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Impact Of Female Gender On Outcomes Of Endovascular Treatment Of Aorto-Iliac Occlusive Disease: When Is Open Repair Indicated

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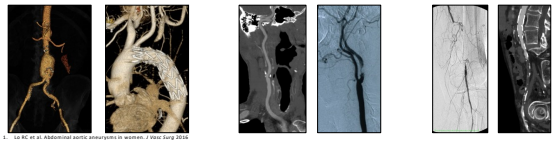
No disclosure

INTRODUCTION

Females have been described to have different outcomes compared to males in the treatment of several arterial diseases:

- Aortic disease[1,2]
- Cerebrovascular disease[3]
- Peripheral artery disease



1. Lo RC et al. Abdominal aortic aneurysms in women. J Vasc Surg 2016
2. Kuy S et al. Management of carotid stenosis in women. JAMA Surg 2013
3. Deery SE et al. Female sex independently predicts mortality after thoracic endovascular aortic repair for intact descending thoracic aortic aneurysms. J Vasc Surg 2017

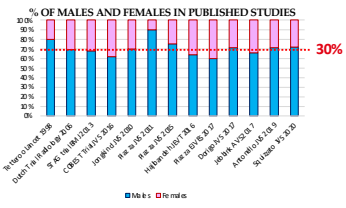
INTRODUCTION
Role of female gender in PAD

These different outcomes in PAD may be related to[1-3]:

- Biological characteristics (hormones)
- Clinical presentation
- Anatomical characteristics

[1]Teodorescu VJ et al. Peripheral arterial disease in women. J Vasc Surg. 2013
[2]Timaran CH et al. External iliac and common iliac artery angioplasty and stenting in men and women. J Vasc Surg. 2001
[3]Bechter-Hugl B et al. The influence of gender on patency rates after iliac artery stenting. J Vasc Surg. 2014

INTRODUCTION
Role of female gender in iliac artery stenting



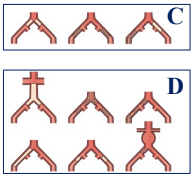
- Our knowledge on iliac artery stenting procedure is based on studies with a male-dominant population
- Our current approach may better apply to men than women
- We need to better standardize:
  - Operative technique
  - Materials
  - Perioperative medical therapy

  in relation to sex-specific characteristics

INTRODUCTION
Anatomical criteria

OPEN vs ENDO

- For TASC A-B lesions, endovascular treatment is the first option for all patients
- For TASC C-D lesions, endo or open options may be considered

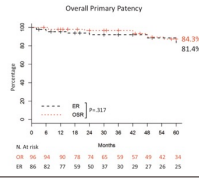


Open vs Endo

From the Society for Vascular Surgery

Open repair versus endovascular treatment of complex aortoiliac lesions in low risk patients

Michele Antonello, MD, Francesco Squizzato, MD, Silvia Bassini, MD, Luca Porcellato, MD, Franco Grego, MD, and Michele Piazza, MD, *Padua, Italy*



Variable	HR	95% CI	*P* value
TASC class D	1.51	0.42-5.36	.520
Bilateral disease	2.55	0.67-9.68	.166
ER	0.89	0.18-3.59	.781
Female sex	0.49	0.06-4.00	.507
ER + female sex	2.89	1.45-26.60	.024*

CI, Confidence interval. *ER*, endovascular repair. *HR*, hazard ratio. *TASC*, TransAtlantic Inter-Society Consensus II.
*Statistically significant.

Endovascular treatment: Male vs Female

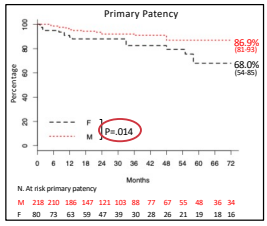
The impact of female sex on the outcomes of endovascular treatment for iliac lesions

Michele Piazza, MD, Francesco Squizzato, MD, Silvia Bassini, MD, Chiara Chincarini, MD, Franco Grego, MD, *and* Michele Antonello, MD, PhD, *Padua, Italy*

- Inclusion of 201 consecutive patients (298 limbs)
- Female 33%; Male 66%
- Females had more advanced symptoms at presentation and lesser iliac artery diameters

	Women (n = 80 limbs)	Men (n = 218 limbs)	*P*
Clinical data			
Rutherford category			.005*
3	19 (23.7)	95 (43.5)	
4	32 (40.0)	71 (32.5)	
5-6	29 (36.2)	52 (23.8)	
Anatomic data			
TASC II category			.499
B	26 (32.5)	52 (40.1)	
C	34 (42.5)	101 (37.2)	
D	20 (25.0)	64 (29.4)	
Bilateral disease	10 (14.3)	78 (35.7)	.001*
Iliac occlusion	30 (37.5)	107 (49.0)	.089
Mean artery diameter, mm			
Aortic bifurcation	14.5 ± 3.6	16.0 ± 3.3	.017*
CIA	9.5 ± 1.9	10.0 ± 1.6	<.001*
EIA	7.6 ± 2.0	9.1 ± 2.3	.002*
CFA	7.3 ± 2.0	8.5 ± 2.1	.034*
CFA grade of stenosis			.808
Minimal (<50%)	58 (72.5)	167 (76.6)	
Moderate-high (50%-74%)	6 (7.5)	15 (6.8)	
High (75%-99%)	11 (13.8)	27 (9.1)	
Occlusion	5 (6.2)	9 (4.1)	
Femoropopliteal occlusive disease	25 (31.2)	80 (36.7)	.335

Endovascular treatment: Male vs Female



	HR (95% CI)	*P*
Overall		
Rutherford 5-6	2.48 (1.02-5.04)	.045*
Female sex	2.49 (1.02-5.15)	.046*
CS	0.42 (0.25-1.23)	.119
EIA involvement	1.52 (0.52-4.45)	.440
Iliac occlusion	2.56 (0.85-7.71)	.094
TASC C-D	1.26 (0.42-2.81)	.680
Stent diameter ≤7 mm	2.86 (1.10-5.59)	.011*
Women		
Rutherford 5-6	1.05 (0.28-3.90)	.959
CS	0.37 (0.11-1.56)	.150
EIA involvement	2.01 (1.01-7.33)	.048*
Stent diameter ≤7 mm	3.79 (1.10-15.32)	.012*
Men		
Rutherford 5-6	3.12 (1.06-9.33)	.039*
CS	0.45 (0.13-1.53)	.200
EIA involvement	1.80 (0.56-5.74)	.320
Stent diameter ≤7 mm	1.53 (0.75-17.5)	.098

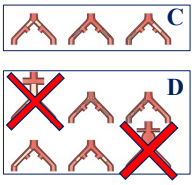
CI, Confidence interval. CS, covered stent. EIA, external iliac artery. HR, hazard ratio. TASC, TransAtlantic Inter-Society Consensus.
*Statistically significant.

OUR CRITERIA

Endovascular treatment as first line option also for TASC C-D lesions

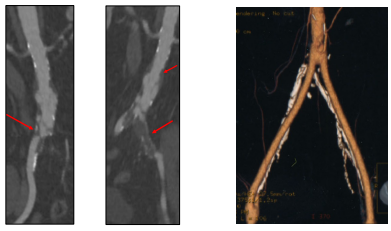
EXCLUSION CRITERIA

- Ascending thrombosis of the abdominal aorta (Leriche Syndrome)
- Associated abdominal aortic aneurysm
- Lesions extending above the inferior mesenteric artery



OUR CRITERIA

Extensive aortic involvement



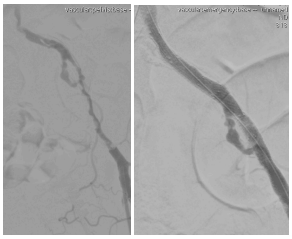
OUR CRITERIA

Extensive aortic involvement

Kissing stents CERAB

OUR CRITERIA

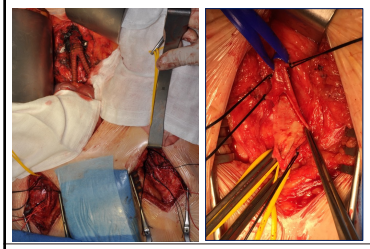
Females



- Same general anatomical criteria as men
- In case of small (< 7mm) arteries or external iliac involvement:
  - Use of 8mm-diameter stent (covered, to allow aggressive post-dilatation)
  - More prolonged dual antiplatelet therapy (6 months or lifelong)
  - Only PTA (without stenting), if low-grade lesion
  - Open surgery, if high grade lesion and permissive surgical risk

OUR CRITERIA

Females



- If open surgery in women with small arteries
  - Use a 16x8 mm graft
  - Femoral patch plasty

CONCLUSION

- In the treatment of aorto-iliac obstructive disease, the indication to open vs endovascular options must consider the surgical risk, disease extension, and also sex-specific anatomical characteristics.
- For type A-B lesions, endovascular treatment is the first option.
- For type C-D lesions without extensive aortic involvement, endovascular treatment with covered stents is the first option.
- For type C-D lesions with extensive aortic involvement, open surgery is the first option.
- For type C-D lesions in females with small vessels and/or external iliac involvement, open surgery or a dedicated endovascular approach and perioperative medical management should be considered.