advantages compared with the tested devices may be just what the authors are looking for to improve distal landing accuracy. All three tested devices have some homework to do in this respect as they lack distal fixation and therefore are prone to the "stent graft jump" effect. This phenomenon is well known in self expandable nitinol stents and is caused by the temperature dependant radial force of the nitinol stents when not fully constrained or retained by a distal fixation.

Lastly, both anatomies used in the tests seem to lack a distal healthy parallel walled landing zone even proximal to the superior mesenteric artery, and might be better treated by fenestrated or branched repair choosing a more distal landing zone in the infrarenal aorta or iliac arteries.

## CONFLICTS OF INTEREST

Consultant, Proctoring, IP, Royalties, Research Grants with Cook Medical.

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Available online 10 June 2019



https://doi.org/10.1016/j.ejvs.2019.03.041

DOI of original article: https://doi.org/10.1016/j.ejvs.2018.07.034

## Re: "More Attention Needed for the Distal Landing Zone in TEVAR"

We are thankful to Kölbel & Panuccio for their thoughtful comments on our recent experimental study on the accuracy of thoracic stent graft deployment in the distal landing zone.[1,2] It is truly encouraging to see interest growing in this underrated clinical problem. We would like to address some points raised in their letter.

Firstly, the exclusion of Zenith stent grafts (Cook Medical, Bloomington, IN, USA) was unavoidable in our experimental setting, as every stent graft deployment was repeated several times and, due to barbs and a low profile introducer sheath, it was impossible to re-upload this prosthesis manually into the delivery device. Indeed, both the TX2 and Zenith Thoracic Alpha stent grafts have different components dedicated to proximal and distal landing; however, the notion that they permit more accurate landing in the distal landing zone relies on personal opinion and not on any published clinical or experimental studies. In our clinical study on 59 patients with challenging distal landing zones, three patients underwent thoracic endovascular aneurysm repair (TEVAR) with a Zenith Alpha stent graft and in only one of the three was distal deployment accurate.[3]

Secondly, we wish we could agree that use of the reverse implantation mechanism, similar to that available with the Altura EVAR device (Endologix, Santa Rosa, CA, USA), would be made impossible due to the curve of the aortic arch. Challenging distal landing zones are located in the distal thoracic aorta, usually just above the coeliac trunk or mesenteric artery. Supplying such a distal landing zone with as short a distal component as 70–100 mm would have left the aortic arch intact, even with the most proximal part of the delivery device working similarly to the Altura device. As the length of thoracic aortic pathologies usually means there are at least two prostheses to seal, we believe the optimal means would be to use the currently available mechanism; that is, opening from poximal to distal to supply the proximal landing zone and a short distal component reversely deployed to supply the distal landing zone.

If we are talking about "accuracy landings", allow us to refer to what must be the oldest skydiving discipline, whereby skydivers aim to land as closely as possible on a 2 cm target on the ground ("dead centre"): the current world record is 10 consecutive landings.[4] With the current stent grafts on the market, unfortunately we do not have the means or even the hope of being similarly accurate. Having a delivery device deploying the stent graft from distal to proximal to supply the distal landing zone may enable us to "jump" and land more accurately within the TEVAR "dead centre"- the short distal landing zone.

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Available online 03 June 2019



https://doi.org/10.1016/j.ejvs.2019.04.014
DOI of original article: https://doi.org/10.1016/j.ejvs.2019.03.041

## How to Assess Illusory May–Thurner Syndrome by Ultrasound

We read with interest the excellent article by van Vuuren et al.,[1] who described an impressive prevalence of angiographic signs usually indicative of May–Turner syndrome (MTS) in healthy volunteers.

In our clinical practice we see the same on ultrasound, which in asymptomatic patients shows left iliac vein (LIV) compression (Fig. 1, left). In similar cases we increase the gravitational overload slightly and repeat the investigation with the patient in a semi-settled 45° position.[2] The presence of illusory MTS is followed by relief of the compression and flow recovery in the LIV (Fig. 1, right).

Nowadays, MTS is anecdotally reported as compression of the LIV by the right iliac artery. However, May and Thurner's original post-mortem examinations of 430 subjects showed a combination of intraluminal obstacles and LIV compression in about 20% of cases. They hypothesised that intraluminal obstacles, the true cause of venous obstruction, could be favoured by the compression.[3] Their impressive photographs, corroborated by histology, show a variety of intraluminal defects, which today are classified as truncular venous malformations.[4]

We agree with the authors that it is mandatory to improve pre-operative diagnostics to arrive at the correct surgical indications.

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Available online 31 May 2019



https://doi.org/10.1016/j.ejvs.2019.01.034
DOI of original article: https://doi.org/10.1016/j.ejvs.2018.07.022

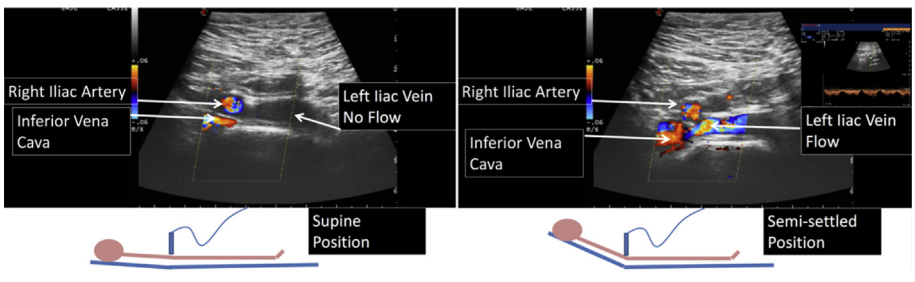


**Figure 1.** EchoColorDoppler of the pelvic vessels. Left: compression of the Left Iliac Vein on behalf of the Right Iliac Artery with absence of venous flow. Right: the same investigation with the patient seated at 45° shows compression relief and venous flow re-appearance.