

SHORT REPORT

An Alternative Technique to Achieve Haemostasis During PEVAR Using Perclose ProGlide

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Introduction: Percutaneous endovascular abdominal aortic aneurysm repair (PEVAR) using the Perclose ProGlide suture mediated closure device is currently performed on a global scale. A safe, effective, and cheap technique for achieving haemostasis during PEVAR is described that allows the reversible downsizing of the arteriotomy, without using any other devices.

Technique: The procedure consists of pulling the blue thread of the pre-implanted ProGlide, advancing the knot close to the arterial wall by pushing it with the dilator of a small introducer sheath, and maintaining the system under tension by grasping the end of the blue thread with a haemostat until bleeding control is achieved.

Discussion: Seventeen PEVAR femoral access downsizing procedures have been performed between February and June 2018 and no complications were observed. The technique could be useful in everyday practice and has now become the author's standard practice.

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INTRODUCTION

Percutaneous endovascular abdominal aortic aneurysm repair (PEVAR) using the Perclose ProGlide (Abbott Vascular Inc., Santa Clara, CA, USA) suture mediated closure device is currently used widely and considered a safe and effective procedure.^{1–6} However, when using sheathless devices, some bleeding may occur when decreasing the device size. A simple, safe, and effective technique is described for achieving haemostasis during PEVAR whenever it is necessary to downsize the femoral access.

TECHNIQUE

Based on the experiences previously described by other authors, PEVAR is routinely performed using the “pre-close technique” applying one single Perclose ProGlide for stent grafts with delivery system profiles up to 14F and two crossed Perclose ProGlides for delivery system profile devices greater than 14F.^{7–9}

Standard practice involves routine post dilatation of the stent graft through an 11F 10 cm long introducer sheath (about €10 each). Blood loss can occur at this point, unless a large introducer sheath is used (about €230 each) or external manual compression is applied by an operator.

In order to avoid extra costs, an alternative technique has been developed which allows for the reversible downsizing of the arteriotomy using the Perclose ProGlide rail suture while an introducer sheath is still in place. The technique consists of pulling the blue rail suture of one or both the pre-positioned ProGlides and advancing the slipknot close to the arterial wall for downsizing the arteriotomy, until bleeding control is achieved. It is important to avoid pulling the white rail suture of the ProGlide, which would result in definitive knot tightening.

Afterwards the blue rail suture of the ProGlide is inserted into the dilator of a 6F introducer sheath, using a haemostat to maintain the tension of the blue rail suture (Figs. 1 and 2). The procedure can then proceed as usual. If necessary, it is possible to reintroduce a larger device by simply releasing the tension on the blue rail suture. Once the procedure is completed the arteriotomy is closed in the standard fashion.

Seventeen PEVAR femoral access downsizing procedures have been performed (from 20F to 11F $n = 5$; from 18F to 11F $n = 4$; from 16F to 11F $n = 8$) between February and June 2018, obtaining excellent intraprocedural haemostasis; there were no femoral access complications on routine completion duplex ultrasound.

DISCUSSION

The described technique allows haemostasis to be achieved during PEVAR avoiding the use of additional devices (such as large introducer sheaths), resulting in a theoretical cost saving of €22,000 per 100 groins treated.

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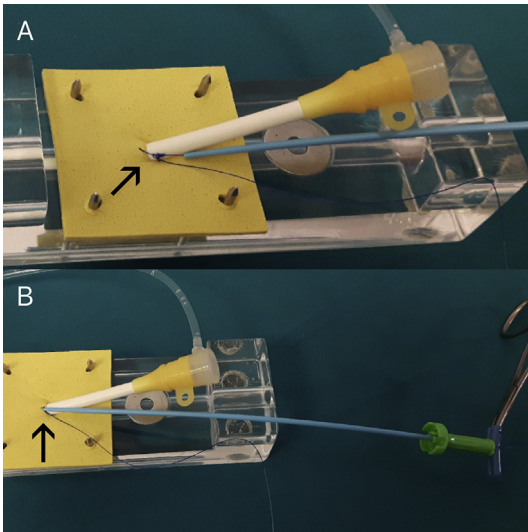


Figure 1. Model of the described technique. (A) The loose knot (arrow) and the insertion of the 6F introducer sheath dilator. (B) The tightened knot (arrow) is fixed with the dilator by grasping the blue rail suture of the ProGlide.

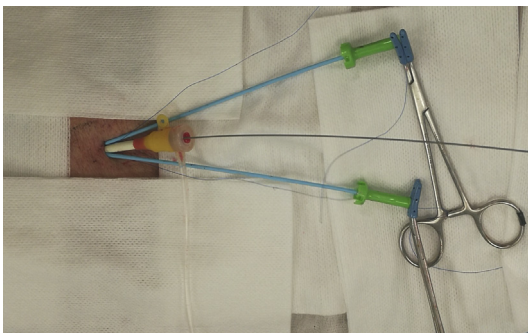


Figure 2. In vivo demonstration of the downsizing technique (from 20F to 11F) with both blue rail sutures kept under tension by the haemostats.

Other key points of the technique are that it is reversible at any time of the PEVAR procedure and does not require any active participation of an operator once haemostasis is achieved.

After 17 successful femoral access downsizing procedures, this technique has become the author's standard practice.

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CONFLICT OF INTEREST

None.

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