Compliant Balloon Assisted Branch Entry To Facilitate Difficult Branch Artery Wire And Catheter Entry During EVAR: How It Works

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Compliant Balloons in Aortic Intervention

• Aortic compliant balloons are now available in lower profiles
• This provides opportunity for more regular use of these devices

Cook CODA X 120cm
9F sheath compatible

Medtronic RELIANT X 120cm
12F sheath compatible

There is nothing new under the sun, but there is something old we do not know

Ecclesiastes 1:9 – written by Solomon in his old age

Relevant Disclosures

• Dr Holden has no relevant disclosures

Compliant Balloons in Aortic Intervention

• Since the early EVAR days, compliant aortic balloons have been used for endograft “moulding” to improved apposition to the vessel wall and prevent or treat endoleaks
• More recently, these devices have been used to provide hemodynamic control during EVAR for rAAA
• Compliant aortic balloons are also extensively used to provide hemostasis in other clinical situations, including trauma – resuscitative endovascular balloon occlusion of the aorta (REBOA)

1. Int Angiol. 2011;30(5):467-73


Balloon-Supported Passage of a Stent-Graft into the Aortic Arch

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Aortic Branch Entry During EVAR Procedures

- Cannulation of aortic branch arteries may be difficult or unstable, especially when stiffer guidewires, sheaths or stents are delivered
- Compliant Balloon Assisted Branch Entry (C-BABE) is the use of a compliant aortic balloon to facilitate aortic branch artery intervention

Compliant Balloon Assisted Branch Entry (C-BABE)

- Key components:
  - Compliant balloon
  - Long supportive sheath to prevent balloon displacement
- Balloon provides resistance to prevent catheter prolapse
- C-BABE may be performed with the balloon proximal or distal to the aortic branch

Alternatives to C-BABE – Steerable Catheters

- Multiple steerable guide catheters and guide sheaths are available
- Limitations include cost and profile
- Need to not only support the passage of guidewires but also catheters, devices and large sheaths

C-BABE with Occlusion Balloon Distal

- Used to facilitate aortic branch entry from above
- Particularly useful in chimney procedures (ChEVAR, BEVAR and CheVAS)

C-BABE with Occlusion Balloon Distal – ChEVAR Case

- Unable to cannulate LRA from above, even with a buddy wire and stent from below
C-BABE with Occlusion Balloon Distal – BEVAR Case

C-BABE with Occlusion Balloon Proximal

- Used to facilitate aortic branch entry from below
- This concept has been used during FEVAR for many years via a constrained endograft


Auckland Hospital Case

- A compliant aortic balloon proximal to the fenestrations can also be used to facilitate cannulation
- However, this concept can also be applied to cannulating other branches below a compliant balloon during aortic interventions
- We have used this technique in a number of applications:
  - Contralateral gate cannulation
  - Inferior mesenteric artery cannulation
  - Hypogastric artery cannulation

C-BABE with Occlusion Balloon Proximal

- C-BABE – over endograft bifurcation
- C-BABE – IMA cannulation
- C-BABE – IIA cannulation

C-BABE with Occlusion Balloon Proximal

Type 1B Endoleak
C-BABE with Occlusion Balloon Proximal

- The use of an aortic compliant balloon to facilitate arterial branch cannulation
- Balloon used dynamically during intervention – temporarily inflated during branch entry
- Longitudinal positioning of the balloon important to optimize effect
- Multiple applications – important adjunctive technique for many procedures
- Reduced profile of new compliant balloons and associated long supportive sheaths increase utility