



Pan-Pelvic Endovascular Intervention for Erectile Dysfunction and Lower Urinary Tract Symptoms: A Case Demonstration

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Background

- Erectile dysfunction (ED) affects **~50%** of men aged **>40** years and usually precedes CAD/stroke/PAOD by 3 years
- **Pelvic arterial obstructive disease** is present in **~70%** of patients aged **>50** years with ED and/or lower urinary tract symptoms (LUTS)
- Approximately **2/3** of the pelvic arterial lesions are located at **distal internal pudendal** and **penile artery** segments

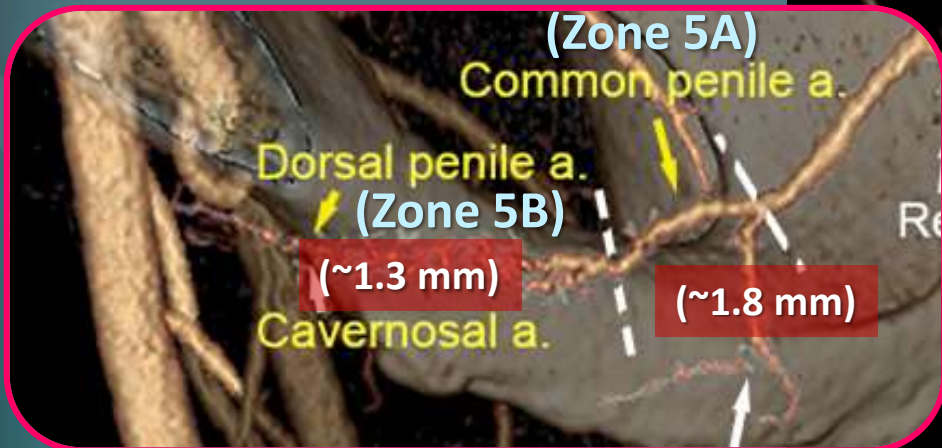
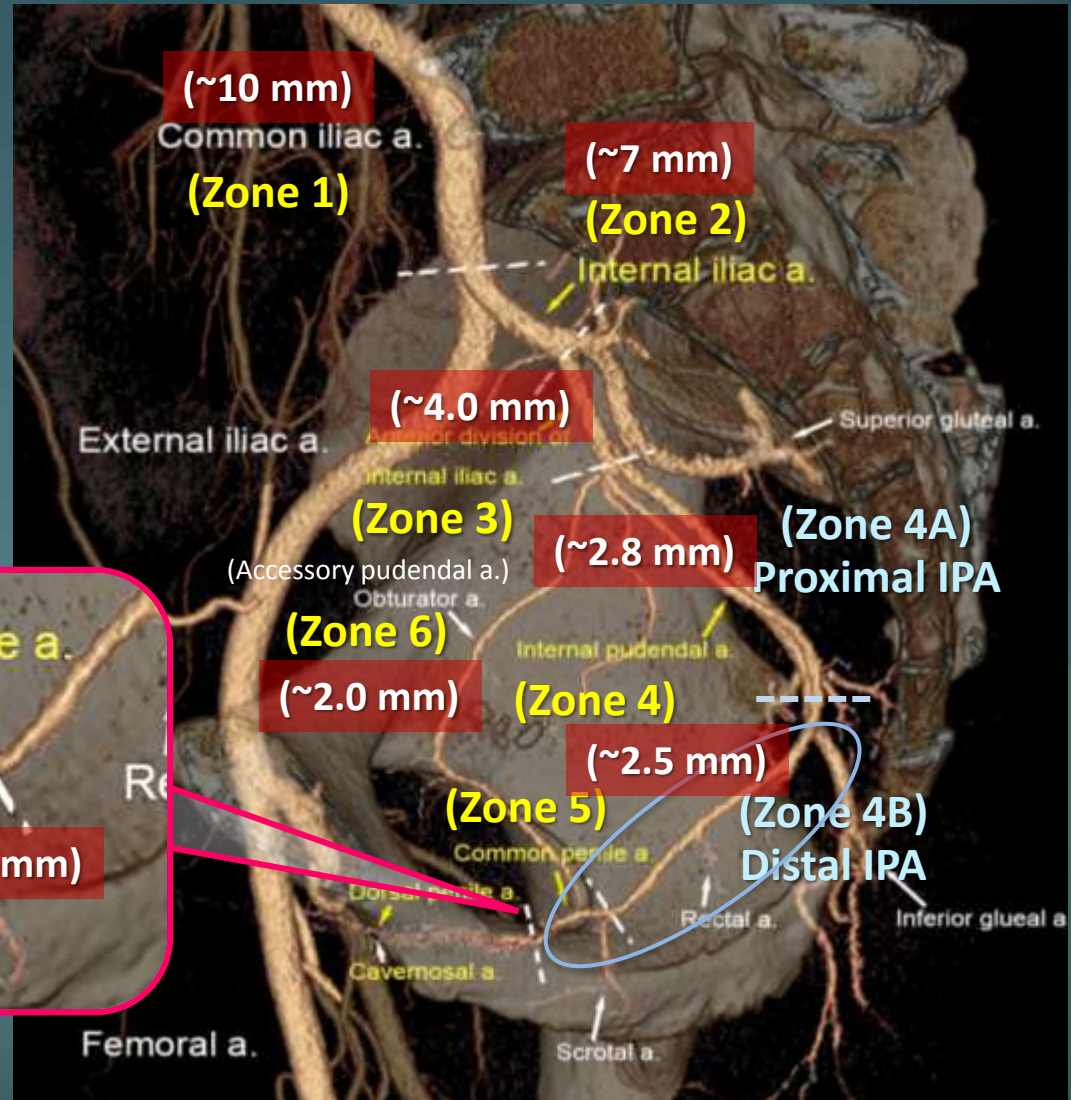


Wang TD, et al. J Am Coll Cardiol 2013;62:B160.
Wang TD, et al. Eurointervention 2014;10:147-156.
Wang TD, et al. J Am Coll Cardiol 2015;66:B32-33.
Wang TD, et al. J Endovasc Ther 2016;23:867-877.



8-Zone Classification System of Pelvic CT Angiogram Developed in the PERFECT Registry

- ◆ 64-detector row CT scanner
- ◆ Premedication: 0.6 mg NTG sublingual
- ◆ Contrast bolus tracking ROI: lower abdominal aorta
- ◆ 80 mL contrast media/40 mL saline flush, rate 3 mL/s
- ◆ Image reconstruction: 0.625 mm thickness/22 cm field-of-view



PERFECT: PElvic Revascularization For arteriogenic EreCTile dysfunction

*CT Angio: 1,161; Inv. Angio: 429; Angioplasty: 315 (up to Jan 15, 2018)

PERFECT-1 & -2: Penile artery

-- TCT 2013, EuroPCR 2014/2015 LBTs (Eurointervention 2014/JET 2016)

PERFECT-3: Distal int pudendal artery

-- TCT 2015

PERFECT-LUTS/Registry: Whole pelvic arteries

-- TCT 2014, EAU 2015, TCT 2016, EAU 2018, ISSM/ESSM 2018

PERFECT-4: Penile artery

-- EuroPCR 2016 LBT

PERFECT-Absorb: “BVS+OCT” for internal pudendal artery



	n (%) or mean±SD
Age, years	62.6±7.9
BMI, kg/m ²	26.2±4.0
Prior stroke	3 (2)
CAD	120 (66)
Claudication	33 (18)
Hypertension	127 (70)
Diabetes	78 (43)
Hyperlipidemia	120 (66)
Current smoking	47 (26)
Family history	25 (14)
IIEF-5 score (for ED)	9.1±4.4
Mild (17-21)	11 (6)
Mild-Mod (12-16)	41 (22)
Moderate (8-11)	43 (24)
Severe (5-7)	87 (48)
Duration of ED, mo	36 [24-60]

Binary restenosis by 8-mo CTA, n (%)	
Per Lesion, N=334	102 (31)
Iliac a. (Z1/2), n=36	1 (3)
Ant div (Z3), n=28	1 (4)
Prox IPA (Z4A), n=49	2 (4)
Distal IPA (Z4B), n=107	50 (47)
Penile a. (Z5), n=97	42 (44)
APA (Z6), n=17	6 (35)
Per Vessel, N=233	87 (37)
Right, n=107	40 (37)
Left, n=126	47 (37)
Per Patient, N=182	76 (42)

In Zones 4B & 5A, binary restenosis:
Stenting, 12/29 (41%); DEB, 15/46 (33%);
balloon, 58/107 (54%)

ED (N=182)	n (%) or mean±SD
Δ IIEF-5 at 12 months	5.7±4.7
Any clinical success during f/u*	134 (74)
12-mo sust. clinical success**	112 (62)
12-mo IIEF-5 ≥22	29 (16)
12-mo clinical worsening†	0 (0)

	Any binary restenosis	
	No (n=106)	Yes (n=76)
IIEF-5 at baseline	9.3±4.4	8.8±4.5
Δ IIEF-5 at 12 months	6.8±4.2	4.0±4.9
Any clinical success during f/u*	92 (87)	42 (55)
12-mo sust. clinical success**	87 (82)	25 (33)
12-mo IIEF-5 ≥22	22 (21)	7 (9)
12-mo clinical worsening†	0 (0)	0 (0)

APA: accessory pudendal artery; BMI: body mass index; CAD: coronary artery disease; ED: erectile dysfunction; IIEF: International Index of Erectile Function; IPA: internal pudendal artery.

* Clinical success: ΔIIEF-5 ≥4 or IIEF-5 ≥22;

** Sustained clinical success: ΔIIEF-5 ≥4 or IIEF-5 ≥22 & no later decline ≥4;

† Clinical worsening: ΔIIEF-5 ≤-4

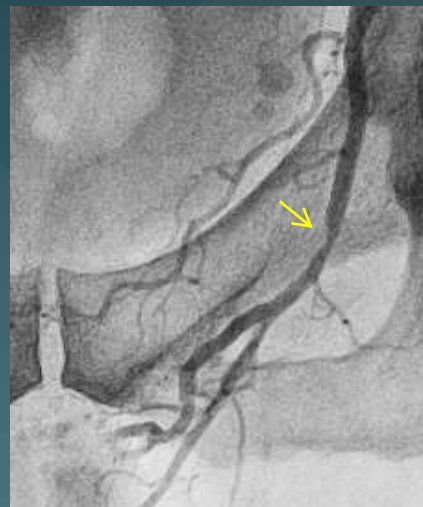
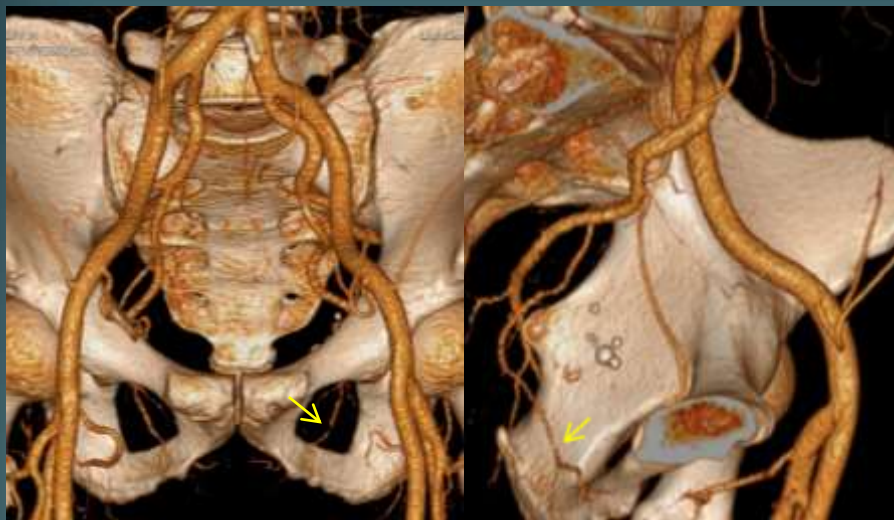
NCT02178761 (www.clinicaltrials.gov)

57 y/o man, progressive ED for 15 years...

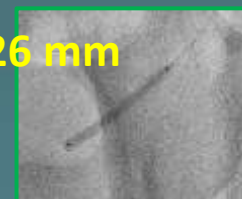
PSV of LCA: 24.1 cm/s



Nov-5-2014



s/p DEB 2.5 x 26 mm



Dec-4-2014



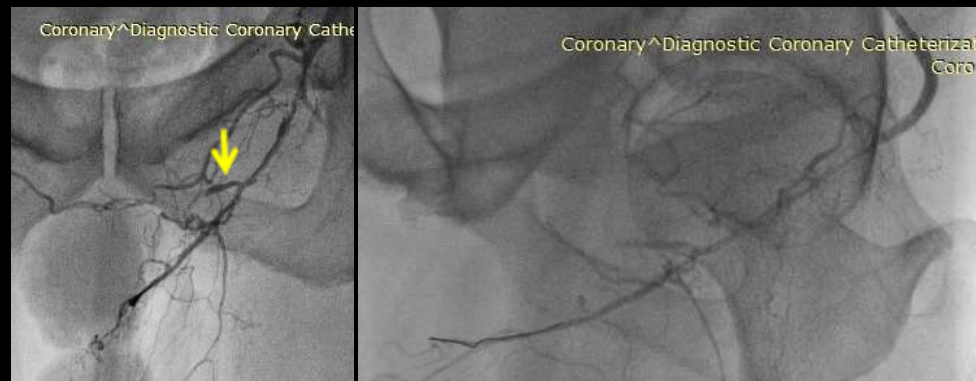
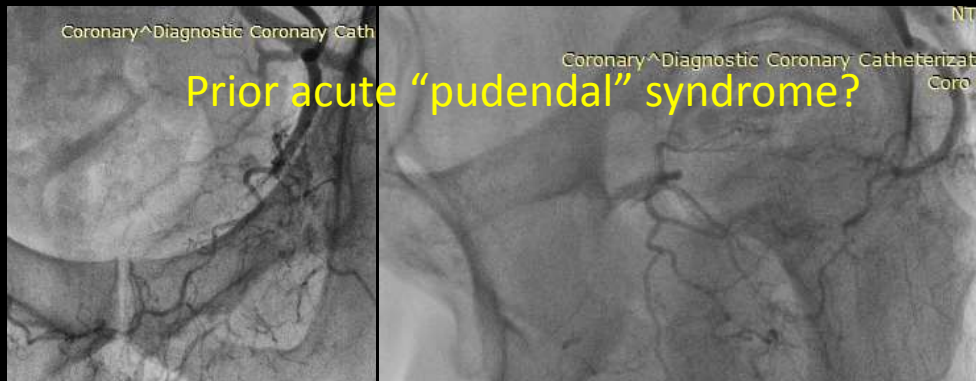
PSV 13.5 cm/s



Nov-11-2015

IIEF-5: 5 (pre) → 18 (1-mo) → 18 (3-mo) → 17 (6-mo) → 7 (12-mo)

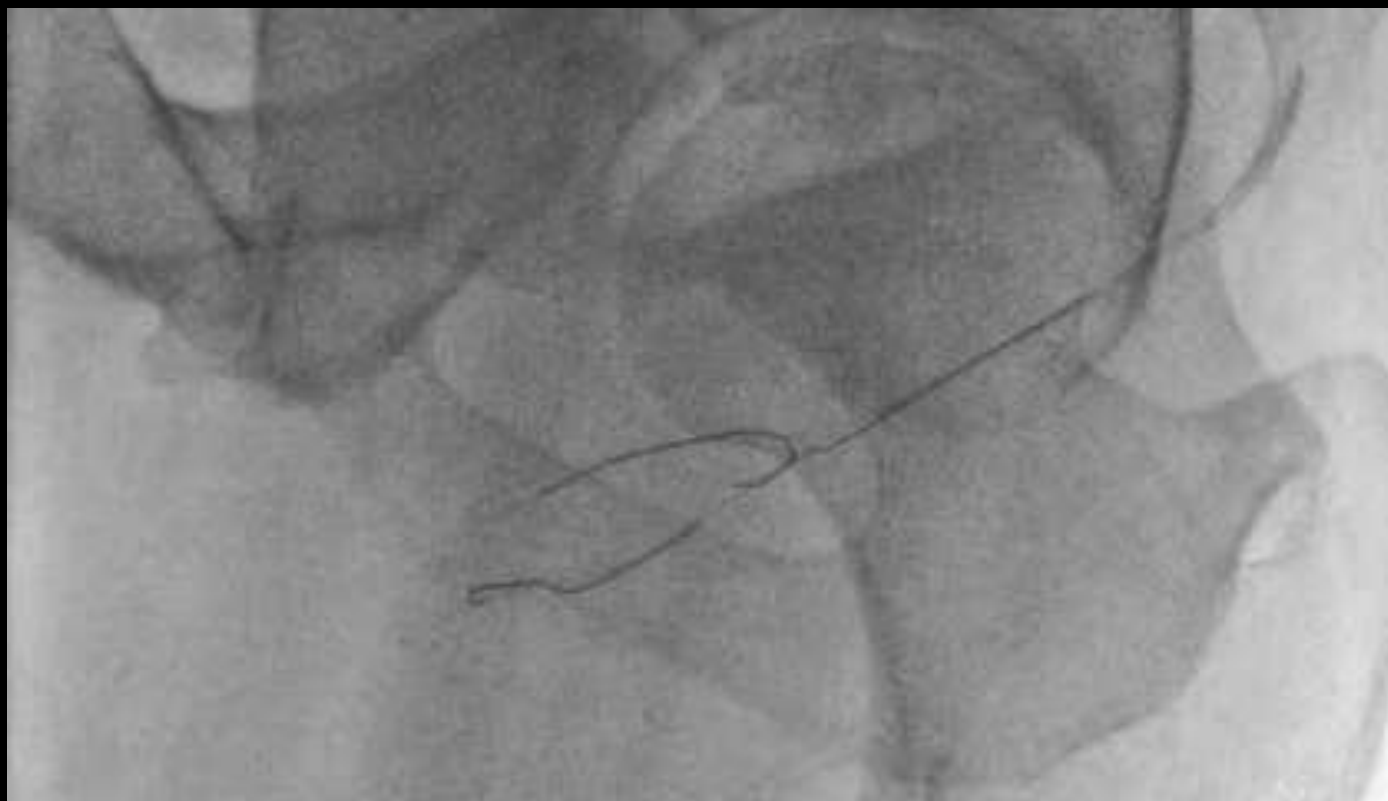
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Jan-11-2016

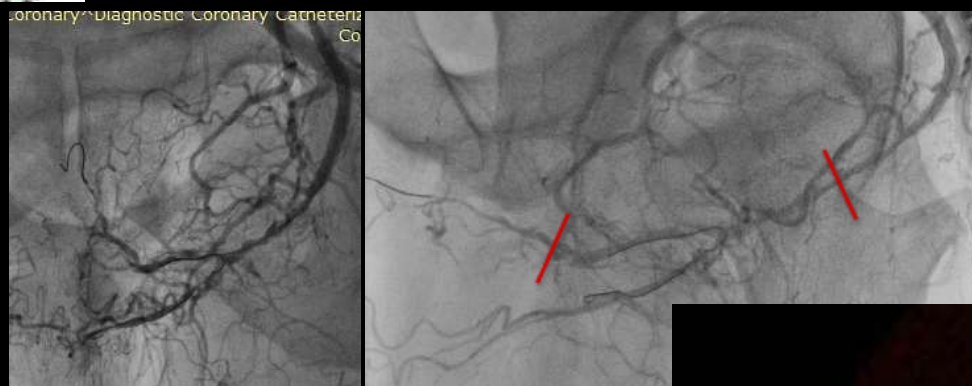
Jan-12-2015

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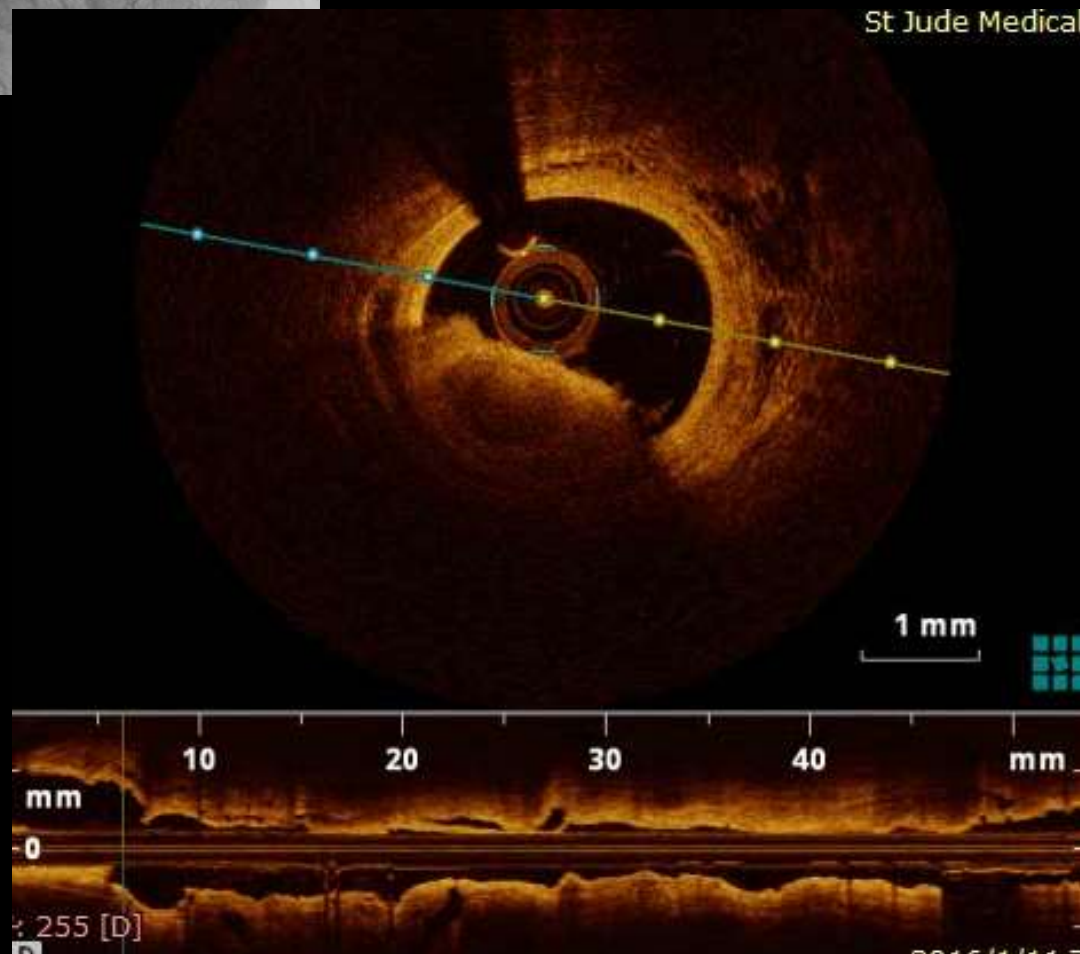


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Coronary Diagnostic Coronary Catheteriz
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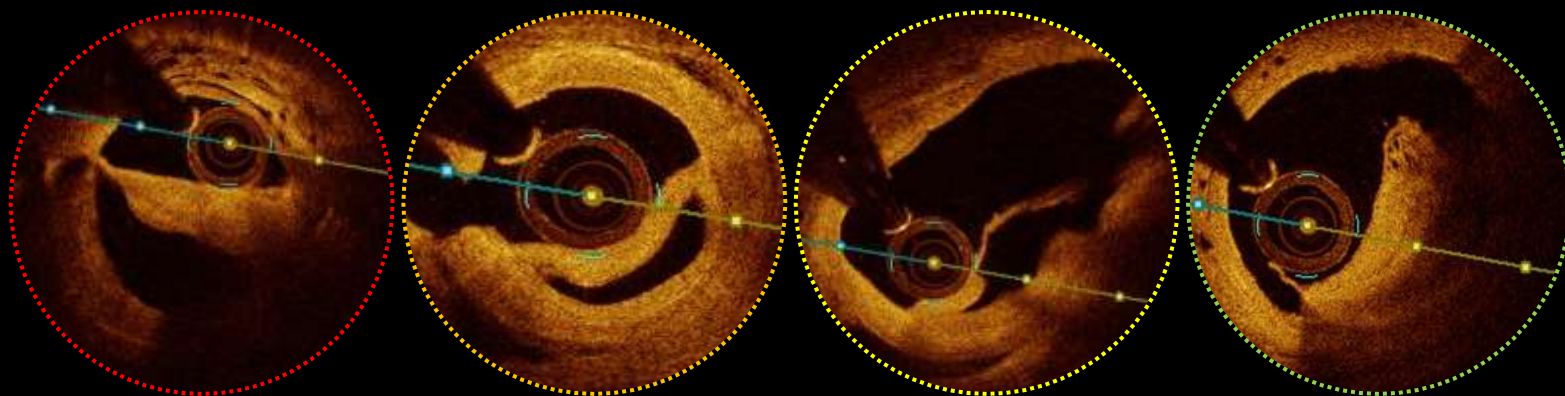
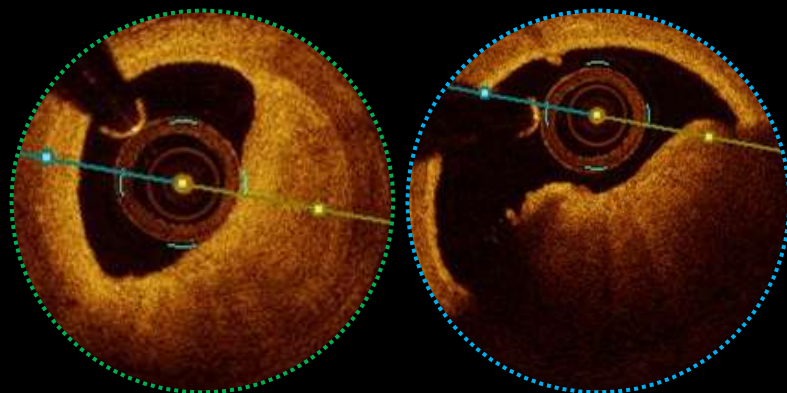
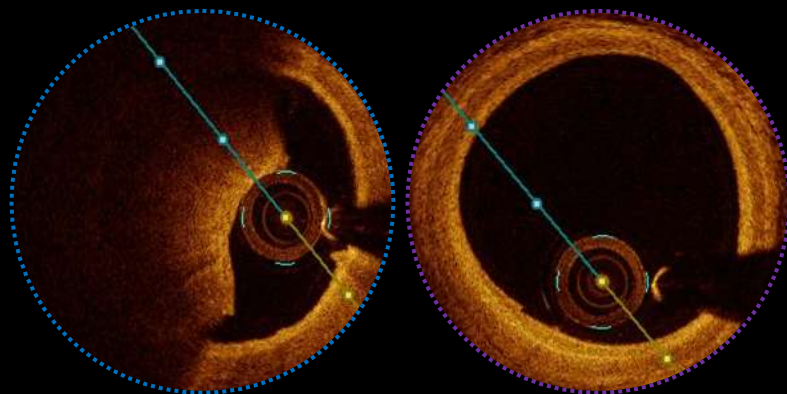


St Jude Medical



Jan-11-2016

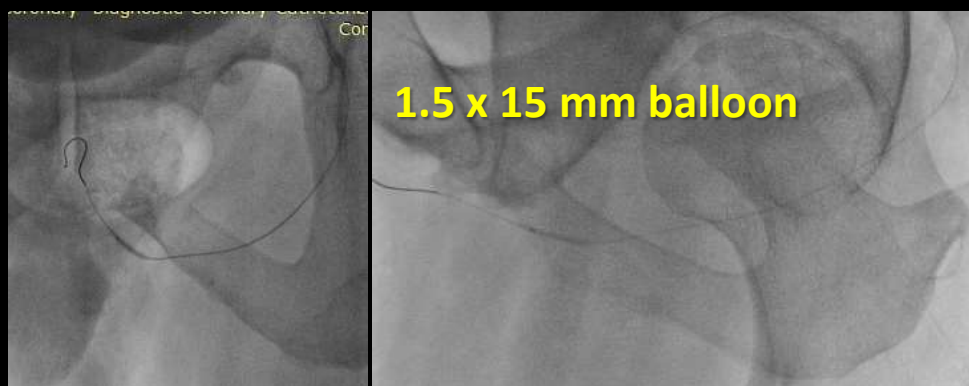
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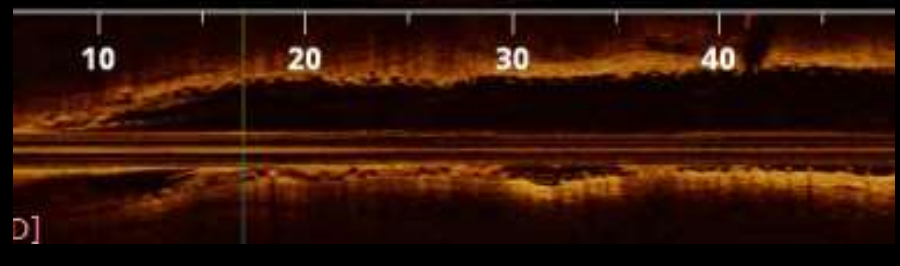
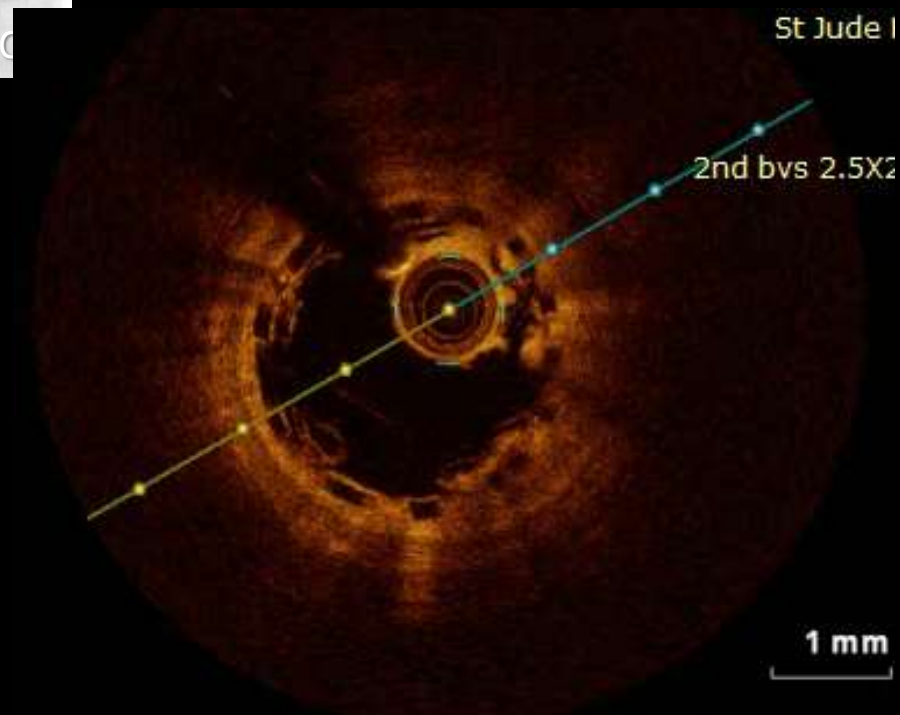
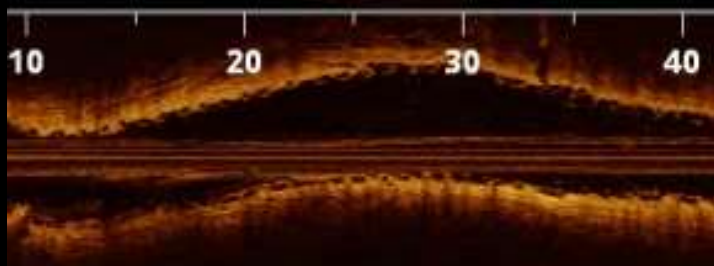
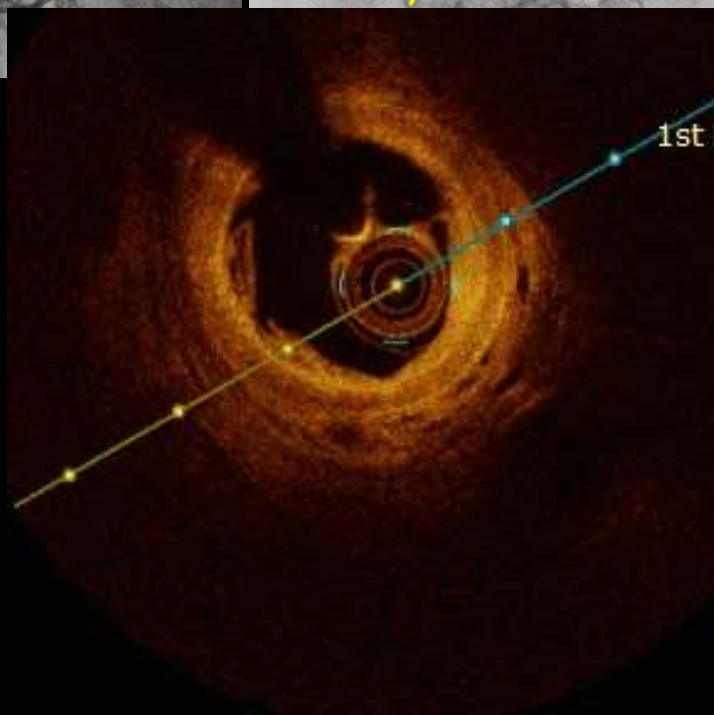
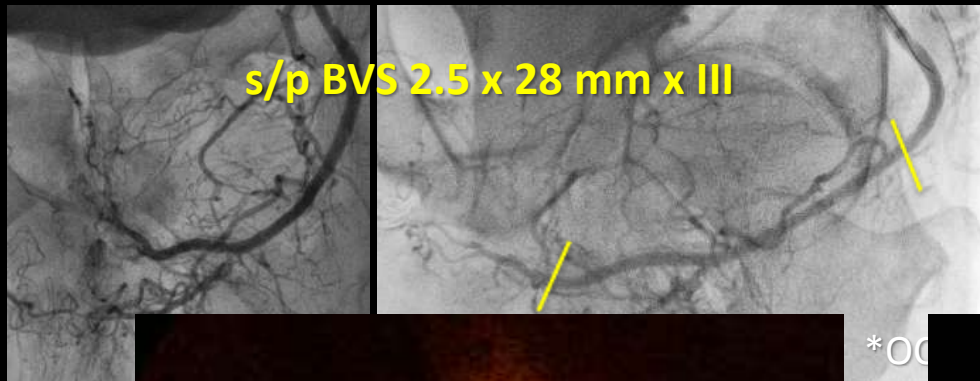
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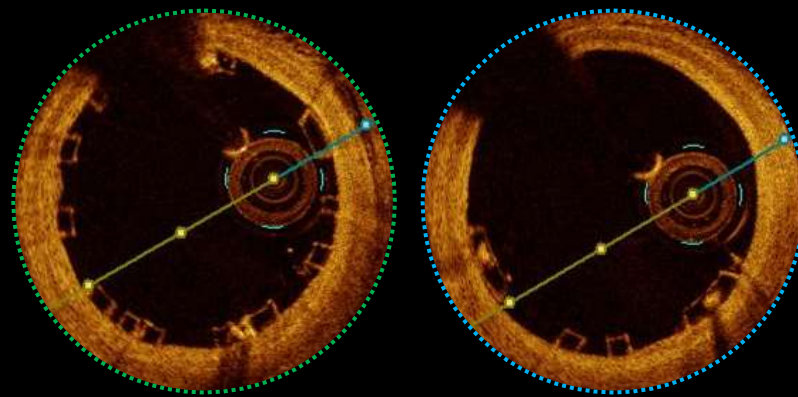
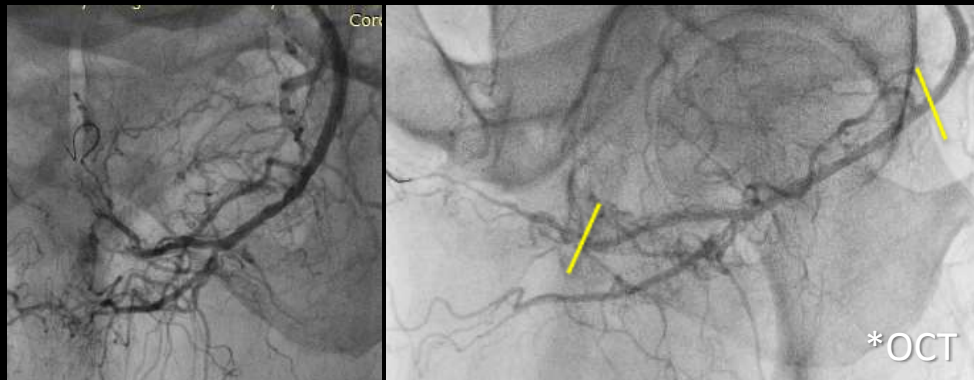
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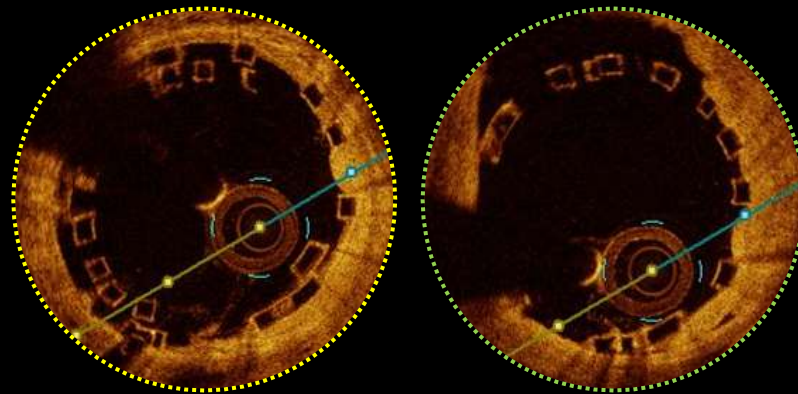
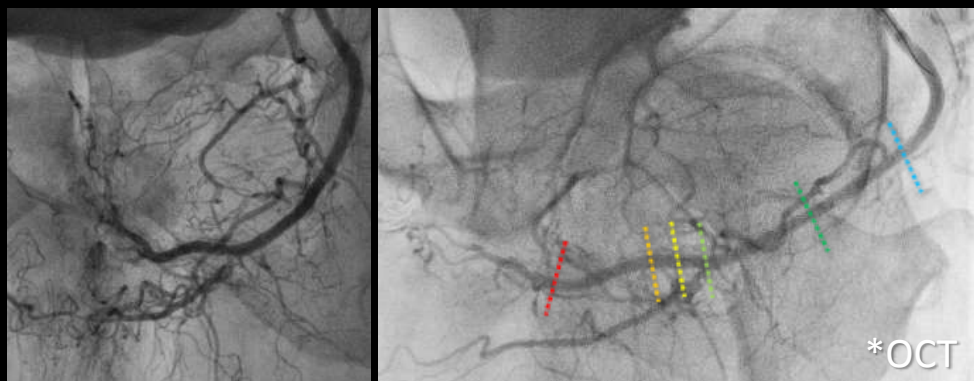
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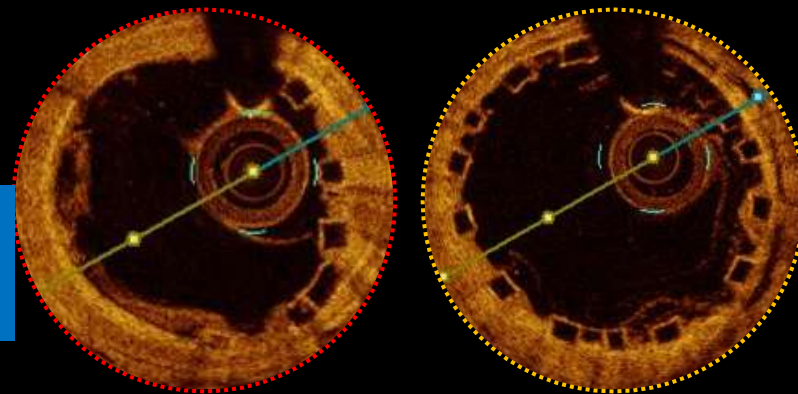


s/p BVS 2.5 x 28 mm x III

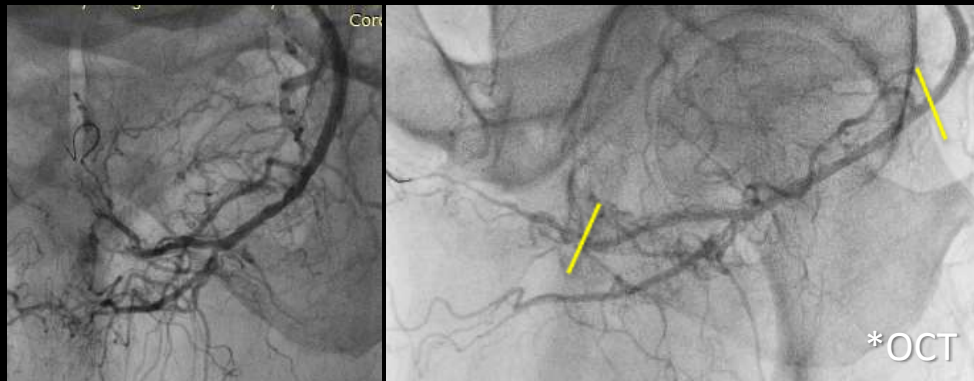


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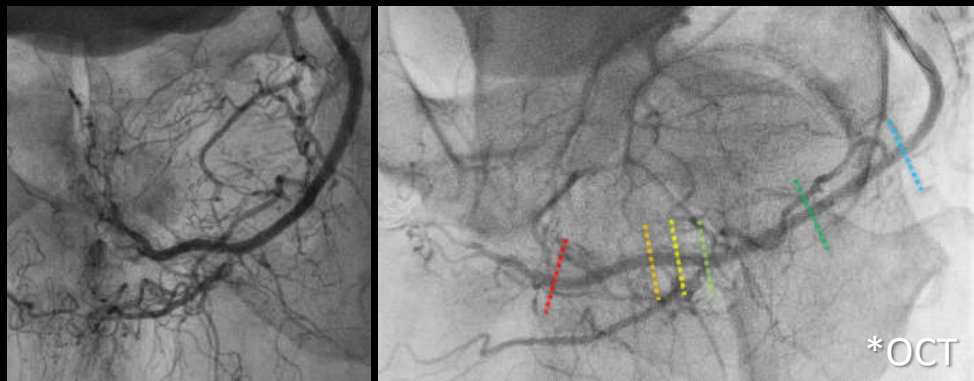
IIEF-5: 5 (pre) → 18 (1-mo) → 18 (3-mo) → 17 (6-mo) → **7 (12-mo)**
→ re-PTAS w/ BVS+OCT → **19 (1-mo)** → 19 (3-mo) → 19 (6-mo) → **14 (14-mo)**...



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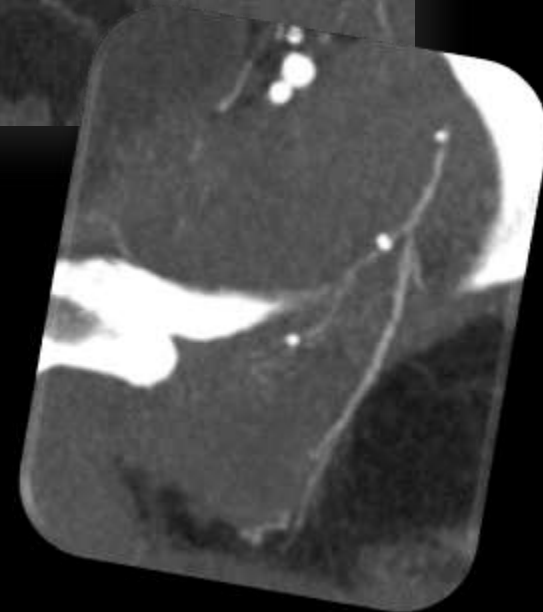
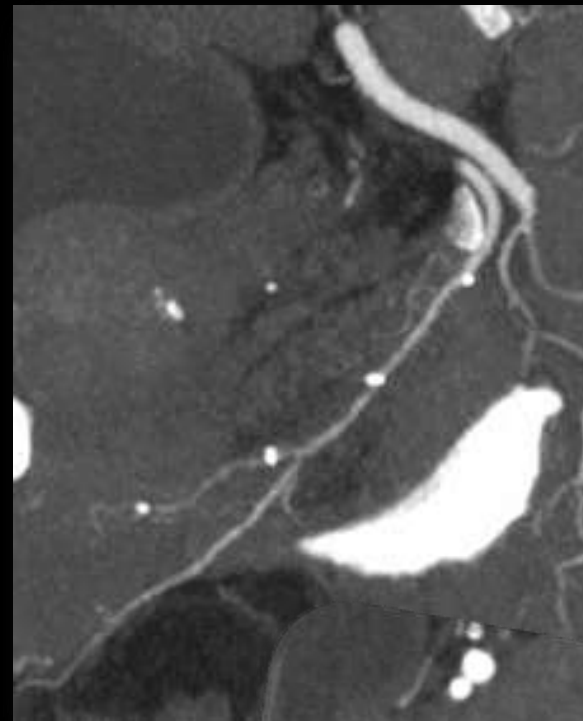


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Aug-18-2017



Take-Home Messages

- In the real-world PERFECT registry, we demonstrated the feasibility and efficacy of “complete” pelvic arterial endovascular revascularization in the amelioration of ED and LUTS
- The low restenosis rate (<4%) for lesions located in the proximal internal pudendal and iliac arteries and the >80% sustained clinical success rate in patients not developing restenosis are encouraging
- However, for lesions located in the distal internal pudendal and penile arteries, the 30-40% restenosis rate remains a hurdle to be surpassed