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Recommendations of SEPAR

Recommendations of Diagnosis and Treatment of Pleural Effusion. Update☆

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ABSTRACT

Although during the last few years there have been several important changes in the diagnostic or therapeutic methods, pleural effusion is still one of the diseases that the respiratory specialist have to evaluate frequently. The aim of this paper is to update the knowledge about pleural effusions, rather than to review the causes of pleural diseases exhaustively. These recommendations have a longer extension for the subjects with a direct clinical usefulness, but a slight update of other pleural diseases has been also included. Among the main scientific advantages are included the thoracic ultrasonography, the intrapleural fibrinolytics, the pleurodesis agents, or the new pleural drainages techniques.

Normativa sobre el diagnóstico y tratamiento del derrame pleural. Actualización

Palabras clave:
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Derrame pleural maligno
Tuberculosis pleural
Derrame pleural paraneumónico
Hemotórax

RESUMEN

A pesar de los múltiples avances diagnósticos o terapéuticos de la medicina de los últimos años, el derrame pleural (DP) continúa siendo una de las enfermedades que con frecuencia tiene que abordar el especialista de aparato respiratorio o el cirujano torácico. El presente texto no tiene como objetivo realizar una revisión exhaustiva sobre las enfermedades que pueden producir DP, su diagnóstico o su tratamiento, sino constituir una actualización de los conocimientos publicados en los últimos años. Teniendo en cuenta la vocación eminentemente práctica de esta normativa, se ha concedido más extensión a las enfermedades que presentan una mayor incidencia o prevalencia, aunque no hemos renunciado a un ligero recordatorio de otras menos frecuentes. Entre los mayores avances destacan los conocimientos sobre la utilidad de la ecografía torácica, los fibrinolíticos y los agentes pleurodésicos, o la utilización de nuevas técnicas de drenaje pleural, como los tubos torácicos finos o los catéteres tunelizados. La actualización periódica de las normativas favorece la potencial incorporación de nuevas técnicas en el estudio de la enfermedad pleural.

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Evaluation of Patients With Pleural Effusion

Complete history and physical examination should be performed, including an evaluation of disease, employment and medication history. The most usual imaging technique for identifying PE is posteroanterior chest X-ray.[1] Thoracic ultrasound (US) should be easily accessible for these patients. It is also recommended that US be performed by the same physician who performs the puncture, in order to increase diagnostic yield and reduce the complications of thoracentesis (**A**).[3] US is more sensitive than X-ray in identifying PE, and better than computed tomography (CT) for identifying septa (**C**). Its indications also include locating small or encapsulated PE for puncture or biopsy, characterization of the fluid or pleural surface, or providing guidance regarding the entry point for thoracoscopy. Its use is recommended for guidance in all pleural invasive techniques (**B**) and, if possible US should be performed immediately before the technique to avoid puncture in a previously marked entry point (**F**).[4] Chest CT may be useful for modifying the probability of identifying malignancy in PE, for locating suitable areas for biopsy or for identifying other pathological regions, such as the lung parenchyma or the mediastinum. Abdominal CT may be useful for ruling out infradiaphragmatic pathologies causing PE.

A presumptive diagnosis should be established from the clinical and radiological findings. The main causes of PE were specified in previous guidelines.[1] Thoracentesis is not indicated for patients with bilateral PE if clinical signs suggest a strong suspicion of transudate (**H**).[5] Thoracentesis will be performed in all other situations, the amount of fluid permitting. Sample preparation and the main findings in pleural fluid (PF) were specified in previous guidelines.[1] If PF analysis is not sufficient to establish diagnosis, pleural tissue samples will be taken by transmural pleural biopsy (strong suspicion of tuberculosis and in experienced centers) or thoracoscopy. Image-guided pleural biopsy increases the sensitivity of biopsy to values close to those of thoracoscopy.[6] Bronchoscopy is indicated in the presence of bronchial symptoms (hemoptysis, changes in cough or sputum), or if nodules or pulmonary masses or signs suggestive of bronchial obstruction are observed on radiological examination. A diagnostic schematic for patients with PE is shown in Fig. 1.

Differentiation of Transudative and Exudative Pleural Effusion

Differentiation between transudative and exudative effusion is considered the initial step in the etiological diagnosis of any PE. The former results from an imbalance between the hydrostatic and oncotic forces in the pulmonary or systemic circulation, whereas the latter is produced by increased vascular permeability. Transudates are most often caused by heart failure (80%) and, to a lesser extent, by hepatic cirrhosis. Additional diagnostic procedures are usually not required. Conversely, exudates require more extensive diagnostic evaluation, since they have numerous etiologies.[1] Nevertheless, in 80% of cases, the exudate is secondary to cancer, pneumonia, tuberculosis or viral pleuropericarditis. In clinical practice, the difference between exudates and transudates is established with Light's criteria (**B**), according to which PE is exudate if it meets one or more of the following conditions:

- The ratio of pleural fluid protein to serum protein is greater than 0.5.
- The ratio of pleural fluid lactate dehydrogenase (LDH) to serum LDH is greater than 0.6.
- LDH content in PF is greater than 2/3 of the upper limit of normal serum levels of LDH.

Almost all exudates (98%) are correctly identified using these criteria, but approximately 30% of cardiac PEs and 20% of hepatic hydrothoraces are classified erroneously as exudates.[7] This circumstance is particularly prevalent in patients receiving diuretic

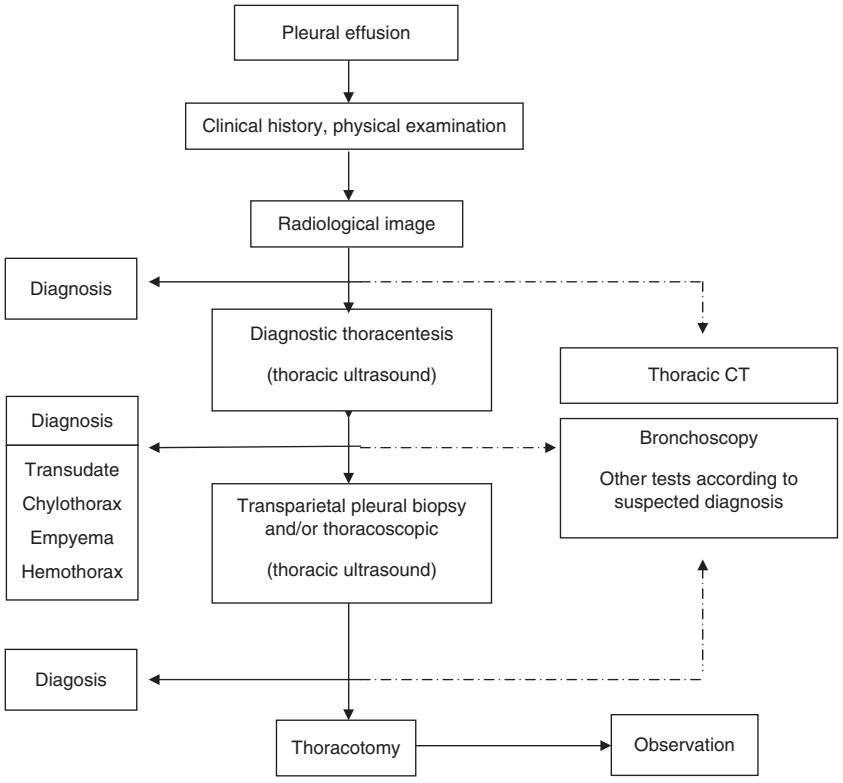

Fig. 1. Diagnostic workup of patients with pleural effusion.