Transoesophageal echocardiography (TEE) in monitoring thoracic endovascular aortic repair (TEVAR): use of echocardiographic contrast agent in intraprocedural diagnosis of endoleaks.

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BACKGROUND. TEE is considered a usefull supportive technique in monitoring the procedure of TEVAR. In particular TEE may reveal endoleakage and reduce the amount of iodate contrast agent. With this pilot study we evaluated the feasibility and the reliability of transoesofageal contrast echocardiography in diagnosis of endoleaks. METHODS. In two patients scheduled for TEVAR for thoracic aortic aneurysm we monitored the procedure with TEE (echocardiographer: vivid 7 GE, multiplane probe). At the end of the procedure we injected a bolus of 2 ml of thirth generation contrast agent (CA), (Sonovue, Bracco) in an antecubital vein and we evaluated the presence of the contrast agent in the aneurysm with a continuous low-mechanical index (0.01-0.04) real-time tissue harmonic imaging. We compared the contrast enhanced TEE images with conventional angiography and power doppler color imaging (PDCI). RESULTS. In case #1 at the end of the procedure, with angiography, we demonstred a distal type I endoleak that required the extension of the endografts. The endoleak was evident at PDCI. After the injection, TEE revealed CA in the aneurysm. The extension of the treated aortic segment completely excluded the aneurysm. PDCI, angiography and contrast echocardiography confirmed the absence of endoleakage. In case #2 at the end of the procedure, neither angiography or PDCI revealed endoleaks. After CA injection, TEE showed an evident leak in the aneurysm. Angio TC confirmed the precence of type II endoleak from a patent left subclavian artery. CONCLUSION. Use of TEE thirth generation contrast agent is a reliable and feasible technique in intraprocedural diagnosis of endoleak during TEVAR. Larger studies are needed to verify sensibility and specificity of this new approach and confirm the usefulness of this technique in small endoleak not revealed by angiography or color doppler images.

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