

A novel method for cannulation of the short limb of aortic stent grafts during endovascular aneurysm repair: Göçer technique

Endovasküler anevrizma tamiri sırasında aortik stent greftlerin kısa bacağına kanüle etmek için yeni bir yöntem: Göçer tekniği

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ABSTRACT

Cannulation of the shorter limb of an abdominal aortic endograft can be demanding. Confirmation of the accurate cannulation is equally challenging. Interventional cardiologists and cardiovascular surgeons may encounter certain difficulties during this procedure. In particular, cardiologists have a wide variety of experience in interventions from coronary practice. This novel method we describe herein consists of peripheral balloon usage in wiring the short limb of an aortic stent graft. In this method, an over-the-wire peripheral balloon is employed to centralize the wire at the gate of the short limb. The centralized wire in three-dimensional arterial lumen can cross the short limb of the graft easily.

Keywords: Abdominal, aortic aneurysm, catheterization, endovascular procedure.

Endovascular aneurysm repair (EVAR) has become one of the major treatment modalities in the management of infrarenal aortic aneurysms. The majority of the devices recently used in the EVAR procedures are commercial modular aortic endografts comprised of a bifurcated main body and iliac extension pieces.^[1,2] During the EVAR procedure, selective cannulation of the contralateral limb is the crucial step for introducing contralateral limb extension and can be sometimes technically very much demanding and time-consuming.^[3,4] Although modular aortic endografts on the market allow us freedom to address aneurysms of different anatomic characters, prolonged contralateral gate cannulation

ÖZ

Abdominal aortik endogreftin kısa bacağına kanülasyonu zorlayıcı olabilir. Doğru kanülasyonun gerçekleştirilmesi, aynı derecede zordur. Girişimsel kardiyologlar ve kalp damar cerrahları bu işlem sırasında bazı zorluklarla karşılaşabilir. Özellikle kardiyologlar, koroner uygulama müdahaleleri konusunda geniş deneyime sahiptir. Burada tanımladığımız bu yeni yöntem, aortik stent greftin kısa bacağına kanüle edilmesinde periferik balon kullanımını içerir. Bu yöntemde kısa bacak ağzındaki teli santralize etmek için over-the-wire balon kullanılır. Üç boyutlu arter lümeninde santralize olan tel, greftin kısa bacağına kolayca geçebilir.

Anahtar sözcükler: Abdominal, aort anevrizması, kateterizasyon, endovasküler işlem.

may lead to severe abdominal compartment syndrome due to excessive blood loss and retroperitoneal bleeding in emergent EVAR, particularly for ruptured aneurysms.^[5] In this article, we define a novel method to ease contralateral limb cannulation using a peripheral balloon.

SURGICAL TECHNIQUE

We use an ordinary peripheral percutaneous transluminal angioplasty (PTA) balloon catheter adjacent to the wire tip to engage the short limb of aortic graft, which is also used in some coronary interventions. A total of six to 10 PTA balloons come in various sizes, lengths and shapes, depending on

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the anatomy they are intended to treat. Contralateral approach is used via a 7F femoral arterial sheath. We use a stiff or extra-stiff wire and over-the-wire peripheral balloon sized 10 to 15 mm. When we reach the opening of the short limb, we inflate the balloon with 6 to 10 atm and the wire is seated in the catheter shaft, followed by the centralization of the wire in the lumen of the artery through the inflated peripheral balloon (Figure 1). Then, the wiring of the short limb of the graft is easy and quick than the other techniques.

DISCUSSION

Despite advances in technology and operator skills, a number of anatomical challenges still exist which limit the procedural success of coronary angioplasty procedures. However, interventional cardiologists advance some methods to overcome such difficulties during these interventions. The inability to cross-wire the severely angulated vessel and eccentric lesions precludes the necessary placement of a balloon catheter in front of the

culprit site for crossing lesions. This technique has tackled with this wiring problem via centralizing wire in three dimensions in coronary procedures.^[4] They include shaping the wire tip, use of probing or tracking catheters to help direct the wire, and use of stiffer wires. The utilization of an over-the-wire peripheral balloon eases wiring procedures. Based on this rationale, we have hypothesized that the same principle is applied for the EVAR procedures and defines the method. Currently available methods are access from contralateral side or brachial artery and the use of a snare or conversion to an aorto-uni-iliac graft and femorofemoral bypass.^[4] Snaring is very time-consuming and requires expertise while the uni-iliac graft conversion mandates the extra-anatomical femorofemoral bypass. The method we propose herein seems to be easier, compared to available techniques.

In conclusion, we believe that this simple, safe, and cost-effective technique is a useful tool in treating patients with anatomically challenging situations, when other conventional wiring techniques are unsuccessful. This technique may also decrease the fluoroscopy time, since cannulation time is decreased.

Declaration of conflicting interests

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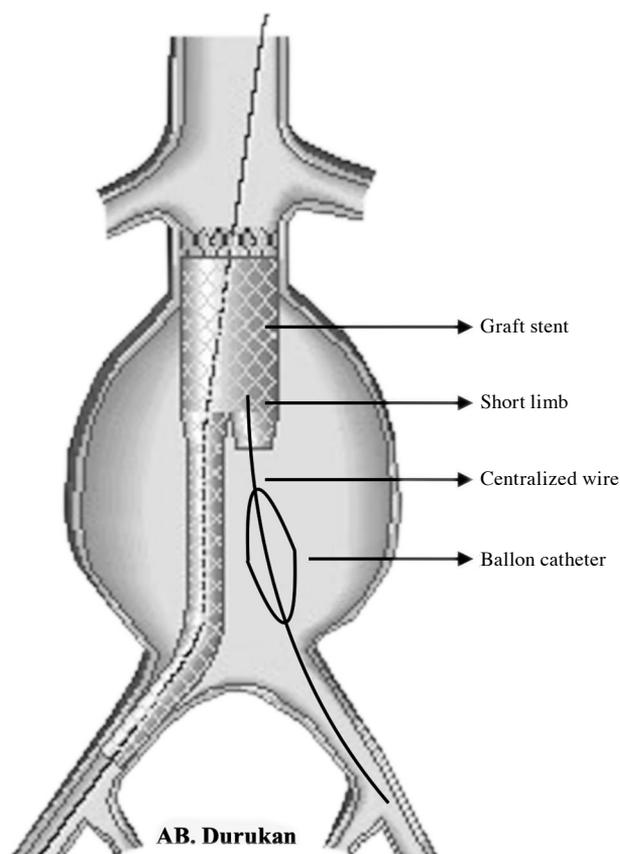


Figure 1. Centralization of guidewire to cannulate contralateral limb via over-the-wire balloon.