

ABSTRACT TEMPLATE – SCIENTIFIC PAPER & SCIENTIFIC EXHIBIT

CT virtual intravascular endoscopy in the follow-up of endoluminal fenestrated stent grafts

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Purpose: To investigate the potential value of CT virtual intravascular endoscopy in the follow-up of patients with abdominal aortic aneurysms treated with endoluminal fenestrated stent grafts.

Methods and Materials: Eight patients with abdominal aortic aneurysms unsuitable for open surgery or conventional endovascular repair undergoing fenestrated stent grafts were included in the study. Both pre-and post-fenestration multislice CT data were collected in these patients and used for generation of virtual intravascular endoscopy images of aortic ostium and endovascular stents. Virtual endoscopy images were compared with conventional axial CT and multiplanar images with the aim of identifying the appearances of the endoluminal stents. The length of endoluminal stents that protruded into the aortic lumen was measured on virtual endoscopy images.

Results: Variable fenestrations were deployed in 27 aortic branches with scallop fenestration implanted in 5 aortic ostia, large fenestration in 7 aortic ostia and small fenestration in 15 renal ostia, respectively. All of the fenestrated branches remained patent. Virtual endoscopy was superior to conventional 2D images in the visualization of configuration of endovascular stents. Most of the stents (68%) were found to be circular visualized on virtual endoscopy images, while the remaining stents were irregular in terms of endoluminal appearances. 95% of these stents were shown to protrude into the lumen with length less than 7.0 mm. There is no significant difference of the diameters of aortic ostia between pre-and post- fenestration ($p>0.05$).

Conclusion: Our preliminary study shows that virtual intravascular endoscopy could be a valuable technique to follow-up patients treated with endoluminal fenestrated stent grafts.