VASCULAR IMAGES

Spiral computed tomography virtual angioscopy of aortic dissection
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The complexity of aortic dissection poses challenging diagnostic problems during planning and sizing for endovascular treatment, such as location of primary and secondary tears, spatial orientation of the intimal lamella, relationship of the true and false lumen with aortic side branches, and evaluation of malperfusion. Despite the use of different reformattting techniques of computed tomography (CT), including orthogonal, oblique, curved multiplanar reconstruction, maximum-intensity projection, and volume rendering, the correct evaluation of aortic dissections often requires a multimodality imaging approach involving transesophageal echocardiography, intravascular ultrasound imaging, digital subtraction angiography, and magnetic resonance angiography.

Spiral CT has dramatically improved the performance of CT by converting a 2-dimensional modality into a true 3-dimensional imaging, thus enabling the development of new applications involving volumetric imaging such as virtual angioscopy.

A data set of standard contrast-enhanced spiral CT scans obtained with a multidetector 64-row scanner can be elaborated and navigated at desktop computers using OsiriX open source software that allows virtual angioscopy that can be enhanced by the Fovia plug-in. Virtual angioscopy enables the creation of an endoluminal view of the aorta (Cover), and the user can navigate through the intimal tear into the true lumen (green boxes) or false lumen (red boxes) and assess aortic side branches and their relationship with the dissecting lamella.\(^1\)

The localization of the proximal entry tear and the relationship of the dissecting lamella with the supra-aortic vessels may be the crucial aspect to investigate (A). The information obtained with virtual angioscopy could also help to evaluate dissections of the lumens as well as the fate of visceral and renal arteries after endovascular treatment of aortic dissection with associated distal malperfusion with stent grafts and bare stents (B).\(^2,3\) Moreover, the same volume rendering setting used for virtual angioscopy can also be used in a perspective view to evaluate visceral or renal stents passing through the dissecting lamella that are used to correct static malperfusion (C).

REFERENCES

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