Pulmonary meningothelial-like nodules: case report and topic review. essay

Design

AbstractionPneumonic meningothelial-like nodules consist of epithelial cells bunchs in the pneumonic interstitium, which are normally an incidental diagnosing on histopathological surveies of pneumonic tissue.

In imaging surveies, they may be individual or multiple ; preponderantly peripheral and have soft tissue denseness. Pneumonic meningothelial-like nodules show features that remember the meningothelial cells of the Indian arrowroot and arachnoid, they are reactive for Lipo-Lutin receptors, Cadmium 56, epithelial membrane antigen and vimentin. Clinical significance of pneumonic meningothelial-like nodules has non been good established. This status has been described in patients with pneumonic intercalation and in coffin nail tobacco users. However, the importance is related to the differential diagnosing of lung metastatic disease when looking as multiple nodules. We present the instance of a female patient with history of chronic bronchitis due to cigarette smoke and parenchymal nodules in imaging surveies, which turned out to be pneumonic meningothelial-like nodules.

Keywords: Pneumonic meningothelial-like nodules, pneumonic chemodectomas, pneumonic nodules, chest, high declaration computed imaging. CASE REPORT47-year-old patient with history of chronic bronchitis, confer withing due to 1 month of progressive dyspnoea, epigastric hurting, and thoracic hurting, associated to asthenia and adynamia. The clinical findings showed bilateral basal rattles, distended venters, and right upper quarter-circle hurting, with marks of megalohepatia, class II lower limb hydrops ; which were interpreted as cor pulmonale. The EKG ruled out acute coronary event.

Chest X ray showed imaging findings of cor pulmonale (megalocardia and pleural gush) and pneumonic nodular lesions. Transthoracic echocardiography evidenced pneumonic high blood pressure (Pneumonic arteria sistolic presure 55 mmHg) . Angio-CT discard pneumonic intercalation and demonstrate multiple chiseled nodules with 3 – 12 millimeters diameter and contrast enhancing (26-65 HU) in the larger lesions(Figures 1, 2 and 3). It was thought that the pneumonic nodules were metastatic, farther surveies were made to govern out a primary tumor: contrast enhanced venters CT and upper GI piece of land endoscopy, which did non demo change. A pneumonic nodule was resected and interpreted in the anatomopathological scrutiny as a pneumonic nodule with meningothelial-like cells, diffusely positive for EMA (epithelial membrane antigen) , atomic shaped thyroid written text factor 1 (TTF-1) , estrogen and Lipo-Lutin receptor(Figures 4 and 5) . Discussion *Definition, etiology and demographics* Pneumonic meningothelial-like nodules (PMLN) consist of epithelial cells clustered in the pneumonic interstitium, normally stand foring an incidental determination on microscopic surveies of the lung tissue [1] . Korn and co-workers foremost described PMLN in 1960 as lung tumours similar to chemodectomas, made up of fusiform-ovoid cells, and distributed perivenularly. Due to their relationship with little vass, they were thought to be chemoreceptors in charge of supervising O concentrations and were ab initio named “ chemodectomas” [1, 2] .

Later, negatron microscopy surveies performed by Kuhn [3] , Churg [4] and Korn [5] , showed that these cells did non incorporate neuroendocrine granules and had in their construction prominent desmosomes and complex

cytoplasmatic interdigitations, similar to those of meningothelial cells from the Indian arrowroot mater and arachnoid, were reactive to vimentin and epithelial membrane antigen. Presently, the pathophysiology and clinical significance of the PMLN are non clear [6] . The incidence of PMLN in autopsy surveies ranges from 0. 07 to 4. 9 % [2] . In their survey, Mukhopadhyay and co-workers [7] (500 pneumonic biopsies due to non related causes, in patients of all ages) , found that the incidence of PMLN was 13.

8 % . The mean age in the series was 62 old ages (most & A ; gt ; 40 old ages old, with female to male ratio of 2. 3: 1) .

PMLN were non found in most of the kid biopsies, proposing that PMLN do non stand for inborn leftovers. The writers considered that the higher incidence of PMLN in this survey (compared to autopsy series) is related to the presence of pneumonic disease in the patients who had a biopsy [7] . *Clinical manifestations and significance* PMLNs are symptomless [8] . The clinical significance and pathogenesis of PMLNs is controversial.

In the series by Mukhopadhyay et Al. [7] , 42 % of the patients with PMLNs had history of pneumonic intercalation ; this relationship was interpreted by Suster et Al. [6] as a response to ischemia secondary to vascular occlusion. In the same series, 26 % of the patients with PMLNs were tobacco users and had a histopathological form of desquamative interstitial pneumonia, proposing an association with coffin nail smoke. It besides has been suggested an association with untypical adenomatous hyperplasia and bosom disease. In the series by Niho et Al. [9] , PMLN were seen in 10 % of

the patients with pneumonic glandular cancer. Despite this, the absence of clonal proliferation of the PMLN suggests a reactive instead than neoplastic procedure [6] .

Histologic and radiologic findings Histologically, PMLN are made up of fusiform ellipse cells with abundant pink cytol, unclear cellular borders and unvarying ellipse karyon with finely dispersed chromatin, closely related to little pneumonic vass. The immunohistochemical analysis shows responsiveness for Lipo-Lutin receptors (PR) , CD 56, EMA and vimentin. Other markers (muscular, vascular and neuroendocrine) are negative and allow distinguishing PMLN signifier lesions of other beginnings (myogenic, neural, endothelial, nervous, perivascular epithelial cells and crude respiratory epithelial tissue) [7] . The absence of pronounced atomic atypia, mitotic activity, intraluminal lymphatic connexion by tumoral cells and negative cytokeratin staining allow to distinguish PMLN from metastatic lesions [6] . Electron microscopy shows the meningothelial nature of the nodules through the presence of cells with complex cytoplasmatic interdigitations linked by desmosomes [6] . In general footings, PMLN have diameters between 0. 1 and 3 millimeter, hence are non apparent in imaging surveies.

However, PMLN can hold greater diameters leting their sensing in imaging surveies. When diagnosed, PMLN may be individual (59 %) or multiple, have a soft tissue denseness, are normally below 5 millimeter in diameter, and are located in the subpleural and apical parts. Lesions up to 30 millimeters in diameter have been described [1, 3, 7] .

There have been studies on instances of meningothelial cell proliferation, with diffuse reticulonodular form on chest X raies and restrictive alterations in pneumonic map trials. This status has been named “ Diffuse pneumonic meningotheliomatosis” [2] . Molecular surveies of these lesions show a certain grade of familial instability and loss of heterozigocity (opposite to PMLN) , proposing the possibility of passage of these reactive lesions to neoplastic proliferation [1, 6, 7, 8] . In our patient the pneumonic meningothelial-like nodules had a larger diameter than those normally described and contrast enhancing. It is unknown for us if there are old studies in the literature in relation to the contrast sweetening of meningothelial-like nodules. *Diagnosis, intervention and forecast* Most of PMLNs are diagnosed as an incidental determination in the histopathologic rating of pneumonic nodules.

PMLNs have a benign class, so conservative intervention is favourable. *Differential diagnosings* The differential diagnosings in imaging surveies is related to the presence of individual or multiple PMLN. In the first instance, conditions affecting lone pneumonic nodules must be considered (infection, primary-secondary tumors, inflammatory lesions, etc.

) . The scope of differential diagnosings of multiple pneumonic nodules, with features similar to those of PMLN, is broad and must include metastatic conditions, neuroendocrine tumours, lymphoproliferative upsets and granulomatous diseases, among the first possibilities. Teaching PointIn the differential diagnosing of little nodular lesions of soft tissue denseness, of preponderantly apical and subpleural location, in patients with respiratory

symptoms, history of pneumonic intercalation or coffin nail smoke, the possibility of pneumonic meningothelial-like nodules must be considered.

The diagnosing of this status is based on histopathology trials. Figure 1. 47-year-old female with pneumonic meningothelial-like nodules. Axial thorax computed tomography-unenhanced, obtained by a multidetector scanner (Protocol: 120 Kv, ma: AutomA, piece thickness= 3 millimeter) , lung window. The image demonstrates chiseled nodules (10-12 millimeter) left lower and upper lobes (pointers) and right pleural gush (star) . Figure 2. 47-year-old female with pneumonic meningothelial-like nodules. Axial thorax computed tomography-unenhanced, obtained by a multidetector scanner (Protocol: 120 Kv, ma: AutomA, piece thickness= 3 millimeter) , lung window.

The image reveals chiseled nodules in in-between lobe and left lower and upper lobes (3-10 millimeter) (pointers) and right pleural gush (star) . Figure 3. 47-year-old female with pneumonic meningothelial-like nodules. Axial contrast enhanced chest CT (Protocol: 120 Kv, ma: AutomA, piece thickness= 3 millimeter, contrast medium Iopromida, entire dose of contrast 60 milliliter) , soft tisue window.

The image demonstrates contrast heightening chiseled soft nodules in left lower lobe (pointers) . Right pleural gush (star)Figure 4. A 47-year-old female with pneumonic meningothelial-like nodules. Tissue obtained by unfastened lung biopsy. Proliferation of unit of ammunition and egg-shaped cells that are arranged in humdrum nests and presence Psammoma organic structures (pointers) .

Hematoxylin and eosin discoloration, original magnification x 40. Figure 5. A 47-year-old female with pneumonic meningothelial-like nodules. Biopsy stuff of a pneumonic nodule. Immunohistochemistry revealed a) EMA positive, original magnification x 10 B) TTF-1 atomic positive, original magnification x 10 degree Celsiuss) Estrogen receptor positive, original magnification x 10 and vitamin D) Progesterone receptor positive with atomic labeling (pointer) , original magnification x 40.