WVES | Winnipeg Vascular & Endovascular Symposium

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Management of Isolated Common Iliac Aneurysms

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Disclosures

None

Objectives

1. When should we intervene?
2. How should we repair?
3. When should we preserve the IIA?

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Presentation Algorithm

1. EPIDEMIOLOGY & RISK FACTORS

- Rare
- Mainly atherosclerotic
- Other etiologies : trauma, infection, connective tissue disease

2. NATURAL HISTORY

- Slow expansion
- Usually asymptomatic

3. RUPTURE RISK

- Low risk under < 4 cm

4. INDICATIONS/GUIDELINES

- Asymptomatic: diameter **≥ 4.0 cm**

Open or endo – **patient and anatomy dependent**

5. What to do with IIA?

- Risks :
  - Benign : Buttock claudication/ Erectile dysfunction
  - Severe : Colonic ischemia /Spinal Cord Ischemia

7. ANATOMY-DRIVEN TREATMENT STRATEGY FOR ANEURYSM REQUIRING REPAIR

Neck and Iliac Bifurcation involvement

	Neck non-aneurysmal Bifurcation non-aneurysmal	Neck non-aneurysmal Bifurcation aneurysmal	Neck aneurysmal Bifurcation non-aneurysmal	Neck aneurysmal Bifurcation aneurysmal
Endo	Covered stent	Coil + cover IBD Double-Barrel	EVAR Aorto-uni-iliac	Combination of options previously mentioned
Open	Resect + bypass	CIA-IIA bypass + EIA transpo CIA-EIA bypass + IIA bypass CIA-EIA bypass + IIA ligation	Aorto-iliac bypass	

6. ENDO vs OPEN

ENDOVASCULAR

- Lower perioperative morbidity
- Shorter hospital stay
- Quicker recovery

BUT:

- Requires adequate seal zones
- Risk of endoleak / reintervention
- Lifelong surveillance

OPEN SURGICAL REPAIR

- Durable long-term results
- Better for:
  - Young patients
  - Connective tissue disease
  - Infection / mycotic aneurysm
  - Hostile anatomy
- Higher perioperative risk and longer recovery

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Epidemiology and Risk Factors

Definition : 1.5x normal diameter

- Males CIA 18mm
- Female CIA 15mm

Isolated iliac artery aneurysms : 0.4-1.9% of general population

- 70-90% CIA (50% bilateral)

Risk Factors

- **Acquired**
  - Degenerative-atherosclerotic remodeling (most common)
    - HTN, smoking, males
  - Trauma/iatrogenic injury
  - Arteritis/Inflammatory aneurysms
  - Infections : Salmonella, Staph, Klebsiella, E. Coli, Candida
- **Constitutional**
  - Connective tissue disorders
  - Different embryological lineage of CIA/IIA vs EIA (that is often spared)

1. EPIDEMIOLOGY & RISK FACTORS

- Rare
- Mainly atherosclerotic
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Natural history

ELSEVIER

Journal of Vascular Surgery
Volume 76, Issue 2, August 2022, Pages 461-465

Clinical research study

Abdominal aortic and iliac artery aneurysms

Natural history and growth rates of isolated common iliac artery aneurysms

Presented at the 2021 Vascular Annual Meeting of the Society for Vascular Surgery, San Diego, CA, August 18-21, 2021.

Sean P. Steenberge MD, MS, Francis J. Caputo MD, Jarrad W. Rowse MD, Sean P. Lyden MD, Jon G. Quatromoni MD, Levester Kirksey MD, Christopher J. Smolock MD

Growth 0.3mm/year overall

- CIA 2-2.5 cm : 0.2 mm/year
- CIA 2.5-3 : 0.3 mm/year
- CIA > 3cm : 1.3 mm/year

- **No symptomatic/ruptured**
- Time from diagnosis to OR : 66 ± 47 months (**5.5 ± 3.9 years**)

Bottom line : Indolent disease in most patients

2. NATURAL HISTORY

- Slow expansion
- Usually asymptomatic

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When do they rupture?

ELSEVIER

Journal of Vascular Surgery
Volume 74, Issue 5, November 2021, Pages 1752-1762.e1

Review article

A systematic review on endovascular repair of isolated common iliac artery aneurysms and suggestions regarding diameter thresholds for intervention

Nektarios Charisis MD [a], Vasileios Bouris MD [b], Alexander Rakic MD [a], David Landau MD [a], Nicos Labropoulos PhD [a]

4.3% ruptured

Mean ruptured diameter: **58.4mm**

- **Only 2 ruptures < 4 cm (0.2%)**

Average diameter operated : 41.1mm

3. RUPTURE RISK

- Low risk under < 4 cm

When should we intervene?

4. INDICATIONS/GUIDELINES

- Asymptomatic: diameter **≥ 4.0 cm**

Open or endo – **patient and anatomy dependent**

CLINICAL PRACTICE GUIDELINE DOCUMENT

Editor's Choice – European Society for Vascular Surgery (ESVS) 2024 Clinical Practice Guidelines on the Management of Abdominal Aorto-Iliac Artery Aneurysms☆

Anders Wanhainen [a,*], Isabelle Van Herzeele [a], Frederico Bastos Goncalves [a], Sergi Bellmunt Montoya [a], Xavier Berard [a], Jonathan R. Boyle [a], Mario D'Oria [a], Carlota F. Prendes [a], Christos D. Karkos [a], Arkadiusz Kazimierczak [a], Mark J.W. Koelemay [a], Tilo Kölbel [a], Kevin Mani [a], Germano Melissano [a], Janet T. Powell [a], Santi Trimarchi [a], Nikolaos Tsilimparis [a]

ESVS Guidelines Committee [b], George A. Antoniou, Martin Björck, Raphael Coscas, Nuno V. Dias, Philippe Kolh, Sandro Lepidi, Barend M.E. Mees, Timothy A. Resch, Jean Baptiste Ricco, Riikka Tulamo, Christopher P. Twine

Recommendation 134

For patients with an iliac artery, internal iliac arte combination thereof), im should be considered; ev 24 mm in diameter, ever mm in diameter, and yea into account life expecta concomitant aortic dilata

Class	Level	References
IIa	C	Steenberge *et al.*

Recommendation

Patients with an internal iliac arte thereof) should b diameter of ≥ 40

Class	Le
IIa	C

Recommendation

The choice of sur repair should be lesion characteris

Class	Le
IIa	B

Recommendation 137 — **Unchanged**

Preserving blood flow to at least one internal iliac artery during open surgical and endovascular repair of iliac artery aneurysms is recommended.

Class	Level	References	ToE
I	C	Bosanquet *et al.* (2017),[782] Jean-Baptiste *et al.* (2014)[1100]	

Giaquinta *et al.* (2018),
Kouvelos *et al.* (2016)[1093]

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What about Internal Iliac?

Meta-Analysis > Eur J Vasc Endovasc Surg. 2017 Apr;53(4):534-548.
doi: 10.1016/j.ejvs.2017.01.009. Epub 2017 Feb 24.

Systematic Review and Meta-analysis of the Effect of Internal Iliac Artery Exclusion for Patients Undergoing EVAR

D C Bosanquet [1], C Wilcox [2], L Whitehurst [2], A Cox [2], I M Williams [2], C P Twine [3];
British Society of Endovascular therapy (BSET)

Collaborators, Affiliations + expand

PMID: 28242154 DOI: 10.1016/j.ejvs.2017.01.009

5. What to do with IIA?

- Risks :
  - Benign : Buttock claudication/ Erectile dysfunction
  - Severe : Colonic ischemia /Spinal Cord Ischemia

- **Buttock claudication: 28%**
  - Outcome : 50% recovery at 2 years
- **Erectile dysfunction: 10%**
- **Rare but severe (<1%)**
  - **Ischemic colitis**
  - **Spinal cord ischemia**

Endo vs Open?

No comparative RCT data

Vascular and Endovascular Surgery
Volume 53, Issue 5, July 2019, Pages 401-407

https://doi-org.acces.bibl.ulaval.ca/10.1177/1538574419836835

SAGE journals

Review Article

Endovascular Treatment Versus Open Surgery for Isolated Iliac Artery Aneurysms: A Systematic Review and Meta-Analysis

Yuwei Xiang, MD, Xiyang Chen, MD, Jichun Zhao, MD, PhD , Bin Huang, MD, Ding Yuan, MD, and Yi Yang, MD

No difference in long-term mortality
No difference in long-term patency
Shorter length of stay in endo group
Slight increase of ischemic complications in endo group

- Buttock claudication
- Ischemic colitis
- Erectile dysfunction

More reinterventions in endo group

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Preoperative planning

Get a CTA – centerline measurements

Key questions

- Proximal CIA landing zone?
- Bifurcation involved?
- Distal EIA and IIA landing zones?
- Can at least 1 IIA be preserved?

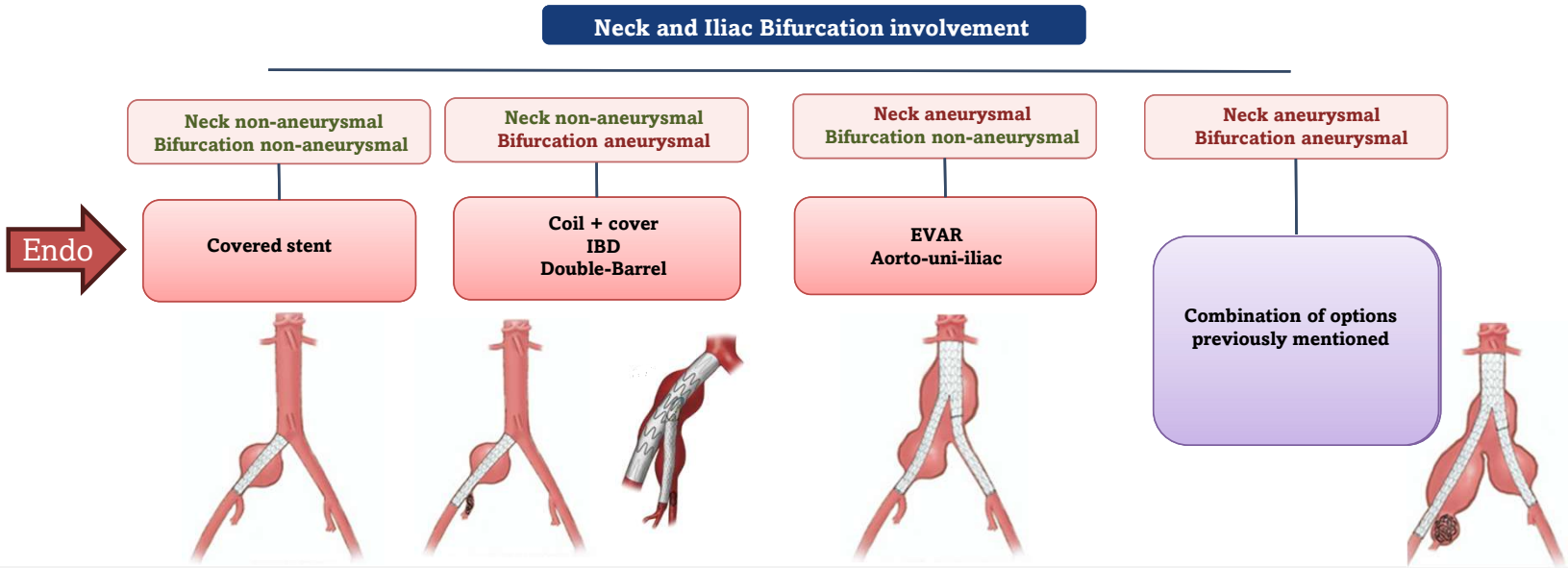
What strategy - open or endovascular – is more suitable for this patient?

Endovascular treatment

First-line treatment

- Lower perioperative morbidity/mortality
- Shorter hospital stay
- Durability acceptable, but requires follow-up

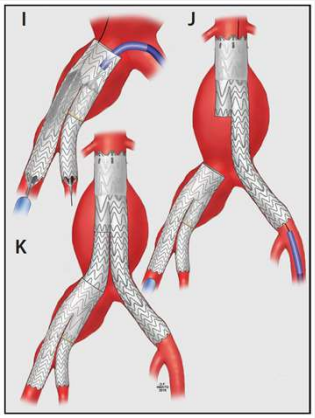
- **30-day mortality** : 0-1%
- **Mean LOS** : 1-2 days
- **Late reinterventions** : 10%
- **Late patency :** 95%



Should we just IBD?

Benefit = pelvic perfusion

Main limitation : anatomy
Only 50% of patients anatomically eligible



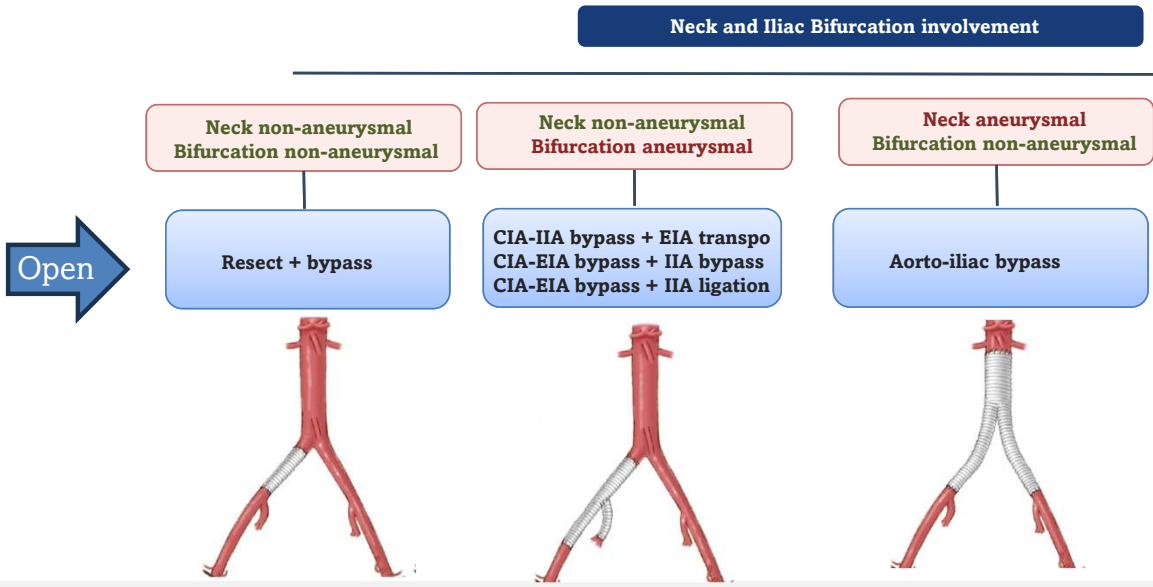
- **Gore IBE**
  - Minimal proximal CIA diameter : 17mm
  - EIA diameters : 6.5-25mm with 10mm seal zone
  - IIA diameters : 6.5-13.5mm with 10mm seal zone
  - Adequate distance from lowest renal to IIA
- **Cook IBG**
  - CIA diameter at level of IIA : 16mm
  - EIA diameter : 8-11mm with 20mm seal zone
  - IIA diameter : 7-10mm with 10mm seal zone

- **30-day mortality** : 0-1%
- **Late reinterventions** : up to 20%
  - Sac expansion
  - Thrombosis
- **Late patency :** 90%

Open treatment

Indications

- Unfavorable endo anatomy
- No durable landing zones
- Infection
- Young/fit selected patients



- **30-day mortality** : 0-5%
- **Compications** : 0-20%
  - LE ischemia
  - Visceral/pelvic ischemia
  - Aorto-enteric fistula
  - Graft infection
  - Ileus
  - Hemorrhage
  - ous/nerve injuries
- **Mean LOS** : 5-10 days
- **5** 99-100%

Conclusion

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Open or endo - equivalent

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