The Role of Computed Tomography in the Diagnosis of Relapsing Polychondritis

Papel de la tomografía computarizada en el diagnóstico de la policondritis recidivante

Dear Editor,

We read with great interest the well-written case report by Sousa et al.[1] regarding a 68-year-old woman with recurrent episodes of acute dyspnea and wheezing for 3 years. She was treated for asthma, without clinical improvement. The authors reported that chest computed tomography (CT) revealed tracheal and bronchial wall thickening. In the subsequent year, the patient developed polyarthritis, recurrent ear pain, and saddle-nose deformity, and relapsing polychondritis (RP) was diagnosed. The authors also commented on the clinical challenge of this diagnosis.

We would like to highlight the role of CT as an important tool for the evaluation of patients with tracheobronchial wall thickening. CT is the best non-invasive method for the evaluation of tracheobronchial lesions. The tomographic differential diagnosis of diffuse tracheobronchial wall thickening is broad, and includes granulomatosis with polyangiitis, RP, tracheobronchopathia osteochondroplastica, amyloidosis, papillomatosis, sarcoidosis, and infectious diseases, such as tuberculosis, paracoccidioidomycosis, and rhinoscleroma.[2,3] The anterior portion of the trachea and main bronchi consists of horseshoe-shaped cartilaginous rings; the posterior portion lies between the open ends of the cartilaginous rings and consists of a fibromuscular membrane. Diseases that affect the cartilaginous rings are characterized tomographically by sparing of the posterior (membranous) wall, as observed in the case reported by Sousa et al.[1] This criterion is important for differential diagnosis, as only two diseases involve the anterior and lateral walls, sparing the posterior wall: RP and tracheobronchopathia osteochondroplastica.

RP is a rare autoimmune disorder characterized by recurrent episodes of cartilaginous inflammation with subsequent degeneration, loss of structure, and fibrosis. It results in the destruction of cartilage in the ears, nose, joints, and upper airways, including the larynx and subglottic trachea. The diagnosis of RP is based on a set of clinical evidence, imaging studies, and, rarely, biopsy of involved cartilage. No specific laboratory test is diagnostic for RP. Clinically, the diagnosis can be made when three or more of the following features are present: bilateral recurrent auricular chondritis, non-erosive seronegative inflammatory polyarthritis, chondritis of nasal cartilages, inflammation of ocular structures, respiratory tract chondritis, and cochlear or vestibular damage.[2•5] The most common CT findings are smooth anterior and lateral airway-wall thickening with sparing of the posterior membranous wall. These changes are thought to occur secondary to cartilaginous destruction and fibrotic replacement, reflecting relatively late airway manifestations of RP. Calcification of the cartilages may also be seen. Loss of cartilaginous support due to cartilaginous inflammation and destruction also results in excessive dynamic expiratory airway collapse (tracheobronchomalacia).[2•5] The tomographic differential diagnosis of RP includes mainly tracheobronchopathia osteochondroplastica, a benign idiopathic disease of the trachea and major bronchi characterized by the presence of multiple submucosal osteocartilaginous nodules. CT may demonstrate multiple submucosal nodules, with or without calcification, which may project into the airway lumen. The nodules involve the anterior and lateral walls of the tracheobronchial tree, with sparing of the posterior wall.[2•4] In conclusion, the CT findings of anterior and lateral tracheobronchial wall thickening with sparing of the posterior wall are highly suggestive of RP.

References

1. Sousa M, Silva J, Rodrigues B. Relapsing polychondritis with airway involvement: a clinical challenge. Arch Bronconeumol. 2017, http://dx.doi.org/10.1016/j.arbres.2016.12.017.
2. Acar T, Bayraktaroglu S, Ceylan N, Savas R. Computed tomography findings of tracheobronchial system diseases: a pictorial essay. Jpn J Radiol. 2015;33:51–8.
3. Prince JS, Duhamel DR, Levin DL, Harrell JH, Friedman PJ. Nonneoplastic lesions of the tracheobronchial wall: radiologic findings with bronchoscopic correlation. Radiographics. 2002;22:S215–30.
4. Lee KS, Ernst A, Trentham DE, Lunn W, Feller-Kopman DJ, Boiselle PM. Relapsing polychondritis prevalence of expiratory CT airway abnormalities. Radiology. 2006;240:565–73.
5. Mathian A, Miyara M, Cohen-Aubart F, Haroche J, Hie M, Pha M, et al. Relapsing polychondritis: a 2016 update on clinical features, diagnostic tools, treatment and biological drug use. Best Pract Res Clin Rheumatol. 2016;30:316–33.

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Core-Needle Biopsy in the Diagnosis of Lung Cancer☆

Biopsia con aguja gruesa en el diagnóstico de cáncer de pulmón

To the Editor,

We read with great interest the SEPAR recommendations for the diagnosis and treatment of non-small cell lung cancer, published as a special issue in May 2016.[1]

We found it well adapted to the needs of the pulmonologist today.

However, in the subsection on minimally invasive techniques in the section dealing with cytohistological confirmation and staging studies, we were surprised to find that core needle biopsy (CNB) was not included among the techniques described.

This is a very similar procedure to transthoracic fine needle aspiration biopsy (TFNAB). The same guidance techniques, generally computed tomography (CT) and sometimes the ultrasound,

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are used in both. The main difference between the two procedures is the caliber of the needle, generally 18G, which can yield specimens 1 or 2 cm thick, depending on the particular characteristics of the needle and the lesion. The caliber means that the needle track must always be anesthetized. The pulmonologists practicing in our hospital use both techniques. Capalbo et al.[2] compared the two procedures in the diagnosis of pulmonary lesions, and reported a greater sensitivity for TFNAB (94.83%) compared to CNB (81.82%).

As confirmed by the literature, this technique has been used for years in the diagnosis of lung cancer, with an acceptable rate of complications.[3] The size of the specimen is greater than that obtained by the TFNAB, making it particularly suitable for studying genetic mutations in lung tumors, such as epidermal growth factor receptor (EGFR) and anaplastic lymphoma kinase (ALK), among others. Although some centers are capable of performing these determinations from cytological samples, these laboratory techniques are not as widely implemented as studies performed on the histological sample, and as Schneider et al.[4] demonstrated, CNB may be more cost-effective than TFNAB for the study of mutations.

In short, we believe that CNB should be included in paragraph 3.d on minimally invasive techniques of the SEPAR recommendations for the diagnosis and treatment of non-small cell lung cancer, along with bronchoscopy, blind transbronchial aspiration, endobronchial ultrasonography, gastrointestinal endoscopic ultrasonography, electromagnetic navigation bronchoscopy, fine needle aspiration biopsy, thoracentesis, pleural biopsy, and TFNAB, as another diagnostic procedure in non-small cell lung cancer.

References

1. Álvarez FV, Trueba IM, Sanchis JB, López-Rodó LM, Rodríguez Suárez PM, de Cos Escuín JS, et al. Recommendations of the Spanish Society of Pneumology and Thoracic Surgery on the diagnosis and treatment of non-small-cell lung cancer. Arch Bronconeumol. 2016;52 Suppl. 1:S2–62 [Article in English, Spanish].
2. Capalbo E, Peli M, Lovisatti M, Cosentino M, Mariani P, Berti E, et al. Trans-thoracic biopsy of lung lesions: FNAB or CNB? Our experience and review of the literature. Radiol Med. 2014;119:572–94.
3. Li Y, Du Y, Yang HF, Yu JH, Xu XX. CT-guided percutaneous core needle biopsy for small (≤20 mm) pulmonary lesions. Clin Radiol. 2013;68:43–8.
4. Schneider F, Smith MA, Lane MC, Pantanowitz L, Dacic S, Ohori NP. Adequacy of core needle biopsy specimens and fine-needle aspirates for molecular testing of lung adenocarcinomas. Am J Clin Pathol. 2015;143:193–200.

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Core Needle Biopsy Versus Fine Needle Aspiration Biopsy in Diagnosing Lung Cancer☆

Biopsia con aguja gruesa versus punción aspiración con aguja fina en el diagnóstico del cáncer de pulmón

To the Editor,

The "Cytohistological confirmation and staging" section of the "SEPAR recommendations for the diagnosis and treatment of non-small cell lung cancer", published in 2016,[1] refers to transthoracic fine needle aspiration biopsy (TFNAB) as a technique for the transthoracic histological diagnosis of lung cancer (LC). This procedure is usually guided with computed tomography (CT) or ultrasound. Results show an overall sensitivity of at least 90% for the diagnosis of malignancy.[1]

For years, core needle biopsy (CNB) has yielded excellent results in the diagnosis of lung tumors that require a transthoracic approach.[2] This technique is also performed under CT scan or ultrasound guidance, the main difference being the size of the needle and, therefore, the size of the sample. Indications are similar to those for TFNAB, and it is used in peripheral lesions that cannot be reached using other procedures, and when there is discordance between the clinical probability of cancer and the results of the imaging tests.

The sample obtained by CNB also seems to be sufficient for the classification and molecular analysis of LC.[3] Even so, there is some controversy in the literature about which is the best technique for classifying these tumors or identifying mutations, such as epidermal growth factor receptor (EGFR) or anaplastic lymphoma kinase (ALK), among others, and which has a lower complication rate. In this respect, we found several studies comparing different techniques. Yao et al. concluded in an initial meta-analysis that there were no differences between the two LC diagnostic techniques, but that CNB might be more useful for identifying benign lesions.[2] More recent studies have shown similar results for the diagnosis of LC. Sangha et al., for example, reported that the sensitivity and specificity of CNB were 89% and 100% respectively, while for TFNAB they were 95% and 81%.[4] Moreover, although both techniques are effective for analyzing biomarkers and mutations, recent studies from Ocak et al. and Schneider et al. showed that CNB was more useful for identifying lesions, and showed an improved yield in these analyses.[3,5] The greater yield of CNB may be linked to the size of the sample.

None of these studies showed significant differences in complication rates with either technique, although in some cases, these may be higher with CNB.[2–4]

Taking into account these observations, a new recommendation could be made, following the methodology proposed in the "SEPAR recommendations for the diagnosis and treatment of non-small cell lung cancer" and using the same recommendation grades as the American College of Chest Physicians (ACCP) Grading System[1]:

- Both TFNAB and CNB are useful for the correct diagnosis of lung cancer and tumor classification on the basis of morphological characteristics and immunohistochemical studies (Grade 1B).

References

1. Villar Álvarez F, Muguruza Trueba I, Belda Sanchis J, Molins López-Rodó L, Rodríguez Suárez PM, Sánchez de Cos Escuín J, et al. Recomendaciones SEPAR de diagnóstico y tratamiento del cáncer de pulmón de células no pequeñas. Arch Bronconeumol. 2016;52:2–62.
2. Yao X, Gomes MM, Tsao MS, Allen CJ, Geddie W, Sekhon H. Fine-needle aspiration biopsy versus core-needle biopsy in diagnosing lung cancer: a systematic review. Curr Oncol. 2012;19:16–27.

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