbronchial needle aspiration;
T/N 1,2,3: T and N descriptors in the TNM classification of lung cancer;
EUS-TBNA: endoscopic ultrasound with real time transbronchial needle aspiration;
EBUS-guided TBNA: endobronchial ultrasound with real time transbronchial needle aspiration.
[a]Other techniques such as transthoracic aspiration punction with superfine needle, peripheral lesion biopsy, thoracocentesis and/or pleural biopsy, sputum cytology.
[b]Central tumours or N1.

probably not enough to justify the cost and maintenance of the equipment and the necessary consumables and also, ensure suitable training for the professionals performing the procedures.[4,5] As a result, Like Romijn et al,[5] we believe that these techniques must be centralized in certain hospitals which treat a large enough number of patients to ensure their cost-effectiveness.

However, we have based these reflections on the results of one single centre and, therefore, they depend on the yield we obtain with all the usual bronchoscopy techniques, including standard TBNA. They contribute to keep the debate open regarding the role of this technique in the era of ultrasound bronchoscopy.[6] Furthermore, the comments above only apply to the study of suspected cases of LC, and it must not be forgotten that techniques such as EBUS-guided TBNA have also been proven to be of use in patients with other pathologies such as sarcoidosis, lymphomas, or the study of mediastinal or hilar adenopathies of unknown origin.[3] Further studies are necessary which analyze the needs of each centre so that this new technology is included and distributed in a reasonable way.

References

1. Rosell Gratacós A, Ginés Gibert A, Serra Mitjans M, Gámez Cenzano C. Estadificación mediastínica del cáncer de pulmón en el siglo XXI: un reto de carácter multidisciplinario. Med Clin (Barc). 2008;130:415-22.
2. Varela Lema L, Fernández-Villar A, Ruano-Ravina A. Effectiveness and safety of real time endobronchial ultrasound-guided transbronchial needle aspiration: a systematic review. Eur Respir J. 2009;33:1156-64.

3. Gomez M, Silvestri GA. Endobronchial ultrasound for the diagnosis and staging of lung cancer. Proc Am Thorac Soc. 2009;6:180-6.
4. Kunst P, Eberhardt R, Herth F. Combined EBUS real time TBNA and conventional TBNA are the most cost-efective means of lymph node staging. J Bronchol. 2008;15:17-20.
5. Romijn BJ, van den Berg JMW, Uiterwijk H, Kunst PWA. Necessity of centralisation of EBUS. Lung Cancer. 2009;64:127-8.
6. Disdier C, Bollo E, Morales P, Montero C. Revista del año de Archivos de Bronconeumología en neumología intervencioniita, enfermedades intersticiales y trasplante pulmonar. Arch Bronconeumol. 2009;45(Suppl 1):39-42.

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Primary Leiomyosarcoma of the Lung

Leiomiosarcoma pulmonar primario

To the Editor:

Primary sarcomas of the lung are uncommon, representing less the 0.5% of all malignant lung tumours. To confirm the diagnosis, it is necessary to rule out the existence, at the present time or in the past, of sarcomas in other organs.[1] Among the different types, leiomyosarcomas are the most frequent.[2]

Here we describe a 60 year old patient with no history of smoking. She visited doctors at the Hospital de Clinicas Dr. Manuel Quintela with month-long symptoms of cough and general health implications such as weight loss of 5 kg, with the examination confirming a poor general condition, and BMI of 18. She presented with polypnea of 24 breaths/min and, at pleuropulmonary level, dullness to percussion and decreased breath sounds in the middle third of the left hemithorax. The gynaecological examination was normal.

The chest x-ray revealed a homogeneous polylobulated mass in the hilar and parahilar regions of the left lung. Computerized tomography revealed a solid-looking voluminous tumour with a poorly-defined, irregular outline; a region compatible with central necrosis; it contacted with mediastinal vascular structures; multiple ipsilateral nodules which looked secondary. A transparietal puncture biopsy was performed for an anatomical pathology study, and, using conventional techniques, the optical microscope showed malignant neoplasia whose morphology was compatible with a highly necrotic sarcoma. Immunohistochemistry showed an immunophenotype concordant with a mesenchymal tumour with smooth muscle cell lines (fig. 1). The diagnosis was primary leiomyosarcoma of the lung.

Palliative treatment was begun based on analgesics, corticoids, polychemotherapy and anticoagulants due to unresectability because of the size of the tumour and the invasion of mediastinal structures. The patient progressed unfavourably and the progress of the tumour was fast, and she died.

Primary sarcomas of the lung are mesenchymal-type tumours which originate in bronchial wall, vascular or interstitial cells. There are various types, amongst which leiomyosarcomas are the most frequent, followed by fibrosarcomas and hemangiopericytomas.[4]

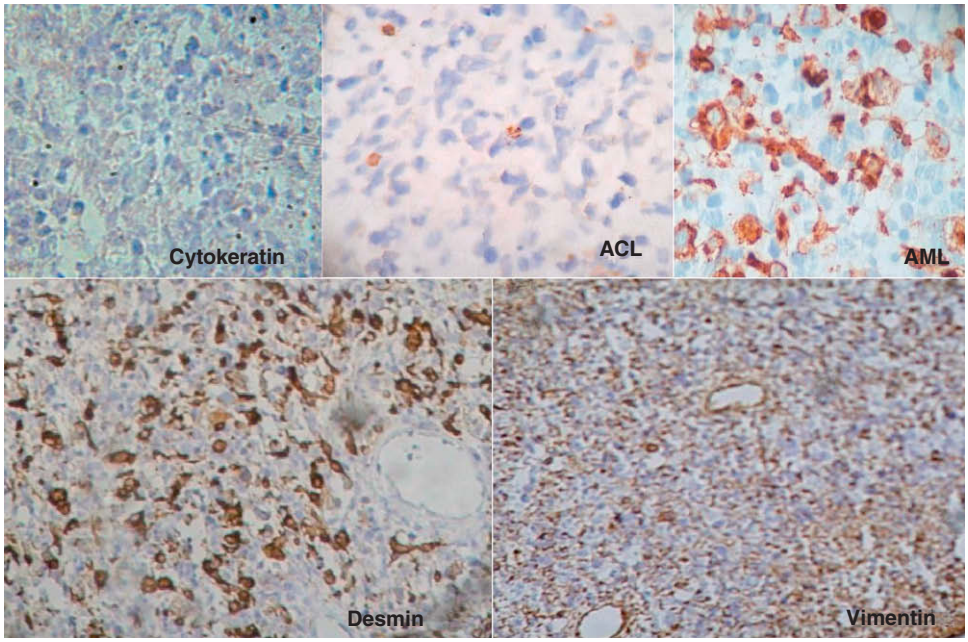

Figure 1. Immunophenotype concordant with a mesenchymal tumour with smooth muscle cell lines (negative cytokeratin, negative common leukocyte antigen in the proliferating cell component and positive in lymphocytes, smooth muscle actin positive in proliferating cell component displaying focal distribution, highly desmin and vimentin positive in the proliferating cell component).