# **Endovascular Aortic Repair (EVAR)**

Endovascular Aortic Repair (EVAR) is a minimally invasive means of treating aneurysmal disease of the aorta. Stent grafts are implanted across dilated segments to create an alternative flow channel within the aorta which excludes blood flow to the aneurysmal sac. Abdominal aortic aneurysm (AAA) predominantly affects the infrarenal segment of the aorta. Patients that undergo EVAR require lifelong follow-up and imaging surveillance.



Abdominal duplex ultrasound is advocated in the surveillance of EVAR grafts to ensure there are no post procedural complications that may include:

- Endoleak
- Device malposition
- Access site complications
- Graft / outflow tract stenosis
- Graft fracture / kinking / tortuosity
- Graft thrombosis
- Graft dilation
- Graft migration proximal or distal
- Aneurysm expansion

## **TECHNIQUE**

Locate proximal attachment site of endograft. TIP - watch the walls! The graft will appear more hyperechoic than the native vessel wall.

Assess for aortic and iliac limb endoleak with colour Doppler. Have colour frequency set low to detect any low amplitude channels of flow. TIP - for large residual sacs it may be better to use a smaller colour box and scan the residual sac in sections (a smaller box = increased sensitivity to flow).

Measure outer to outer wall of all aneuyrsm sacs in transverse and longitudinal planes. TIP - careful 2D optimisation, especially the use of dynamic range and 2D gain can sharpen the appearance of vessel walls allowing for more accurate caliper placement.







Type IV Graft wall porosity

Disclaimer: © 2019 Australasian Sonographers Association Ltd. The Australasian Sonographers Association gratefully acknowledges the Sonographers Association in this publication is current when published and is general in nature; it does not constitute professional advice. Any views expressed are those of the author and may not reflect ASA's views. ASA does not endorse any product or service identified in this publication. You use this information at your sole risk and ASA is not responsible for any consequences arising from that use. Please visit www.sonographers.org for the full version of the guilt version of the author and may not reflect ASA's views. ASA does not endorse any product or service identified in this publication. You use this information at your sole risk and ASA is not responsible for any errors or for any consequences arising from that use. Please visit www.sonographers.org for the full version of the full version of the author and may not reflect ASA's views. Australasian Sonographers Association publication disclaimer. References: White G et al (1997) Endoleak as acomplication of endoluminal grafting of abdominal aortic aneurysms: classification, incidence, diagnosis, and management, J Endovasc Surg. 4(2). P152-68; Neumyeret al (2011) Sonographic Evaluation of Aortic Endografts, J Diag MNed Sonog. 27 (2). P55-664.



### Type V endoleak

Increase in aneurysm diameter with no identifiable endoleak