Jugaar

Using a Large Bore Sheath to Untwist Tortuous Iliac Arteries at EVAR: A Simple and Effective Technique

Arindam Chaudhuri *

Bedfordshire — Milton Keynes Vascular Centre, Bedford Hospital NHS Trust, Bedford, UK

INTRODUCTION

Tortuous iliac arteries can hinder delivery of devices during endovascular aneurysm repair (EVAR). Techniques to straighten out such arteries include buddy wires, use of large bore intra-arterial sheaths, tensioning the arterial tree via brachio-femoral pull through wires, or manual iliac support via extraperitoneal access. A technique to straighten and untwist such arteries using a transfemoral torque based approach is described.

TECHNIQUE

An 87 year old man underwent EVAR for a 63 mm right common iliac artery aneurysm 14 years after prior open surgical repair of a ruptured abdominal aortic aneurysm. Severe iliac tortuosity was noted at multiple levels in both iliac circuits (Fig. 1A), more pronounced on the right so as to not allow passage of an 18 Fr Zenith Alpha Abdominal aortic body (Cook Aortic Interventions, Bloomington, IN, USA), whereas the left iliac circuit could be straightened using an 18 Fr sheath with minimal clockwise torque over an Amplatz Super Stiff Guidewire (Boston Scientific, Hemel Hempstead, UK) (Fig. 1B). The aortic body was therefore deployed from the left side. The right iliac circuit was traversed with an 18 Fr Sentrant introducer sheath (Medtronic, Dublin, Ireland) over a Lunderquist wire (Cook Aortic Interventions), which only conformed to the iliac tortuosity, resulting in failure of passage of limbs (14 Fr) to complete the device after contralateral gate cannulation (with the aortic body deployed in ballerina configuration owing to rotational effects during deployment).

The Sentrant sheath was therefore cautiously rotated 270° counter clockwise, guided by tactile and visual feedback, resulting in "unscrewing" of the right iliac tortuosity (Fig. 2A); while an assistant held the sheath in place, the contralateral limb was delivered successfully, thus avoiding the need for brachio-femoral wires or aorto-uni-iliac conversion. Following sheath de-rotation and withdrawal, the iliac circuit was noted to have reverted to its original tortuous configuration (Fig. 2B).

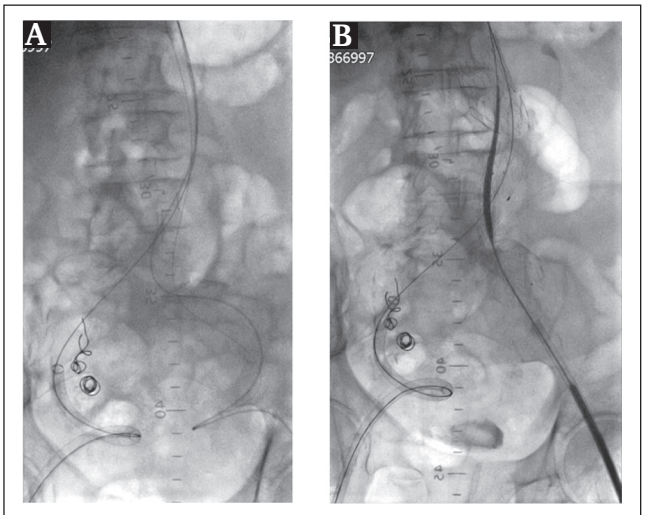

Figure 1. (A) Tortuous iliac circuits and (B) left iliac circuit straightened after insertion of an introducer sheath. Coils can be noted deployed to embolise the right internal iliac artery.

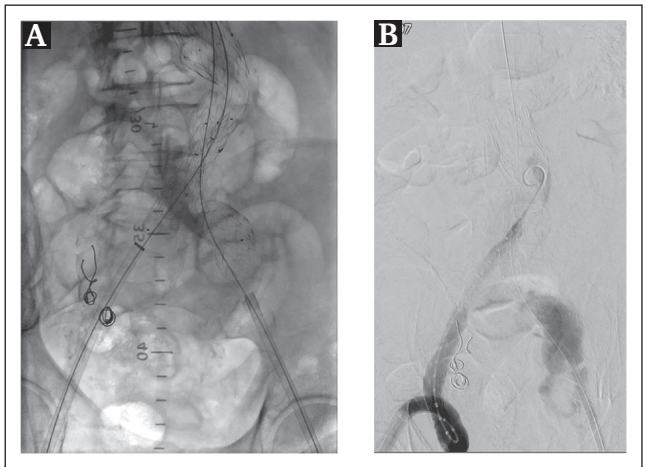

Figure 2. (A) Right iliac straightening after rotating the indwelling sheath and (B) reversion to original iliac configuration after sheath withdrawal.

CONCLUSION

Using torque on a large bore indwelling sheath as an internal tether can allow the operator to untwist tortuous iliac vessels and facilitate device delivery at EVAR. Operators are reminded to avoid rotation against resistance to avoid the potential risk of catastrophic iliac rupture.

* Bedfordshire — Milton Keynes Vascular Centre, Bedford Hospital NHS Trust, Kempston Road, Bedford MK42 9DJ, UK.

E-mail address: a.chaudhuri@ntlworld.com (Arindam Chaudhuri).

https://doi.org/10.1016/j.ejvs.2018.08.039