

COMMENT ON: BEHÇET'S DISEASE IN EMERGENCY DEPARTMENT: A RARE CASE PRESENTING WITH HAEMOPTYSIS AND MASSIVE PULMONARY ARTERIAL ANEURYSMS.
ON BEHALF OF THE HUGHES-STOVIN SYNDROME (HSS) INTERNATIONAL STUDY GROUP

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To the editor,

We read with great interest the case report entitled "Behçet's disease in Emergency Department: a rare case presenting with haemoptysis and massive pulmonary arterial aneurysms, by Cozzi et al (1)" that was recently published in your journal.

In this report, the authors describe a 26-year-old Peruvian male patient who was admitted to the Emergency Department (ED) with a sudden onset of cough and hemoptysis. He was on anticoagulant therapy due to a history of chronic bilateral femoral deep vein thrombosis (DVT). The case is intriguing, but sadly the patient died as a result of massive suffocative fatal hemoptysis.

The Hughes-Stovin syndrome (HSS) is a systemic vasculitis characterized by widespread venous/arterial thrombosis and pulmonary artery aneurysms (PAAs), which is associated with serious morbidity and mortality. All fatalities reported in HSS resulted from unpredictable fatal suffocating hemoptysis (2, 3). It is important to note that pulmonary vasculitis in HSS is often similar to Behçet's disease (BD)-related

pulmonary vasculitis, and some authors believe that HSS is an incomplete form of BD (4-6).

During the last three years the HSS international study group (HSSISG) was established aiming to investigate in depth the Hughes-Stovin syndrome (HSS) related pulmonary vasculitis. In our most recent report we composed a reference atlas and computed tomography pulmonary angiography (CTPA) guide, defining the broad spectrum of pulmonary vasculitis as observed in HSS. In our study, pulmonary aneurysms were classified by CTPA into six radiologic patterns, ranging from true stable pulmonary artery aneurysm (PAA) with adherent in-situ thrombosis to unstable leaking PAA, bronchial arterial aneurysm (BAA), and/or pulmonary artery pseudoaneurysm (PAP) with loss of aneurysmal wall definition (most prone to rupture) (3).

As we can conclude from their very careful description, the patient described by Cozzi and coauthors (1) had an unstable pulmonary artery pseudoaneurysm (PAP), which was consistent with our previous findings in HSS-related pulmonary vasculitis (2, 3). The CTPA pattern as described showed neither multiple thrombi occluding the right main pulmonary artery lumen nor massive parietal thrombi within pulmonary artery aneurysms and does correspond with this diagnosis (1). We may describe the lesion as class V-VI (with unstable PAP with perianeurysmal ground-glass opacification (GGO), moreover with an intraventricular thrombus).

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In our reference atlas and CTPA guide we define “unstable PAP” as: “a sharply demarcated contrast filled aneurysmal lesion with a variably sized marginal hypodense perianeurysmal component that represents ‘marginal thrombosis’ entangling the sharply demarcated contrast filled ectatic lumen with adjacent GGO or frank consolidation in case of active hemorrhagic leaking from the ectatic lumen in the adjacent lung parenchyma, the latter is best visualized in lung window. Importantly and more serious, the air bronchogram (air-filled bronchi/bronchiole) can be associated adjacent to or within this hypodense component (3). The proposed mechanism of this unmistakable pattern being contained rupture leading to extravasations of blood forming an organizing clot that entangles the ectatic lumen and the extravasated blood is held back by compressed extravascular pulmonary tissue and the marginal thrombosis forms the aneurysm’s false wall.

Furthermore, we explained that in HSS related pulmonary vasculitis “intra-aneurysmal thrombi” can evolve in-situ due to the underlying arterial wall vasculitis and activation of the coagulation cascade. If left untreated, this can lead to intra-luminal thrombus (in-situ thrombosis) penetration through the inflamed aneurysmal wall, resulting in extraluminal extension of the inflammatory process. Blood slowly and repeatedly leaks through the inflamed aneurysmal wall, surround-

ing the exterior wall of the ectatic lumen and slowly expanding into the adjacent lung parenchyma, forming a false aneurysmal wall.

We added colored drawings to clarify these important CTPA signs in the (Figure A) as presented by Cozzi et al. (1), as (Figure A1). The ectatic contrast-filled lumen (red) is surrounded by a “marginal hypodense perianeurysmal component” (blue) caused by repeated leaking through the inflamed aneurysmal wall into the adjacent lung parenchyma, and the white dotted line represents the false acquired wall of the aneurysm.

The “air bronchogram” (yellow arrow) and its close relationship to the false aneurysmal wall should be noted. Such a close and intimate relationship was perfectly explained in an autopsy report written by Kirk and Seal in 1964. (7). The authors described the histopathological findings of ruptured PAP in one HSS patient, which revealed a segmental disruption of the elastica of the pulmonary artery at its origin. The clot was mostly extra-luminal, with a large portion of its wall formed by an expanded “false wall” of the adjacent bronchus. The organizing thrombus was separated from the bronchial lumen by a thin layer of respiratory epithelium, and squamous metaplasia had occurred in places.

We previously stated that unstable PAP necessitates immediate stabilization via pulmonary artery coil embolization (PACE), even if only mild symptoms ex-

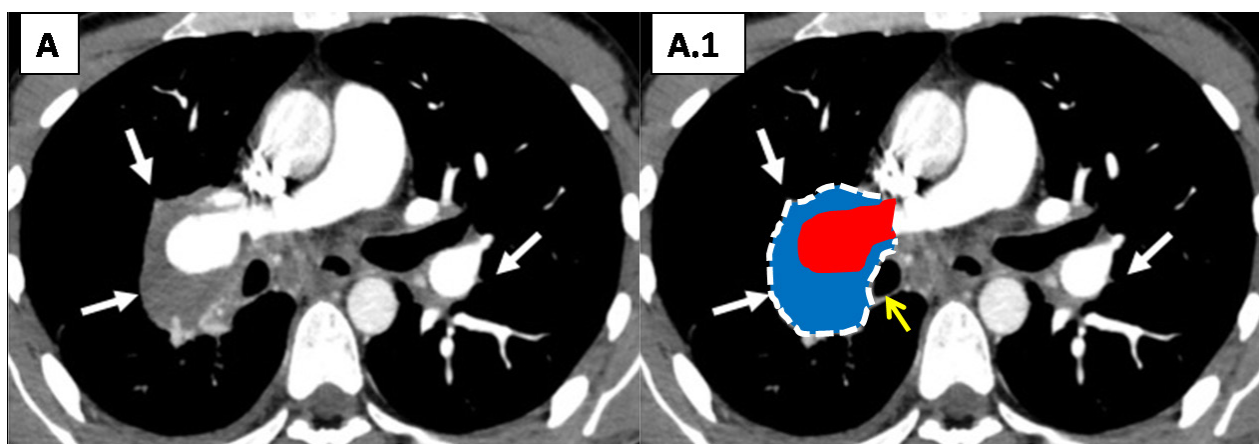


Figure 1. CTPA as presented in Cozzi and coauthors’ report; Figure A1: line drawings and color fillings for purpose of illustration of important computed tomography pulmonary angiography (CTPA) signs; Axial CTPA image showing a contrast-filled aneurysmal lesion (red color) with no intra aneurysmal filling defect (absent in-situ thrombosis), hypodense component (blue color) representing extra-luminal marginal thrombosis encircling the contrast filled ectatic lumen (red color), while the white dotted line represents the false wall of the pseudo-aneurysm. The yellow arrow points to a patent bronchus intermedium, notice the close intimate relation between the bronchus and the false wall of the aneurysm.

ist, or even urgent lobectomy and/or segmentectomy in the case of life-threatening hemoptysis. (2,3). Such important recommendations are based on strong evidence that in PAP lesions, the “extraluminal organizing thrombus” was only separated from the bronchial lumen by a thin layer of respiratory epithelium with squamous metaplasia. Such an intimate relationship between the false aneurysm and the adjacent bronchus has serious consequences, making rupture into the adjacent bronchus very likely and unpredictable, and eventually leading to unpredictable massive suffocative fatal hemoptysis, especially if the patient is receiving anticoagulation. The latter explanations are the most likely cause of death in their patient.

The primary goal of this letter is to raise awareness among physicians who treat this potentially fatal clinical entity, as well as to reach consensus among physicians and radiologists on CTPA signs related to PAP lesion in both BD and HSS-related pulmonary vasculitis. In-situ thrombosis which is intra-luminal and being adherent to the aneurysmal wall seen in true pulmonary artery aneurysms is quite different from extra luminal marginal thrombosis as seen in PAP which indicates chronic leaking through the inflamed aneurysmal wall (contained rupture). Furthermore the close intimate relationship between the false aneurysmal wall in PAP and the adjacent bronchus is very critical and serious CTPA sign that should be early identified and urgently managed.

Conflicts of interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

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