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## Images in Vascular Medicine: Vasa vasorum associated with endoleak after endovascular repair of abdominal aortic aneurysm

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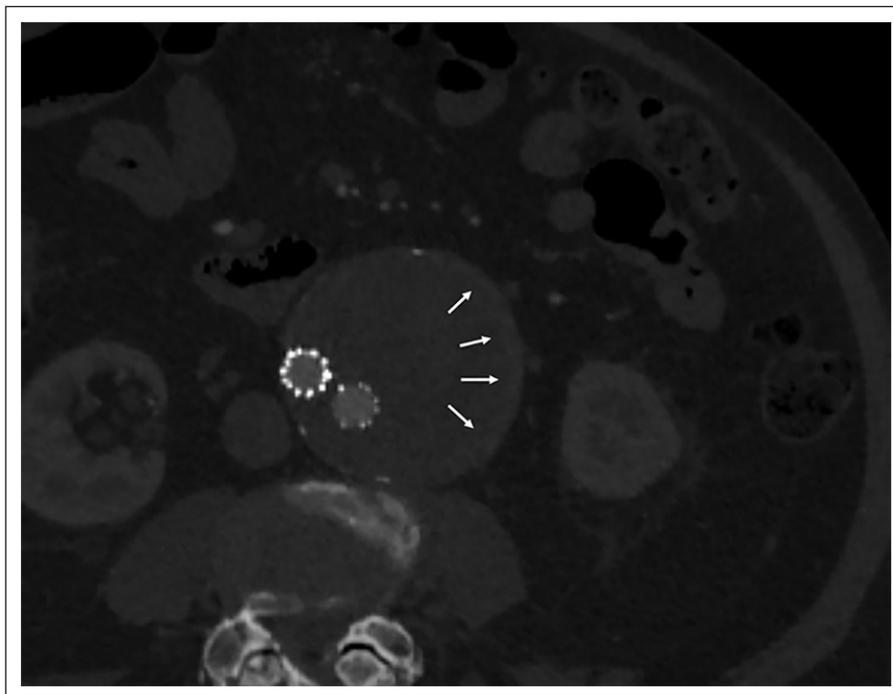
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## Images in Vascular Medicine: Vasa vasorum associated with endoleak after endovascular repair of abdominal aortic aneurysm

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**Panel A**

We present the case of an 84-year-old male patient with a history of endovascular aneurysm repair (EVAR) in 2009. During follow up, a proximal extension cuff and two iliac branch extensions were added for aneurysm progression without evidence of an endoleak.

He presented to our institution for continuous aneurysmal sac progression to reach a diameter of 8 cm. A computed tomography (CT) scan showed no endoleak in the arterial phase. Heterogeneous and patchy enhancement of the intrasaccular thrombus was visualized in the delayed phase (Panel A: arrows). Angiography was performed. A catheter was passed between the right iliac branch and the vessel wall and progressed into the aneurysm sac. Upon contrast injection, a pathway was created inside the thrombus (Panel B: white arrow) to reach a network of vasa vasorum on the aneurysm wall. These arteries (Panel B: black arrows) did not seem connected to any large branch artery.

Continuous enlargement of the aneurysmal sac after EVAR without evidence of an endoleak is poorly understood. It is described as a Type V endoleak.<sup>1,2</sup> Explanations include a low-flow endoleak below the detection threshold of imaging techniques. In our case, investigations led to the discovery of vasa vasorum in direct communication with the intrasaccular thrombus.

In many reports, development of vasa vasorum is thought to be the source of endoleaks.<sup>3</sup> The vasa vasorum forms an arterial plexus within an adventitial layer and

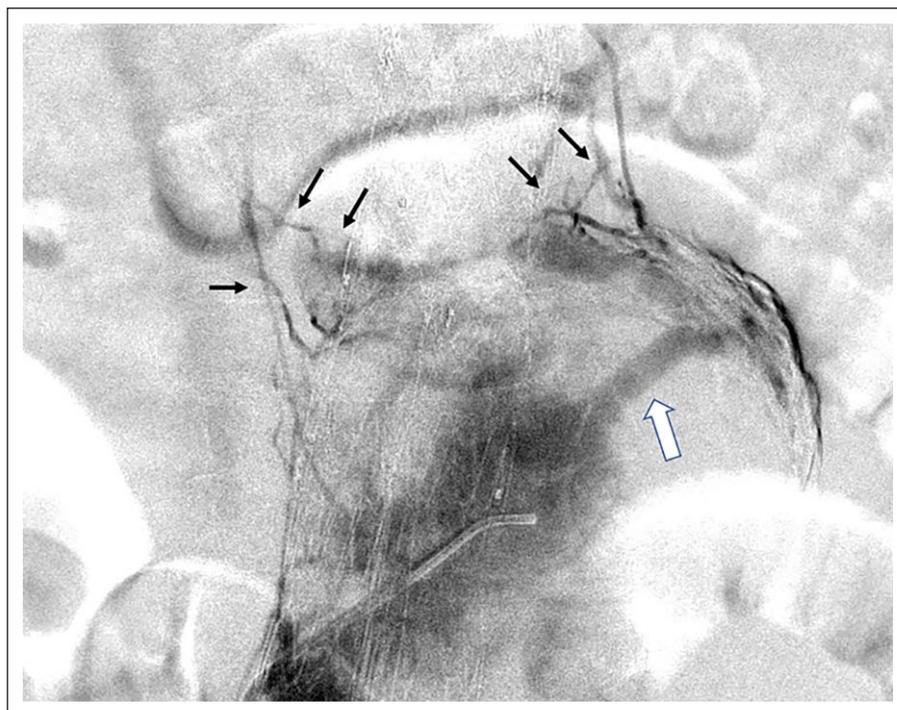
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### Panel B

originates from a large artery. Marked dilatation of the vasa vasorum within the aortic wall has been reported during exploration of the enlarged abdominal aortic aneurysm sac after EVAR<sup>4</sup> and in histological specimens of the aortic wall after the placement of a stent-graft in experimental studies.<sup>5</sup> Possible causes are the hypoxic environment in the aortic wall after EVAR<sup>5</sup> or an inflammatory process generated by the thrombus derived contents.<sup>4</sup>

Our case shows a direct communication between intrasacular thrombus and hypertrophied vasa vasorum, adding more proof to the possible association between development of vasa vasorum and sac progression in these patients without evidence of an endoleak on CT imaging.

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