Khuyến cáo và các chiến lược bảo tồn ĐM chậu trong khi can thiệp nội mạch stentgraft ĐMC bụng – chậu

Bs Nguyễn Tùng Sơn
Khoa Nội tim mạch, can thiệp và hô hấp
Trung tâm tim mạch và lồng ngực
Bệnh viện hữu nghị Việt Đức

TOPIC: Khuyến cáo và các chiến lược bảo tồn ĐM chậu trong khi can thiệp nội mạch stentgraft ĐMC – chậu

Non – disclosure.

E-mail: nguyentungsonhmu@gmail.com Phone: +84982130091
Nationality: Vietnam

Current Affiliations: Consultant Physician,
Cardiovascular and Thoracic Center and International Cooperation Department
Viet Duc University Hospital

Specialty:
Cardiovascular Interventionist

MEMBERSHIPS AND ASSOCIATIONS
Member of Vietnam Cardiovascular Surgery Association.
Member of Vietnam Cardiovascular Association.
Member of Vietnam Vascular Disease Association – VNVDA
Member of Aortic Association.

Hypogastric Artery (HA) Preservation in EVAR

ĐM hạ vị (ĐM chậu trong) Bảo tồn trong can thiệp nội mạch stentgraft ĐMCB

J Vasc Surg. 2001 Feb;33(2 Suppl):S27-32.

Unilateral and bilateral hypogastric artery interruption during aortoiliac aneurysm repair in 154 patients: a relatively innocuous procedure.

Mehta M[1], Veith FJ, Ohki T, Cynamon J, Goldstein K, Suggs WD, Wain RA, Chang DW, Friedman SG, Scher LA, Lipsitz EC.

- 154 NB

- Đóng/bít một hoặc cả hai ĐM chậu trong 2 bên

- Không có hiện tương hoại tử mông **(Buttock necrosis)**, không có thiếu máu ruột **(Colon ischemia)**, không tử vong **(death)**

- Đau cách hồi mông **(Buttock Claudication)** chiếm 12%

- Tương tự ở 2 nhóm đóng/bít một và cả hai ĐM chậu trong

→ Đóng/bít ĐM chậu trong là an toàn???

Cardiovasc Intervent Radiol. 2008 Jul-Aug;31(4):728-34. doi: 10.1007/s00270-008-9319-3. Epub 2008 Mar 13.

Buttock claudication and erectile dysfunction after internal iliac artery embolization in patients prior to endovascular aortic aneurysm repair.

Rayt HS[1], Bown MJ, Lambert KV, Fishwick NG, McCarthy MJ, London NJ, Sayers RD.

- **18 NC, 634 NB**

- Đóng/bít một hoặc hai ĐM chậu trong

- Đau cách hồi mông **(Buttock Claudication): 28%**
  - Sau đóng/bít một ĐM chậu trong: 31%
  - Sau đóng/bít hai ĐM chậu trong: 35%
- Rối loạn cương dương **(Erectile dysfunction): 17%**

→ Liệu rằng đóng/bít ĐM chậu trong có thật sự an toàn…

REVIEW

Outcome after Interruption or Preservation of Internal Iliac Artery Flow During Endovascular Repair of Abdominal Aorto-iliac Aneurysms

G.N. Kouvelos [a,*], A. Katsargyris [a], G.A. Antoniou [b], K. Oikonomou [a], E.L.G. Verhoeven [a]

[a] Department of Vascular and Endovascular Surgery, Paracelsus Medical University Nuremberg, Germany
[b] Department of Vascular and Endovascular Surgery, The Royal Oldham Hospital, Pennine Acute Hospitals NHS Trust, Manchester, UK

Eur J Vasc Endovasc Surg (2016) ■, 1–14

- Systematic review
- 57 bài báo cáo
- 30 báo cáo đóng/bít ĐM chậu trong (1468 NB)
- 27 báo cáo bảo tồn ĐM chậu trong (816 NB)

Conclusion: Unilateral or bilateral IIA occlusion during EVAR seems to carry a substantial risk of significant ischemic complications in nearly one quarter of patients. Bilateral IIA occlusion was related to a significantly higher rate of BC. IIA preservation techniques represent a significant improvement in the treatment of aorto-iliac

EVAR: các khuyến cáo bảo tồn ĐM chậu trong Giá trị thực hành lâm sàng

"...the question of whether to preserve or sacrifice the hypogastric artery is fundamental with regard to a possible decrease of complications..."

—Schönhofer, *2015*[1]

15–55%	5–45%	2–3%	Rare
Significant Hip and / or Buttock Claudication	Erectile Dysfunction	Colonic Ischemia	Spinal Chord Ischemia

1. Schönhofer S., Mansour R., Ghotbi R. Initial results of the management of aortoiliac aneurysms with GORE® EXCLUDER® Iliac Branched Endoprosthesis. *Journal of Cardiovascular Surgery* 2015;56(6):883-888.

EVAR: các khuyến cáo bảo tồn ĐM chậu trong Giá trị thực hành lâm sàng

- Society Clinical Practice Guidelines support the value of preservation.
  - U.S. (SVS, 2009): It is recommended that blood flow be preserved to at least one hypogastric artery in the course of OSR or EVAR.[1]
  - Europe (ESVS, 2011): Preservation of flow to at least one hypogastric artery is recommended in standard risk patients.[2]

1. Chaikof E.L., Brewster D.C., Dalman R.L., *et al.* SVS practice guidelines for the care of patients with an abdominal aortic aneurysm: executive summary. *Journal of Vascular Surgery* 2009;50(4):880-896.
2. Moll F.L., Powell J.T., Fraedrich G., *et al.*; European Society for Vascular Surgery. Management of abdominal aortic aneurysms clinical practice guidelines of the European society for vascular surgery. *European Journal of Vascular & Endovascular Surgery* 2011;41(Supplement 1):S1-S58.

The Society for Vascular Surgery practice guidelines on the care of patients with an abdominal aortic aneurysm

Elliot L. Chaikof, MD, PhD,[a] Ronald L. Dalman, MD,[b] Mark K. Eskandari, MD,[c] Benjamin M. Jackson, MD,[d] W. Anthony Lee, MD,[e] M. Ashraf Mansour, MD,[f] Tara M. Mastracci, MD,[g] Matthew Mell, MD,[b] M. Hassan Murad, MD, MPH,[h] Louis L. Nguyen, MD, MBA, MPH,[i] Gustavo S. Oderich, MD,[j] Madhukar S. Patel, MD, MBA, ScM,[a,k] Marc L. Schermerhorn, MD, MPH,[a] *and* Benjamin W. Starnes, MD,[l]

Boston, Mass; Palo Alto, Calif; Chicago, Ill; Philadelphia, Pa; Boca Raton, Fla; Grand Rapids, Mich; London, United Kingdom; Rochester, Minn; and Seattle, Wash

We recommend preservation of flow to at least one internal iliac artery.	
Level of recommendation	1 (Strong)
Quality of evidence	A (High)
We recommend using FDA-approved branch endograft devices in anatomically suitable patients to maintain perfusion to at least one internal iliac artery.	
Level of recommendation	1 (Strong)
Quality of evidence	A (High)
We recommend staging bilateral internal iliac artery occlusion by at least 1 to 2 weeks if required for EVAR.	
Level of recommendation	1 (Strong)
Quality of evidence	A (High)

→ **Bảo tồn ĐM chậu trong ít nhất 1 bên được khuyến cáo mạnh trong thực hành lâm sàng can thiệp nội mạch ĐMC bụng – chậu.**

→ **Nếu đóng/bít đóng cả hai ĐM chậu trong thì thời gian cách nhau ít nhất 1-2 tuần**

J CARDIOVASC SURG 2013;54(Suppl. 1 to No. 1):71-9

Decision-making and techniques in hypogastric artery revascularization

P. GEISBÜSCH [1], N. ATTIGAH [1], A. HYHLIK-DÜRR [1], M. HAKIMI [1], M. MÜLLER-ESCHNER [2], D. BÖCKLER [1]

HA Preservation

- Young, physically & sexually active pts
- Previous TAAA surgery (↑ paraplegia risk)
- Contralateral HA stenosis/occlusion
- Impaired collateral circulation from IMA

Techniques in Preserving the Internal Illiac Artery
Các kĩ thuật bảo tồn ĐM chậu trong

- Với các trường hợp can thiệp nội mạch đặt stentgraft Động mạch chủ bụng – chậu thông thường
- Lên kế hoạch cụ thể
- Đo đạc kĩ càng
- Đánh dấu vị trí chính xác
- Kĩ năng + kinh nghiệm của bác sĩ can thiệp
- Tuy nhiên: 15-20% trường hợp cần hy sinh ĐM chậu trong

→ **Cần thêm kĩ thuật bổ xung khác**

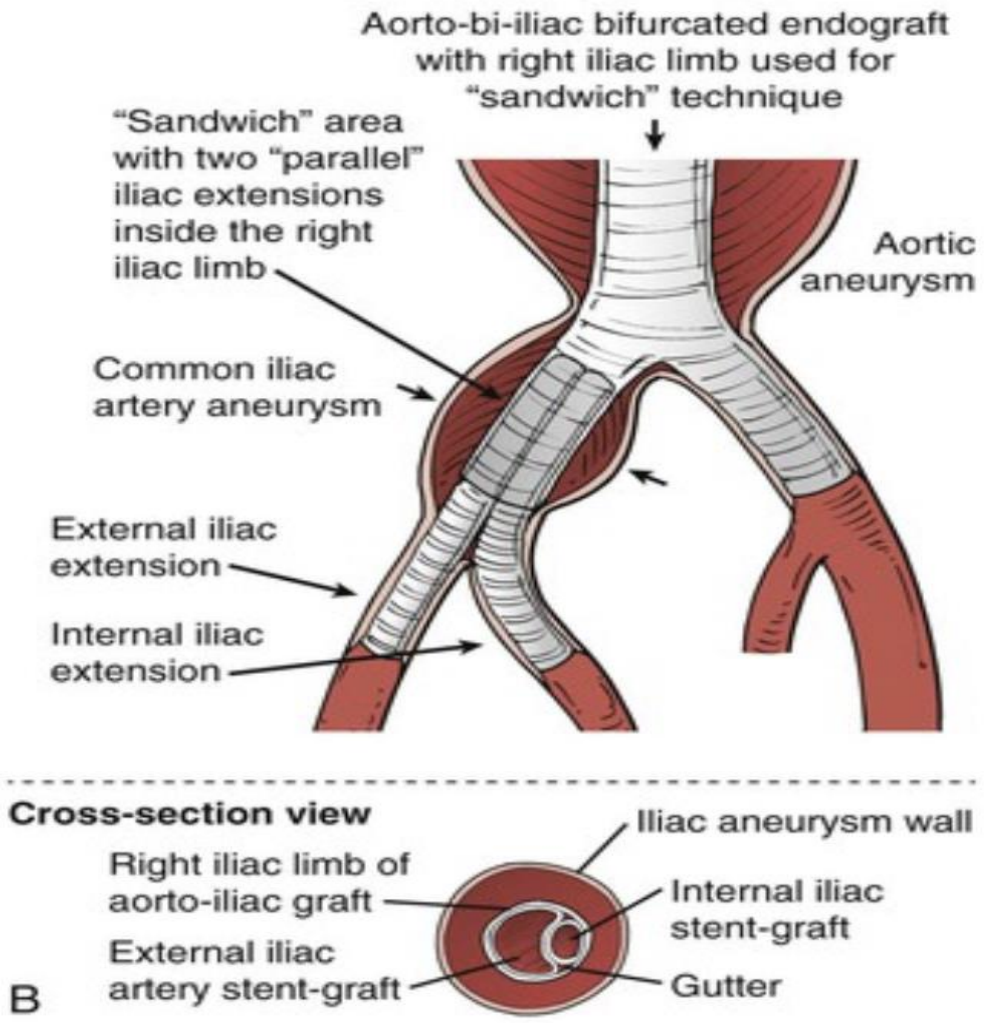
Techniques in Preserving the Internal Illiac Artery
Các kĩ thuật bảo tồn ĐM chậu trong

1. Bell-Bottom technique
2. Parallel endo-grafts (Sandwich)
3. External – Internal Surgical Bypass
4. Hybrid technique
5. External or Internal – Internal Endo-Bypass
6. EVAS technique
7. Iliac Branch Devices (IBDs)

Bell-bottom technique

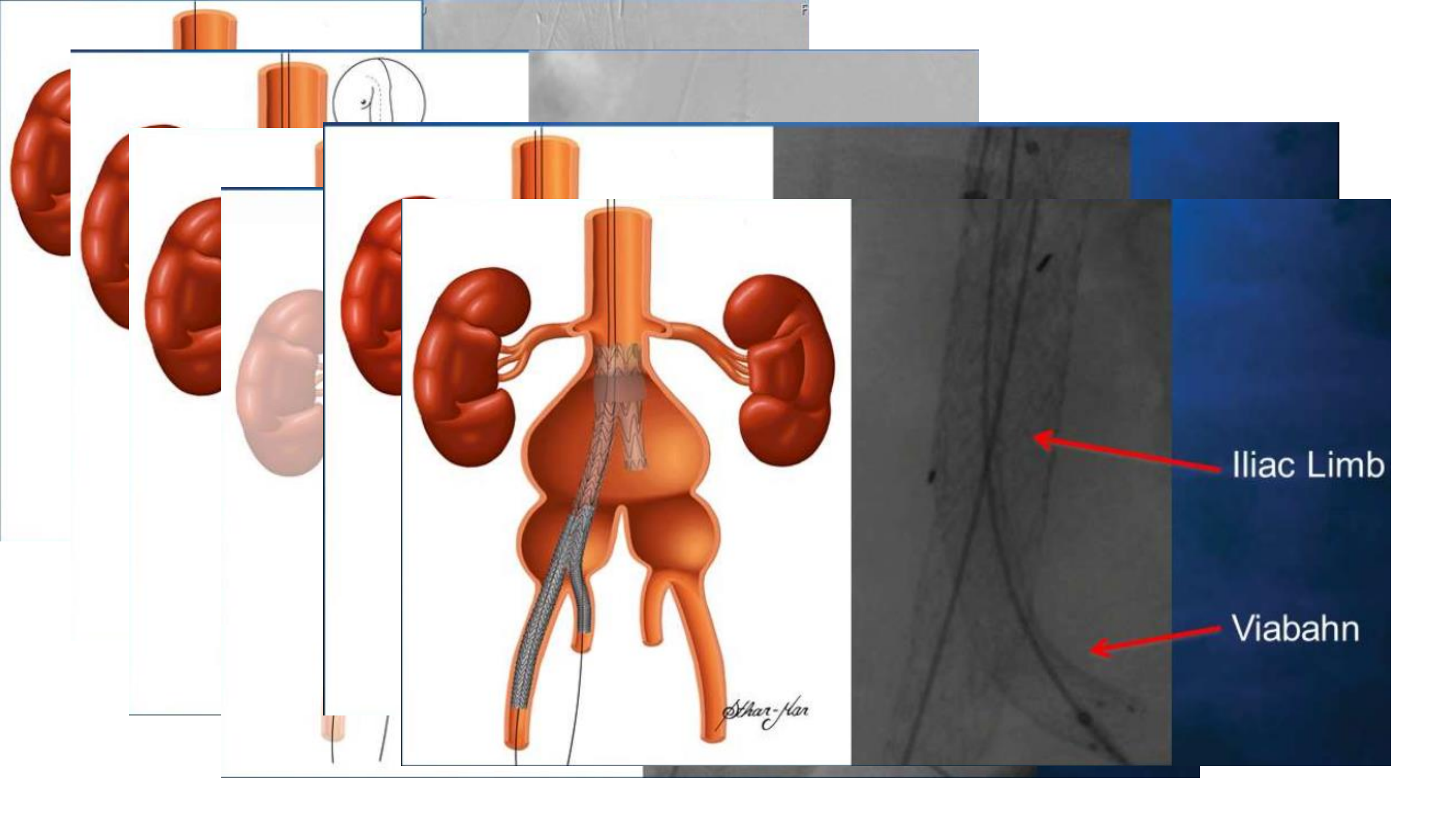
- 1st published 1999 – cuff 28 mm.
- Maximum 28 mm
- Nguy cơ Endoleak type Ib (3.4%)
- Long-term???
- Re-intervention???? (10-15%)
- Caution:
  - Distal landing zone (Quality and length)
  - Calcification
  - Thrombus

The Iliac Sandwich procedure (Parallel endografts)

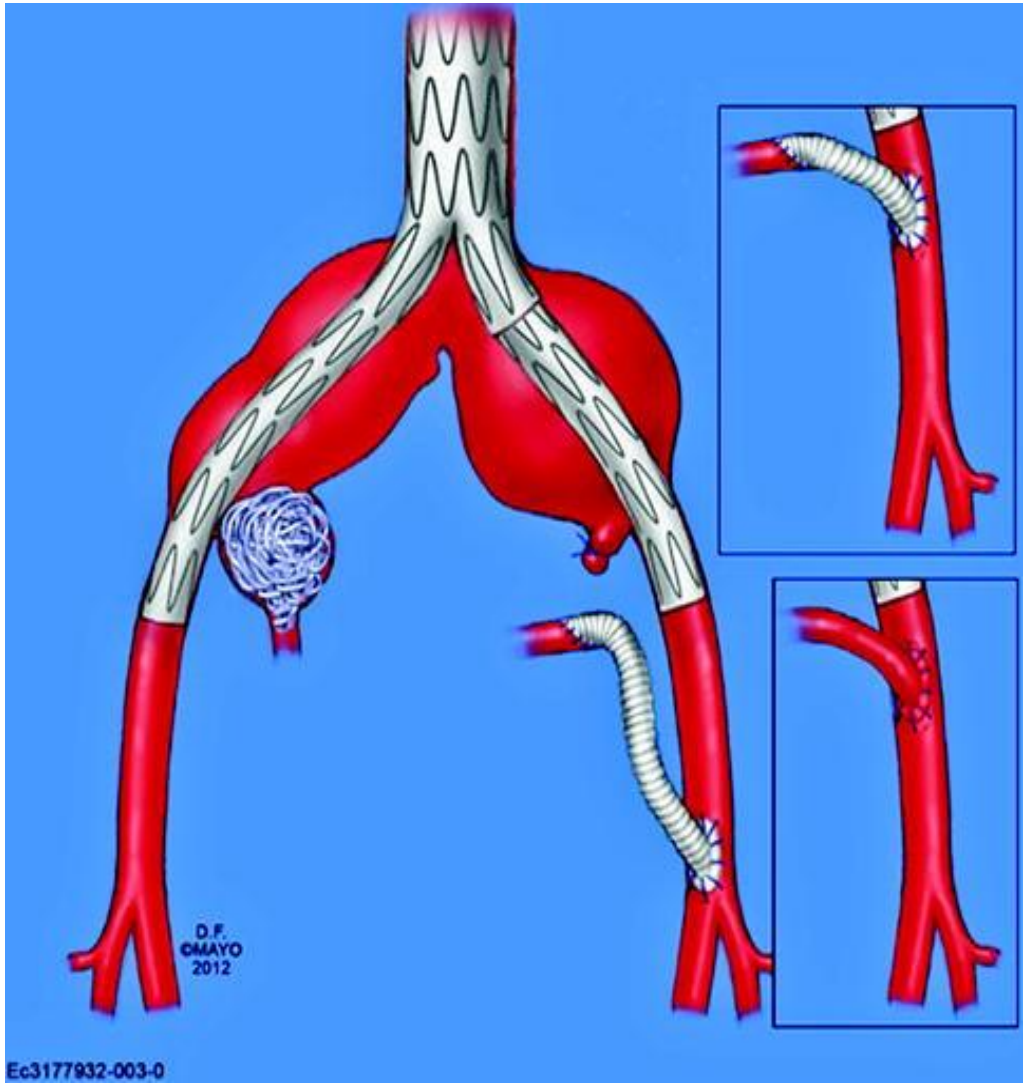


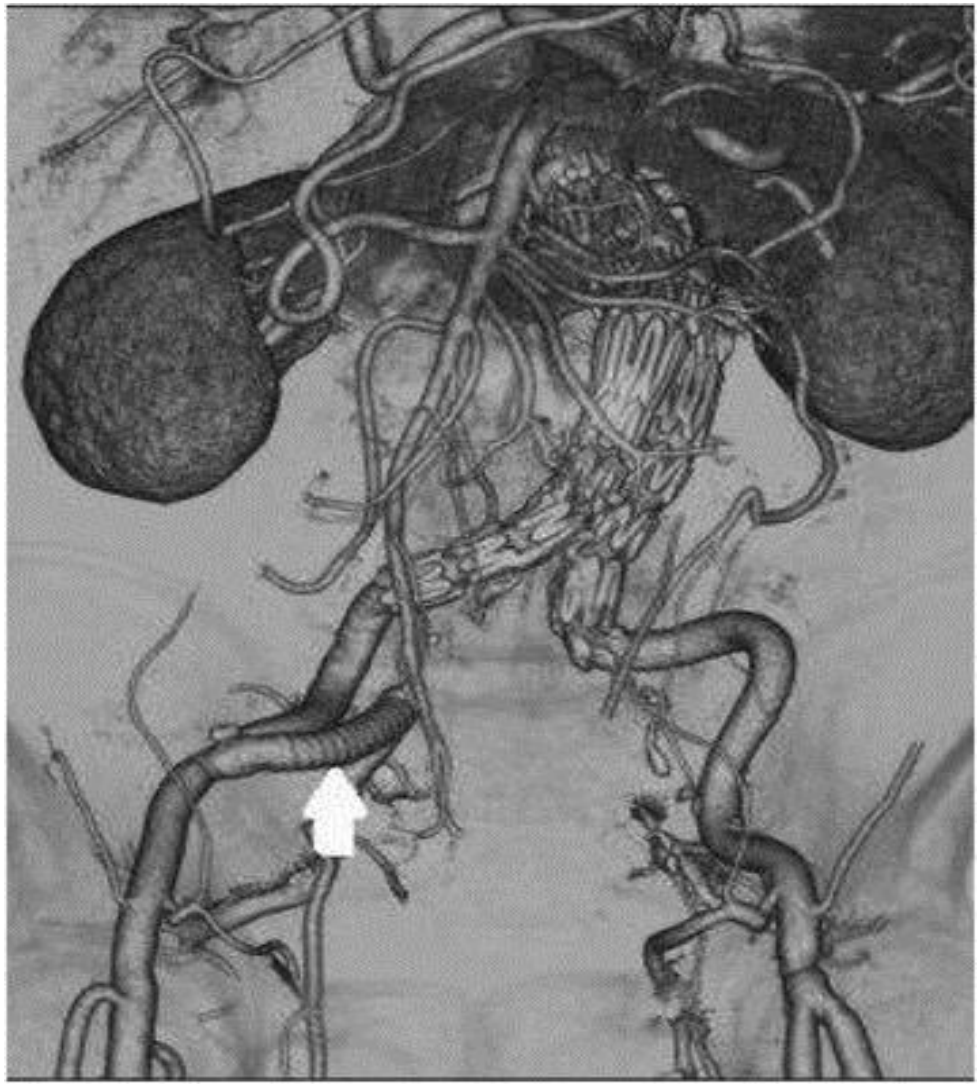
- Adjunctive procedure to EVAR in order to extend distal sealing to EIA but preserving flow to IIA
- Off-the-shelf devices (parallel stenting technique) = bifurcated component
- Bail-out technique and Easier
- Immediate availability
- **BUT**

- Less evidence
- Higher risk of type III Endoleak (gutters)

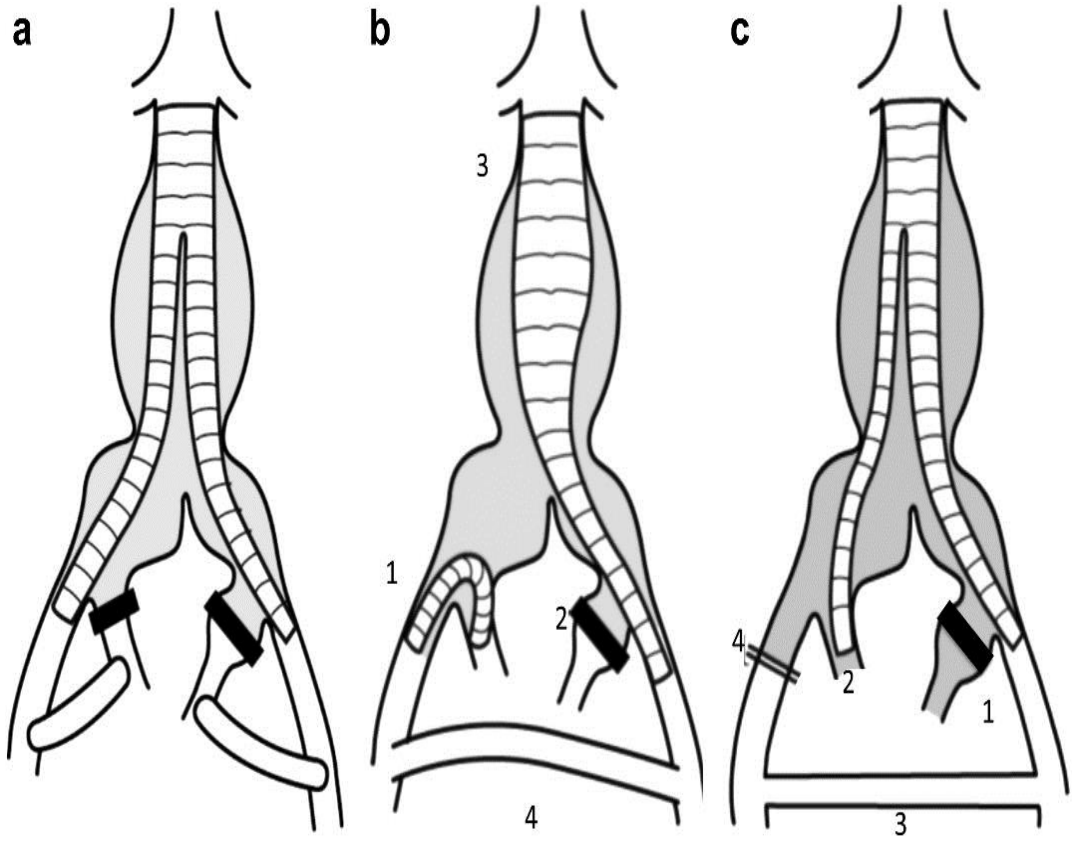

Iliac Limb
Viabahn

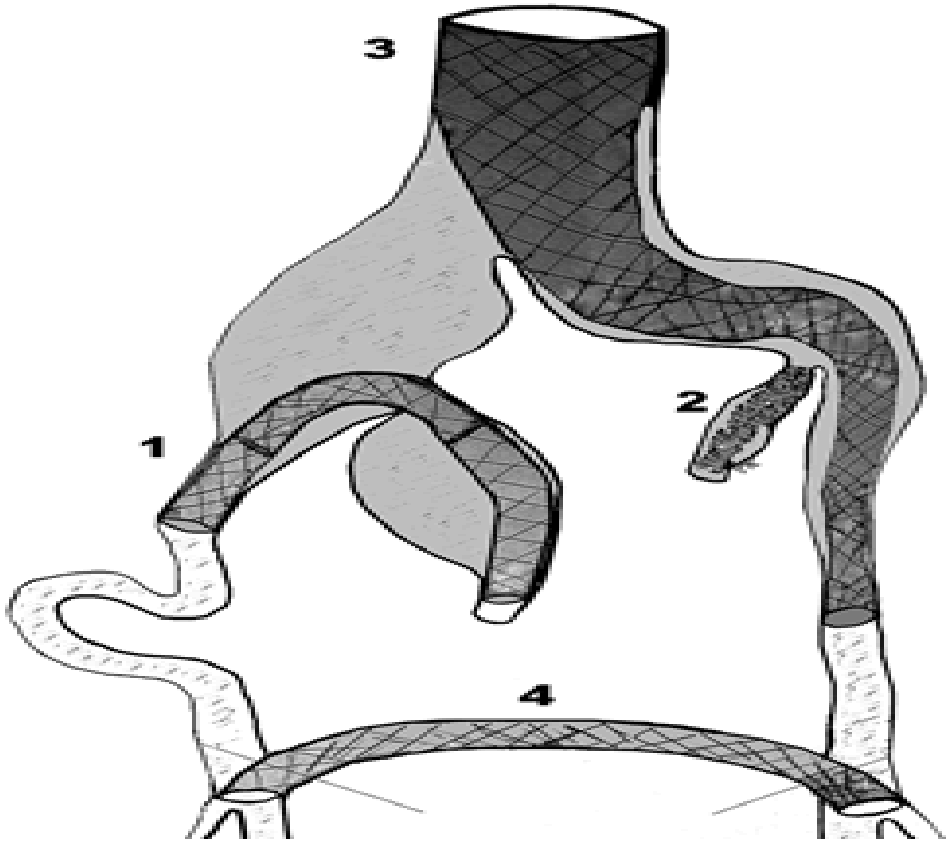
External – Internal Surgical Bypass





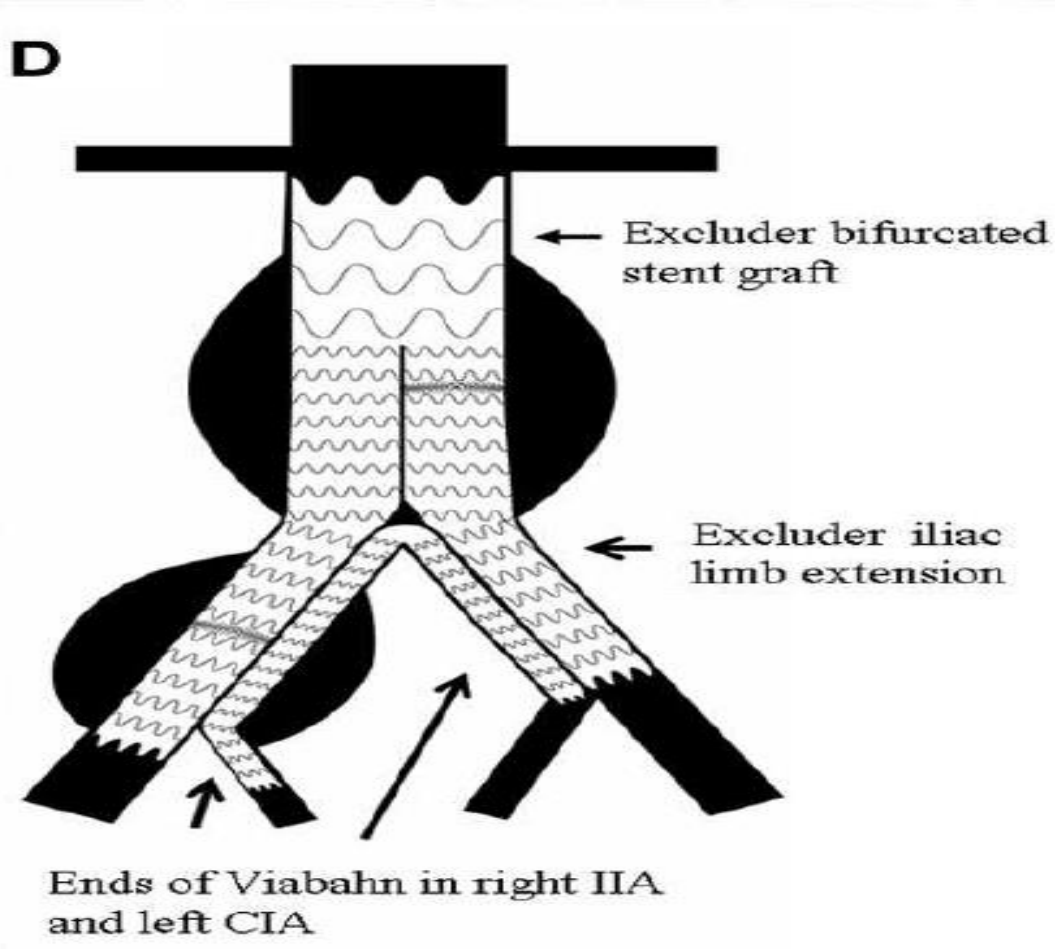
Hybrid technique





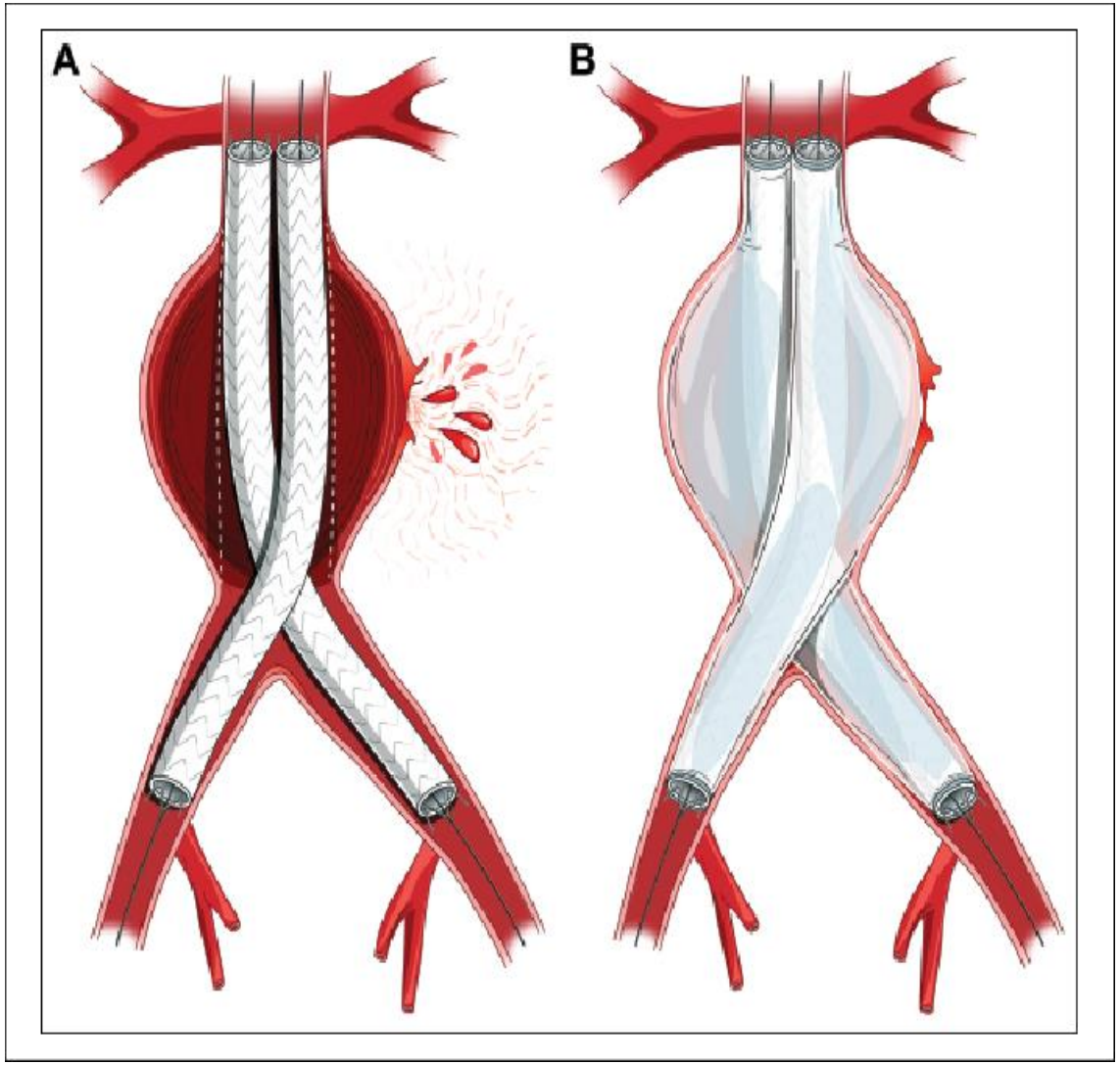
→ Kĩ thuật Reverse-U Stent-Graft

External – Internal endo-Bypass(Crossover chimney technique)



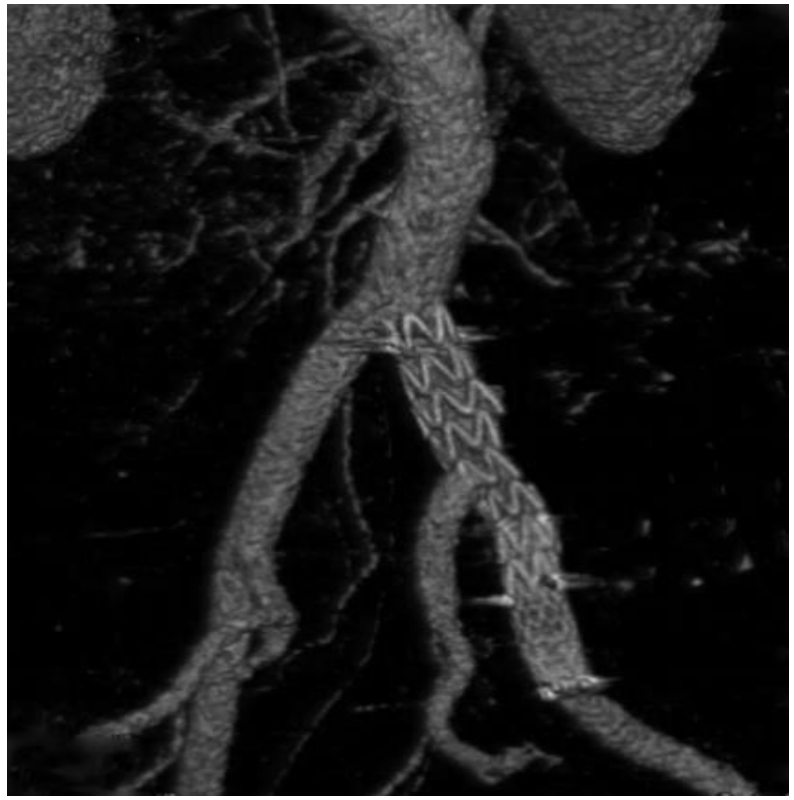
- I.H.Wu - NTUH – 2013
- 5 NB
- Flow-up 6 tháng
- Less of evidence

EVAS technique



- Endo-bags fill and obliterate both Abdominal and CIA volume
- Distal sealing CIA maximum diameter 35 mm
- Theo Krienvins và cộng sự:
- 68 NB
- Follow-up 5-year (TB 24.7 tháng) chỉ có 3 BN phải can thiệp tái thông ĐM chậu trong do tắc mạch
- Ở BN nguy cơ tắc ĐM chậu trong cao, tỉ lệ thành công kĩ thuật 98%

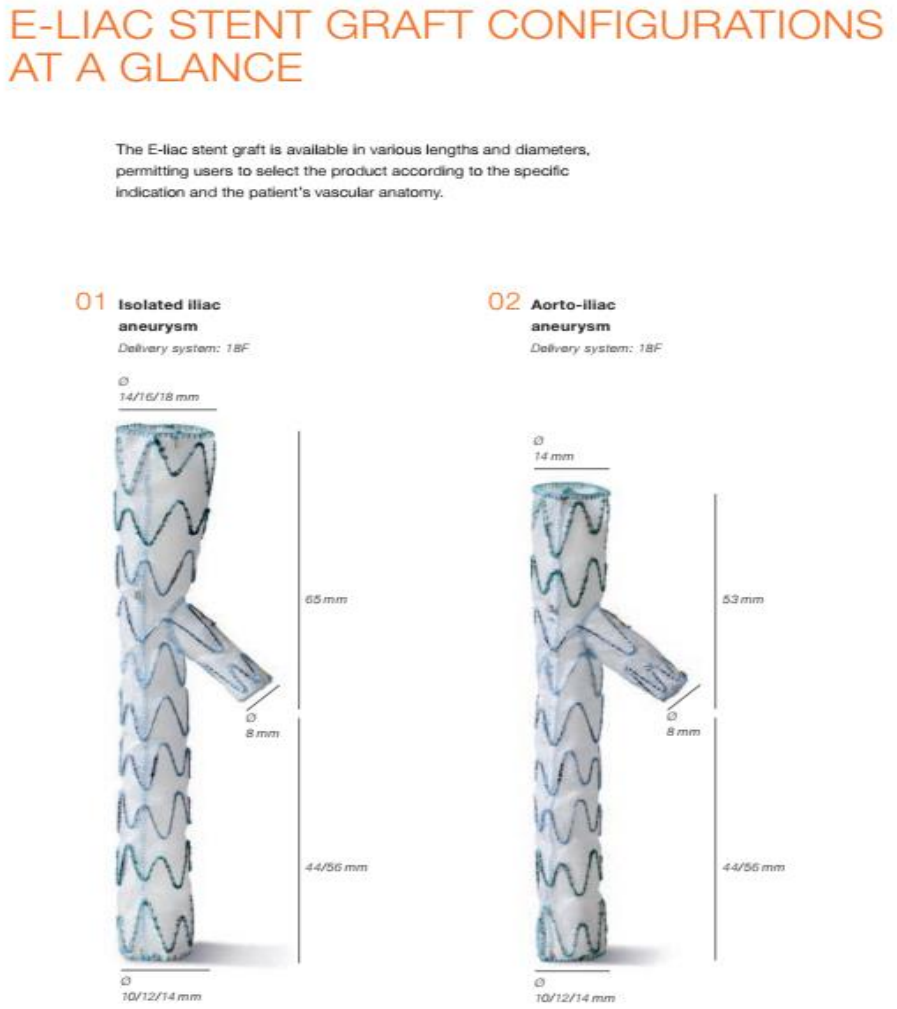
Fenestration (Modified Fenestration stentgraft)
KT mở cửa sổ tự chế

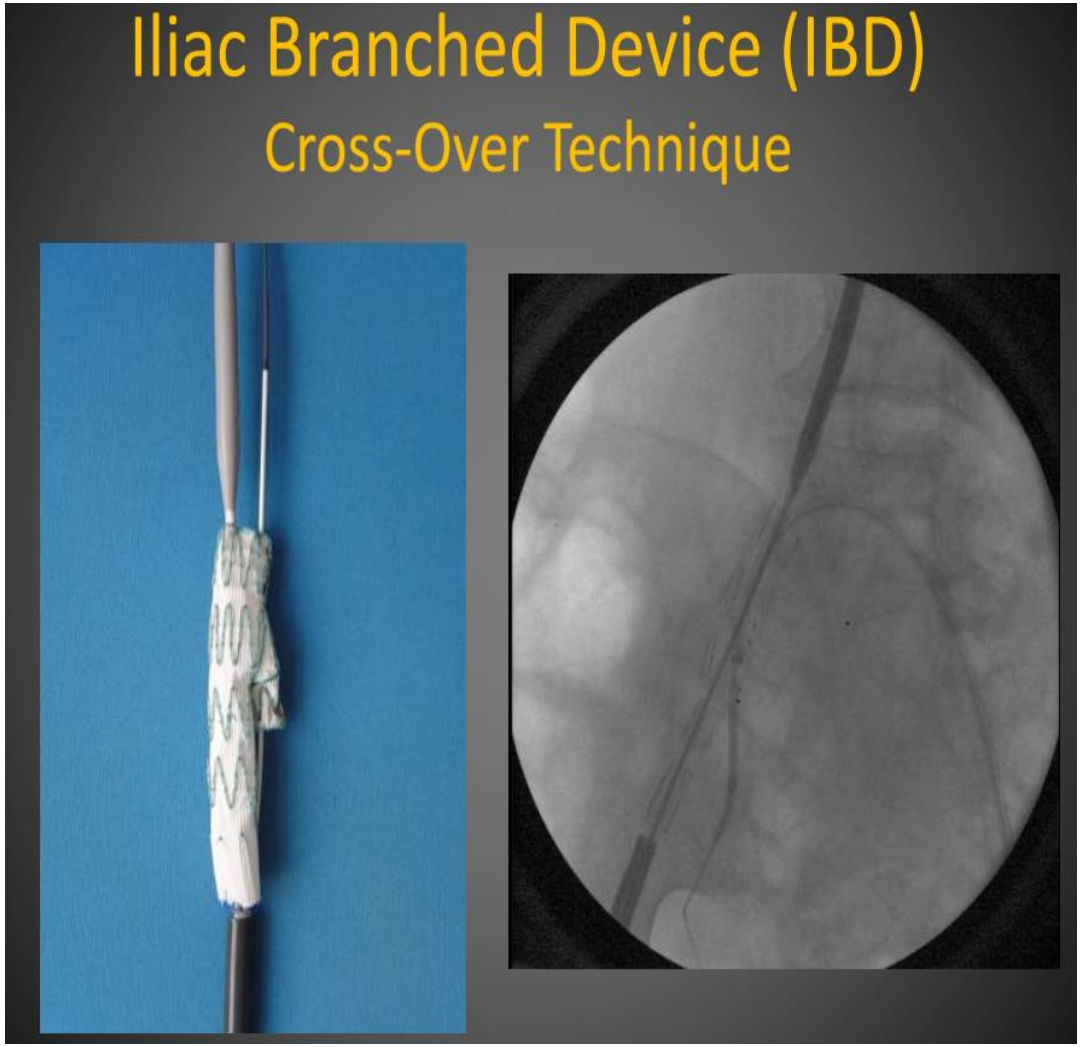


→Mới dừng lại ở Case report

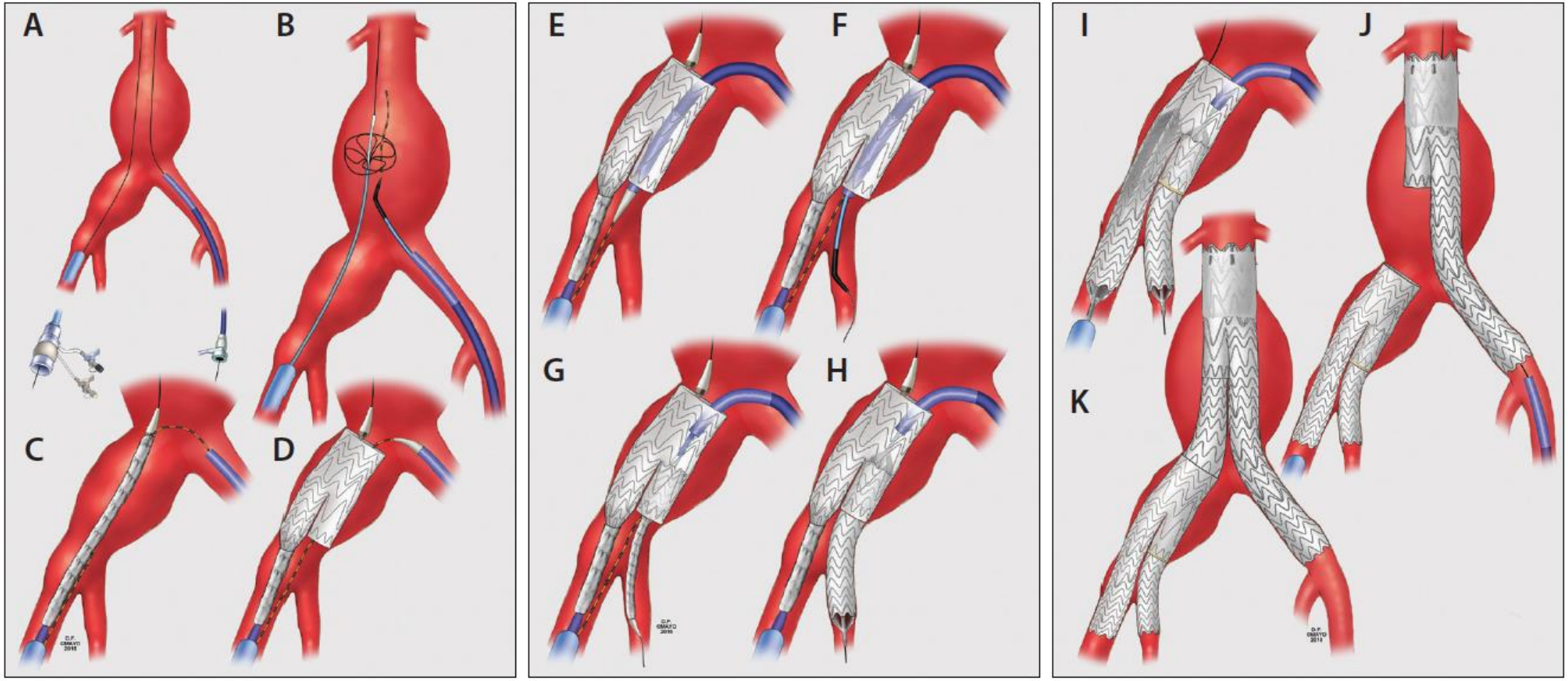
→Nguy cơ Endoleak cao

Iliac Branch Devices (IBDs)





Iliac Branch Devices (IBDs)



Iliac Branch Devices (IBDs)

Eur J Vasc Endovasc Surg (2017) 54, 95–103

Lesson Learned with the Use of Iliac Branch Devices: Single Centre 10 Year Experience in 157 Consecutive Procedures☆

G. Simonte [a], G. Parlani [a,*], L. Farchioni [a], G. Isernia [a], E. Cieri [a], M. Lenti [a], P. Cao [b], F. Verzini [a]

[a] Vascular Surgery Unit, S. Maria della Misericordia Hospital, University of Perugia, Perugia, Italy
[b] Gruppo Villa Maria GVM, Rome, Italy

Objective/Background: Absence of an adequate iliac seal rarely represents an absolute contraindication to endovascular abdominal aortic aneurysm repair. Iliac branch devices (IBD) are increasingly used in patients with extensive aorto-iliac aneurysmal disease, but few data are available on the long-term results of these procedures.
Methods: Between 2006 and 2016, 157 consecutive IBD procedures performed at a single centre were entered into a prospective database. Indications included unilateral or bilateral common iliac artery aneurysms combined or not with abdominal aortic aneurysms. Long-term results were reported according to the Kaplan–Meier method.
Results: During the study period 149 patients were treated with an iliac branched endograft. Isolated IBD was implanted in 17.8% of the cases; technical success rate was 97.5%. Peri-operative procedure failure occurred in seven patients, four during surgery and three within 30 days of the procedure. Presence of ipsilateral hypogastric aneurysm ($p = .031$; Exp [B] = 6.72) and intervention performed during the initial study period ($p = .006$; Exp [B] = 10.40) were predictive of early failure on multivariate analysis. After a mean follow-up of 44.2 months actuarial freedom from IBD related re-intervention was 97.4%, 95.6%, 94.0%, and 91.8% at 1, 3, 5, and 9 years, respectively. Hypogastric artery patency was 94.7%, 92.6%, and 90.4% at 1, 3, and 10 years, respectively. Presence of a hypogastric aneurysm was an independent predictor of target artery occlusion during follow-up on multivariate analysis ($p = .007$; Exp [B] = 5.93).
Conclusion: Iliac branched endografting can now be performed with a high technical success rate; long-term freedom from re-intervention is comparable with patients treated with standard aortic endografting. IBD should be considered a first-option treatment in patients with adequate vascular anatomy unsuitable for standard endovascular aortic repair.

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Use of Bilateral Cook Zenith Iliac Branch Devices to Preserve Internal Iliac Artery Flow During Endovascular Aneurysm Repair

Pablo Marques de Marino, Balazs Botos, George Kouvelos, Eric L.G. Verhoeven *, Athanasios Katsargyris

Department of Vascular and Endovascular Surgery, Klinikum Nuremberg, Paracelsus Medical University Nuremberg, Nuremberg, Germany

Objectives: Iliac branch devices (IBD) have become a widespread option to preserve antegrade internal iliac artery (IIA) flow during endovascular aneurysm repair (EVAR). Reported experience with bilateral implantation of IBDs is limited. This study aimed to describe the indications, technical options, and outcomes with the use of bilateral IBDs.
Methods: All patients undergoing elective implantation of bilateral Cook Zenith IBD between January 2010 and September 2017 in a single centre were included. Bilateral IBD was indicated in physically active, anatomically suitable patients and those with previous or concomitant surgery for a thoraco-abdominal aortic aneurysm or impaired collateral circulation to the IIA. Data were collected prospectively.
Results: Twenty-nine patients (29 male, mean age 64.1 ± 10 years) were included. Of the 58 IBDs, 48 (83%) were implanted in one procedure and 10 (17%) in two procedures (mean time between procedures 30.4 ± 9 months). Nineteen patients (65%) had a previous or simultaneous EVAR and the remaining 10 (35%) a previous or simultaneous complex aortic repair. Mean CIA diameter was 35.2 ± 8 mm. Technical success was achieved in 55 of the 58 IBDs (95%) with no mortality. Axillary artery access was used in 13 (38%) procedures. During follow up, four (7%) IIA branches occluded (1 bilateral occlusion and 2 unilateral). Estimated IIA branch patency at one and three years was 97.8% ± 2% and 88.5% ± 7%, respectively. All patients with late IIA occlusion remained asymptomatic. Re-intervention was needed in four patients (14%): two bridging stent graft extensions for type Ib endoleak, one relining of the external iliac artery because of mural in-stent thrombus and one femoro-femoral crossover bypass to treat an external iliac limb occlusion.
Conclusions: Bilateral implantation of IBDs is a safe and effective technique to preserve IIA flow in selected patients with suitable anatomy, showing similar technical success and mid-term outcomes to the unilateral use of the device.

TAKE HOME MESSEAGES

- Bảo tồn ĐM chậu trong là quan trọng có ý nghĩa trong can thiệp nội mạch đặt stentgraft bệnh lý phình ĐMC bụng – chậu.
- Có nhiều kĩ thuật để bảo tồn dòng chảy ĐM chậu trong 1 hoặc cả 2 bên phụ thuộc vào tình trạng lâm sàng, giải phẫu, chi phí y tế và kinh nghiệm từng trung tâm.
- Stentgraft có nhánh bảo tồn ĐM chậu trong là KT an toàn và hiệu quả.

Thanks you for yours attendtion!!!