

Imaging Diagnosis in Mediastinal Vascular Diseases

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ABSTRACT In practice approach during a diagnostic imaging of a mediastinal masses that are driven more often overlapping stages: Detection or confirmation of a replacement process mediastinal space; Lesion characterization to its classification in a category of mediastinal masses (tissue, cystic, vascular, fatty, mixed, etc..) And, achieving the distinction between a tumor and one nontumoral process; Locating and establishing extension previously detected anomaly ; Specify the nature of mediastinal mass detected and if the balance of evolutionary stage. Using the above criteria we analyzed 504 cases of mediastinal masses included in the study for their classification in anatomic and clinical entity. Because the number of cases of magnetic resonance imaging examinations and ultrasound examinations was significantly reduced compared to computed tomography in each group will present a systematic analysis of injury criteria for diagnosis, radiology, ultrasound, CT and MRI-confined I encountered issues and examples of iconographic type.

KEY WORDS *mediastinal, vascular, imagistics, CT and MRI*

Introduction

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Detection or confirmation of a replacement process mediastinal space;

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Thoracic aortic aneurysms

Arguments radio-imaging diagnoses were represented:

Radiological elements:

In iproeminenta ascending aorta to the right of right upper arc, convex to the parenchyma, including the retrosternal space, the scope of profile; obliteration previous line junction, trachea and bifurcation move to the left, objectivity

ascending aortic diameter increased in incidence profile, presence of parietal calcifications;

In the clubs: increase the size mediastinal opacity with convex point in the upper portion, extending the vascular pedicle and the aortic knob, objectivity clubs increased in size within the field, tracheal deviation to the right;

In the descending aorta - aortic button and increase the size of the convex aspect bay heart pulsed in the presence of opacities, the homogeneous line shifted and objectivity paraaortic aortic dilation and type of aneurysm by reducing retrocardiac clear space and move back esophagus, the presence of the break Pleuro-pericardial fluid in cases of dissection.

Elements computed tomography:

Dilatation of thoracic aorta with homogeneous or heterogeneous appearance in the ascending segment, the clubs or descending, with fusiform or sacciform part, of various sizes, with or without mural calcification ateromatoase, the postcontrast study intense uptake was present, the vascular type, homogeneous or heterogeneous in case of thrombosis or signs of dissection;

Parietal thrombosis - was highlighted in the form of curvilinear hipodense image, especially visible in postcontrast study, incomplete form of images, without contrast type plugs or tumor calcification;

In cases complicated with dissection - was present in postcontrast study intraluminal membrane floating in the thoracic aorta or some of its branches, identifying fake and real lumenelor and density differences in postcontrast study.

Other structures arterial aneurysms

In this category we include a case of aneurysm of right common carotid artery and arterial trunk brahiocefalic, in which arguments diagnoses were represented:

Radiological: the presence of opacities in the mediastinum, the right upper anterior-convex shape, clearly, the deformed arch and right upper mediastinal opacity of VCS line, consistent with pulsed and look calcifican parietal vascular opacity move and compress the trachea to the right and posterior midline;

Ultrasound - right common carotid artery and its bifurcations dilated fusiform appearance, turbulent flow and clot hiperecogen, translated by Doppler signal aspect, parietal calcifications hiperecogene presence and absence of signs of carotid dissection;

Computer tomography - vascular mass consistent with right common carotid artery topography, homogenous hypodense clot studies with native and postcontrast, with mural calcification, moderate dilatation brahiocefalic arterial trunk.

Aberrant vascular structures

May be causes of mediastinal compression or are discovered incidentally during imaging investigations.

I met the study group 2 cases of aberrant right subclaviculare arteries originated from the medial portion of the aortic clubs and 2 cases of aortic arch malpoziție the layout in "mirror" the upper branches. Two of those cases were incidental findings in imaging exam computed tomography and magnetic resonance imaging, all patients being investigated for diagnostic and other assumptions, in one case, dysphagia was present, the patient was suspected lung cancer in mediastinal lymph nodes.

Diagnostic criteria used for asserting aberrant mediastinal vessels were represented by:

Radiological etiological arguments - were nonspecific, revealing, however, as with higher arc convexity upward trajectory by straight subclaviculără region, which raised suspicion lusoria artery;

Arguments etiological computed tomography - part of the vascular mass retroesofagian aberrant trajectory with origin at the aortic clubs, which continue to the right subclaviculără region, consistent in studies with native 30-40UH densities and intense homogeneous uptake in studies of angio- postcontrast CT, the presence or absence of oesophageal compression syndrome less identifiable with CT but clinical expression;

MRI etiological arguments - were similar to those of CT but always certifying vascular nature

of these lesions: vascular masses with topography that, with vascular hiposemnal - "signal void" in the native sequences and intense study postcontrast capture.

Dilated pulmonary arteries

I've met in cases of chronic pulmonary hypertension, secondary to pulmonary disease or valvular complicated or thrombosis.

Diagnostic imaging criteria for asserting pulmonary dilation correlated with the clinical and other paraclinical explorations were represented:

Radiological criteria, unsteady and in some cases absent, but present in severe forms of disease: increased size of the pulmonary artery trunk with its bulging contour in the left mediastinal opacity associated with increased pulmonary artery size over 14 mm and stroke drawing amputated, increase the size heart as the lower arc bulging right posterior-anterior radiography within thoraco-pleuro-pulmonary mediastino-contact and increasing distance between RV and Stern \pm reduction in retrosternal clear space dimensions within the profile, the presence of HVD, fused lung and Pleural effusion followed by cases of thromboembolism in heart;

Computed tomography criteria: objectivity trunk size and growth of both pulmonary arteries, identifying homogeneous lumen opacification or the presence of thrombi hypodense, homogeneous or heterogeneous chronic stages, revealing changes in lung or pulmonary dilation generator of outbreaks of condensation or subsegmentare segmentation and the break of pleural even in small quantities, identify causal factors and effects of arterial thrombosis in CT studies.

MRI criteria - RM contrast angiography: objectivity dilation trunk and pulmonary arteries of both homogeneous and heterogeneous looking for intraluminal thrombus, and specify their exact location whether acute or chronic based on signal characteristics, presence of vessel caliber changes \pm parietal thickening of pulmonary arterial branches without visualization segmentation pressure, revealing hipersemnal myocardial haemorrhage with IT, the break of pleural and cardiomegaliei;

Esophageal varices

Expression represented in most cases the presence of portal hypertension, liver cirrhosis secondary.

Diagnostic criteria were included:

Digestive Endoscopy - Direct objectivity presence of esophageal varices;

Radiological imaging, the presence of incomplete multiple benign esophageal folds with disruption - Barite examination of the esophagus;

Endoscopic ultrasonography - vascular mass with presence and location of venous Doppler signal or periesofagiană intraparietală;

Computed tomography - were included in cases where the presence of varicose dilatation was an incidental finding, during investigation of other regions. They were represented by visualizing vascular tubular structures, sinuous, with localization in the posterior mediastinum, with capture periesofagian late iv contrast substance what occurred periesofagiene fat obliteration plans.

Materials and method

Due to the great variability etiopathogenic mediastinal mass, crucial therapeutic and prognostic implications of their diagnosis as early as possible corollary, this study has proposed a retrospective statistical analysis of 504 cases examined in the Department of Radiology and Medical Imaging Emergency Hospital Craiova period 2005 - 2009, Clinical and biological investigation, radiology, ultrasound, computed tomography, magnetic resonance and, in some cases the histological diagnosis, sheet extension, therapeutic conduct and, in some cases, evaluation posttherapeutic.

Results and discussions

Mediastinal vascular lesions were present at 7, 34% (37) of cases included in the survey, prevalence in males - 67.56% (25 cases), the most common vascular lesions detected were the thoracic aortic aneurysms (59, 45% - 22 cases of vascular lesions), with or without signs of parietal thrombosis, complicated or not dissection, it was present in 8 cases (36, 36% of dilated aneurysm) and thrombosis was present in 6 cases (27.27%), dilated aneurysm location was as follows: the ascending aorta and clubs - 9 cases - 40.90%, 2 cases of aneurysm sacciforme the clubs - 9.09% in the descending aorta - 10 cases - 45.4%, or not involving the suprarenal segment of the abdominal aorta, as in a case complicated by dissection to be interested throughout the thoracic and abdominal aorta - 4.54%.

Mediastinal masses of vascular origin were represented by a brahiocefalic arterial trunk aneurysm and right common artery carotid - 2.70% of vascular lesions identified by home ateromatoasă, faulty layout deviated from the aorta to the right clubs and descending aorta (5.40%), other aberrant mediastinal vessels-arteries lusoria -5.40% and by 5.40% dilated pulmonary arteries, with and without thrombosis, secondary to changes responsible for increasing

cardiopulmonary and pulmonary arterial blood flow or impaired lung function, must, also, esophageal varices, secondary to portal hypertension were identified during computed tomography examinations completely random, but by their presence resulted in the presence of vascular mass with location and space to the posterior mediastinum inframediastinal -21.62%.

Breakdown by age and sex identified lesions showed a higher prevalence of vascular masses in males - 67.56%, age groups most interested in decreasing order of frequency were those 60-69 years - (32, 43%), the 50-59 years - 27.02%, and the 70-79 years - 18.91%.

Conclusions

Evaluation of the mediastinum with modern imaging methods is an important goal, applicable in many conditions affecting the anatomical region, in particular, mediastinal masses and various processes of replacement space.

Continuous improvement, development multislice computer tomography, magnetic resonance imaging development have increased the capacity assessment of vascular pathology, with true valences comparable with classical angiography. thus, the use of angiographic type protocols allows a detailed characterization of masses and vascular pathology with mediastinal location.

The pathology of vascular masses with the origin were 7.34%, dilated thoracic aorta and their branches, representing 62.16% of vascular disease, and 4.56% of all mediastinal masses identified. other pathologies identified represented aberrant vascular structures, malpoziții or aberrant mediastinal vascular structures were successfully characterized by correlating imaging data section.

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