Compliant Balloon Assisted Branch Entry (C-BABE)

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November 15th 2017

Disclosures and Disclaimers

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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

Compliant Balloons in Aortic Intervention

- Recently aortic compliant balloons have become 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

Compliant Balloons in Aortic Intervention

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

Na Liu Sun, MD, Dake Yu, MD, Su-Xia Song, MD, PhD, Seung-Mo Jun, MD, PhD, T. John Kim, MD, PhD, Kwang-Hun Lee, MD, PhD

Asian J Radiol 2015;16(4):744-48
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

C-BABE with Occlusion Balloon Distal

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

C-BABE with Occlusion Balloon Distal

- 76 year old male with 56mm AAA
- Offset renal arteries with hostile neck below lowermost LRA and LRAS
- For single vessel ChEVAS – stent LRA

C-BABE with Occlusion Balloon Distal

- Unsuccessful attempts to deliver a catheter into LRA from above
- Left renal artery cannulated from below with placement of a “buddy” wire
- Attempts to catheterize from above still unsuccessful!
C-BABE with Occlusion Balloon Distal

- LRA then stented from below and buddy wire left in place
- C-BABE performed to facilitate delivery of catheter, sheath and covered balloon expandable stent (Viabhan BX)

Procedure then completed successfully

78 year old male, EVAR 4 years ago (Medtronic Endurant)
- Late T1AEL secondary to device migration

2 vessel ChEVAS planned
C-BABE with Occlusion Balloon Distal

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

C-BABE with Occlusion Balloon Proximal

- 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

- Elective EVAR
- Unable to cannulate contralateral gate from below as compressed against aneurysm wall
- Could not access from above as previous thoracic aortic surgery
- Repeated attempts to cannulate from the opposite groin resulted in catheter prolapse

Compliant balloon in endograft above bifurcation allowed delivery of the guidewire without catheter prolapse

Guidewire snared and procedure completed

Parallel graft (periscope) for IMA
- Could not advance a catheter into the IMA

Type 1B EL 2 years after EVAR
Planned LIIA embolization and endograft extension into EIA

Unable to deliver sheath into IIA to plug occlude it from ipsilateral groin approach – C-BABE assisted this

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