CORRESPONDENCE

Inflammatory Response to Aortic Aneurysm
Intraluminal Thrombus may Cause Increased
18F-FDG Uptake at Sites not Associated with High Wall stress.
Comment on "High Levels of 18F-FDG Uptake in Aortic Aneurysm Wall are Associated with High Wall Stress"

Dear Editor,

We read with great interest the paper by Xu et al. where they demonstrated in a small series of aortic aneurysms that predicted peak wall stress (PWS) regions coincided with the region of high uptake of FDP, suggestive of a focally accelerated metabolism attributed to inflammatory changes affecting the structural integrity of aneurysm wall. The authors suggest a potential causal relationship between high wall stress and accelerated metabolism.

This study should be commended for being the first to investigate the possible conjugation of PWS sites with biochemical markers that have been proven to correlate with decreased wall strength. The simultaneous combination of the latter with PWS could give a more reliable prediction of rupture risk.

However, it should be noted that in these aortic aneurysms, the PWS sites were located at the junction between the neck and the sac, where little if any amount of thrombus was present. It is known that the presence of thrombus is associated with cellular inflammatory changes in the aneurysm wall and local reduction of the wall strength. So, in aneurysms with a thick layer of ILT, stress values would be considerably reduced at the thrombus sites, where at the same time, the induced inflammatory reaction would cause an elevated uptake of FDP, thus, the site with elevated FDP uptake may not correspond to the location of PWS.

References


Response to Comment on "High Levels of 18F-FDG Uptake in Aortic Aneurysm Wall are Associated with High Wall Stress"

Dear Editor,

Structural alterations in the wall of abdominal aortic aneurysms (AAA) are dependent on the production of proteases by resident vascular wall cells and by cells of the lymphomonocytic infiltrate. The involvement of intraluminal thrombus (ILT) in aneurysmal progression as a source of proteases has been suggested following our initial report of increased MMP-9 in ILT. ILT activities are initiated at the luminal interface by circulating blood, such as platelet activation and fibrin formation and progressively convey zymogens towards the aneurysm wall, thus participating in the extracellular matrix degradation. On the abluminal side, ILT may be completely degraded by fibrinolysis, resulting in a crescent sign that corresponds to ‘liquefaction’ or bleeding into ILT and is best appreciated in the arterial phase of the scan. Besides a reduction of aneurysmal wall stress, ILT can also lead to local hypoxia triggering a medial neovascularisation and inflammation. FDP uptake could therefore be explained by the presence...