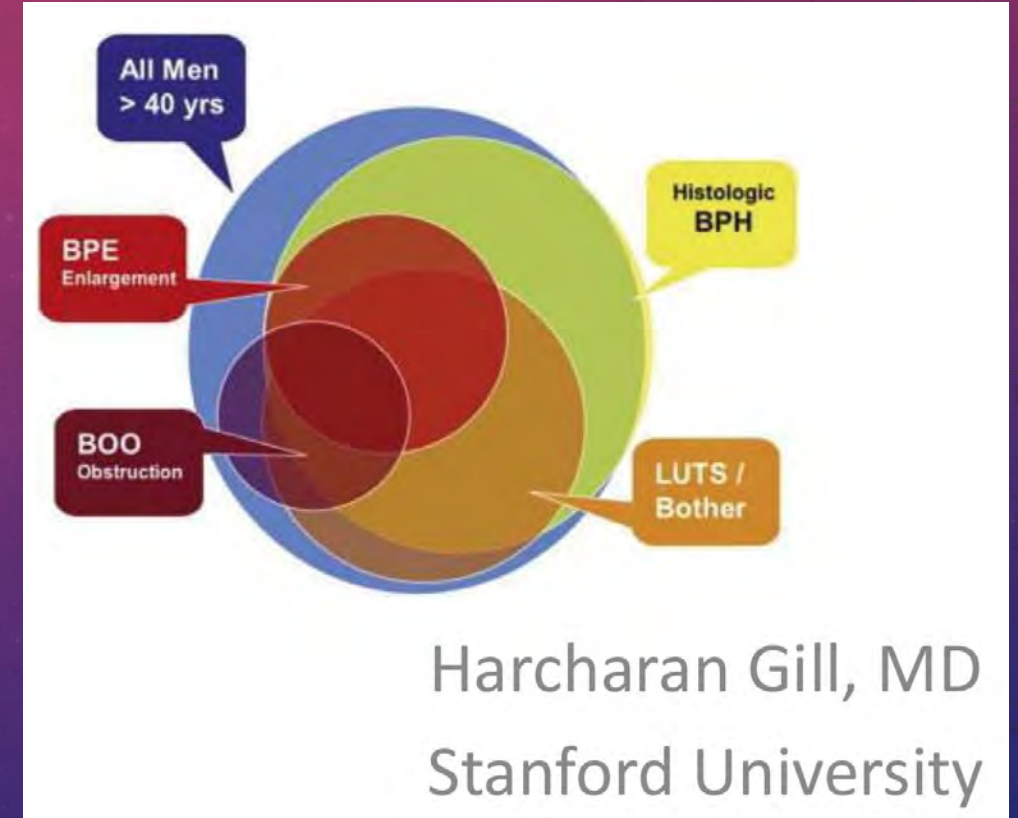
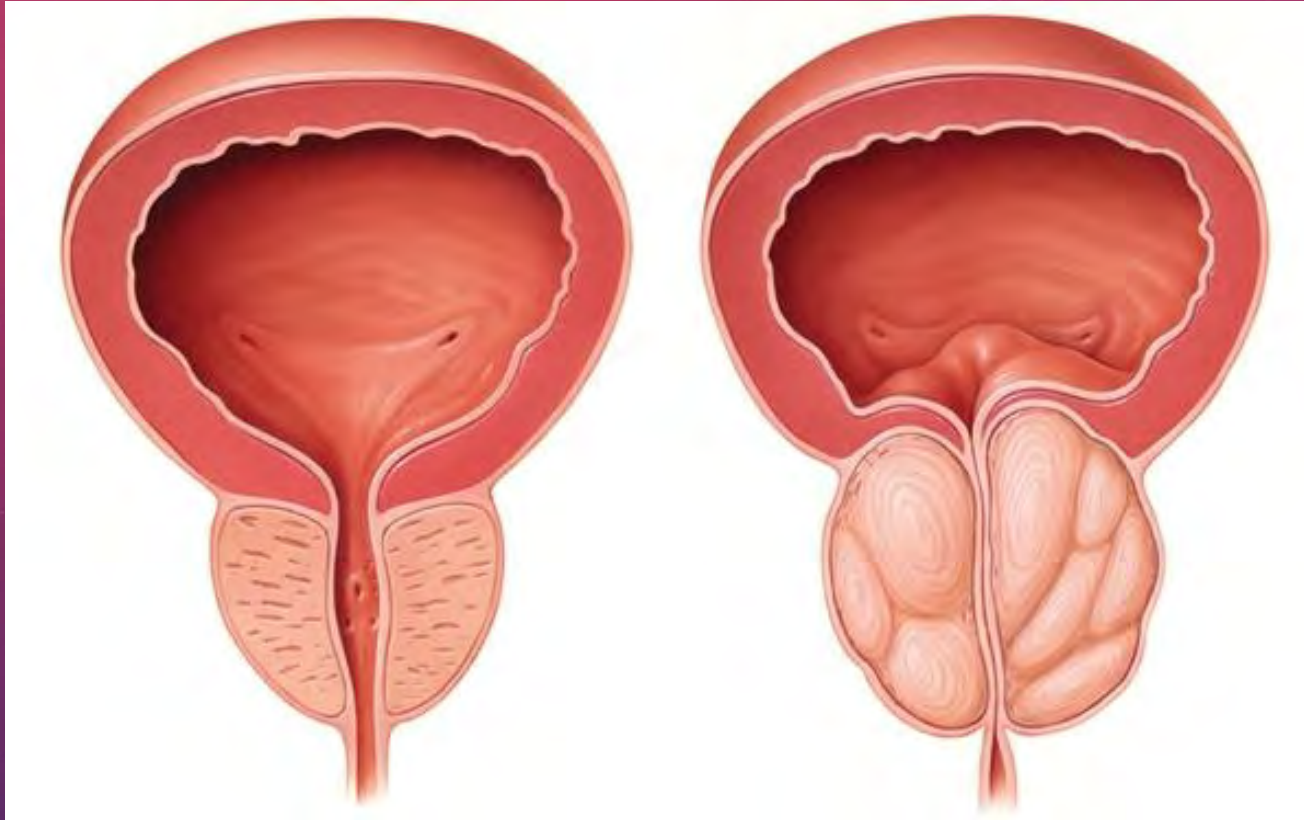




(PAE) EMBOLISATION DES ARTÈRES PROSTATIQUES

Tsepenshchikov L., Constantin C.

HBP

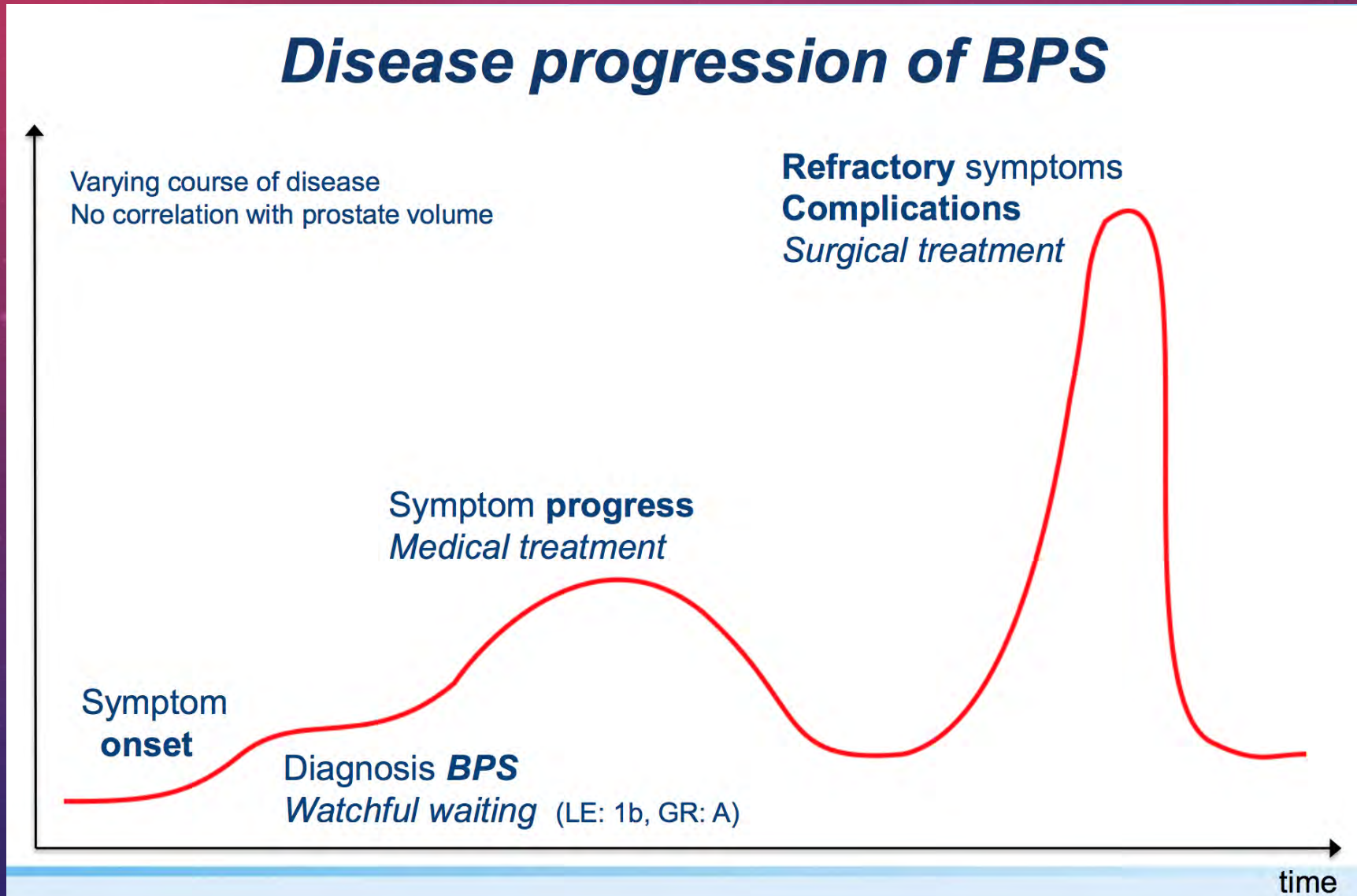


L'hypertrophie bénigne de prostate extrêmement fréquente

46 % chez les plus de 60 ans (Urology. 2002 Jun;59(6):877-83.)

LUTS (symptômes du bas appareil urinaire)

Traitement médicamenteux:



Traitement chirurgical:



TURP



Prostatectomie



CSP

Saignement de la prostate:

- From 1976-1990, multiple case reports/series described non-selective embolization to treat hematuria of prostatic origin
 - Control of massive prostatic bleeding with angiographic techniques. *Mitchell et al. J Urology 1976*
 - Successful intra-arterial embolization of bleeding carcinoma of the prostate. *Bischoff. Urologe 1977*
 - Therapeutic occlusion of hypogastric arteries with cyanoacrylate in vesical and prostatic cancer. *Nadalini et al Radiol Med (Torino) 1981*
 - Internal Iliac Artery Embolisation for the Control of Severe Bladder and Prostate Haemorrhage. *Appleton et al. BJUI 1988*
 - Internal iliac artery embolization for the control of severe bladder and prostate haemorrhage. *Li. Chinese Journal of Surgery 1990*

2000 JVIR - première publication

Case Report

Relief of Benign Prostatic Hyperplasia-related Bladder Outlet Obstruction after Transarterial Polyvinyl Alcohol Prostate Embolization¹

John S. DeMeritt, MD
Fakhir F. Elmasri, MD
Michael P. Esposito, MD
Gene S. Rosenberg, MD

Index terms: Prostate, hypertrophy
• Prostate, therapeutic radiology

JVIR 2000; 11:767-770

THE standard management of benign prostatic hyperplasia (BPH) is based on overall patient health and the severity of symptoms. Voiding difficulties attributable to BPH can be quantified with the International Prostatic Symptom Score, a questionnaire consisting of seven symptom categories, with a range of increasingly severe symptom scores from 0 through 35. The score is based on the severity of each of the

CASE HISTORY

A 76-year-old man with a history of moderately symptomatic BPH, treated with oral α -adrenergic blocker therapy, developed acute urinary retention. He was then admitted to the urology service and treated with transurethral catheter drainage for 2 weeks, and finasteride (5- α reductase inhibitor)

Article types

Clinical Trial

Review

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Abstract

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Publication dates

5 years

10 years

Custom range...

Species

Humans

Other Animals

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Best matches for prostatic embolization:

[Meta-Analysis of Prostatic Artery Embolization for Benign Prostatic Hyperplasia.](#)

Uflacker A et al. J Vasc Interv Radiol. (2016)

[A Systematic Review of Prostatic Artery Embolization in the Treatment of Symptomatic Benign Prostatic Hyperplasia.](#)

Kuang M et al. Cardiovasc Intervent Radiol. (2017)

[A Review of Adverse Events Related to Prostatic Artery Embolization for Treatment of Bladder Outlet Obstruction Due to BPH.](#)

Moreira AM et al. Cardiovasc Intervent Radiol. (2017)

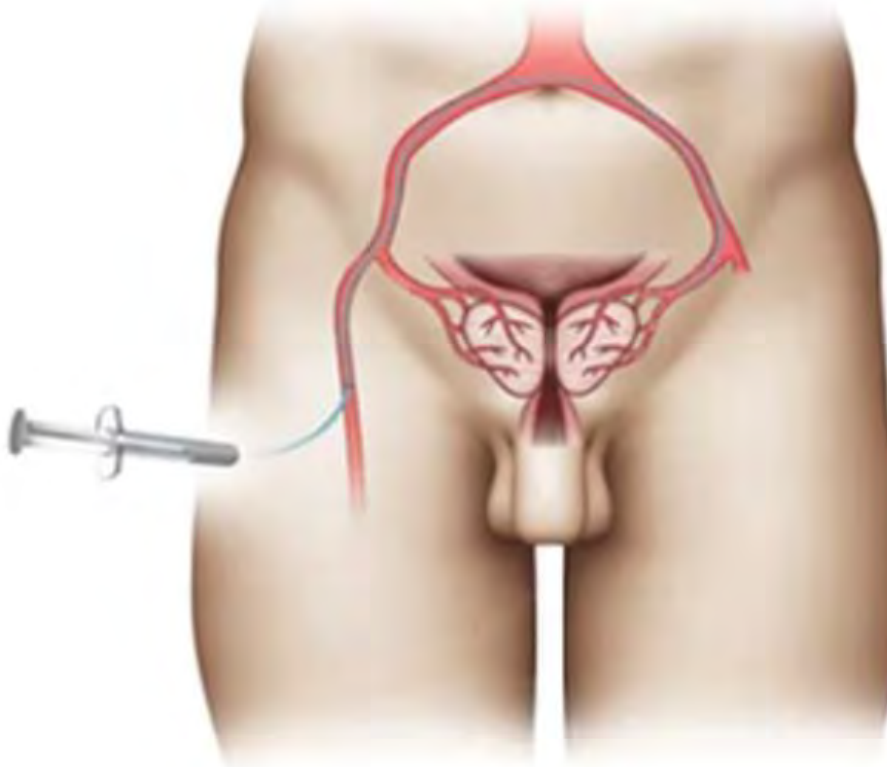
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Search results

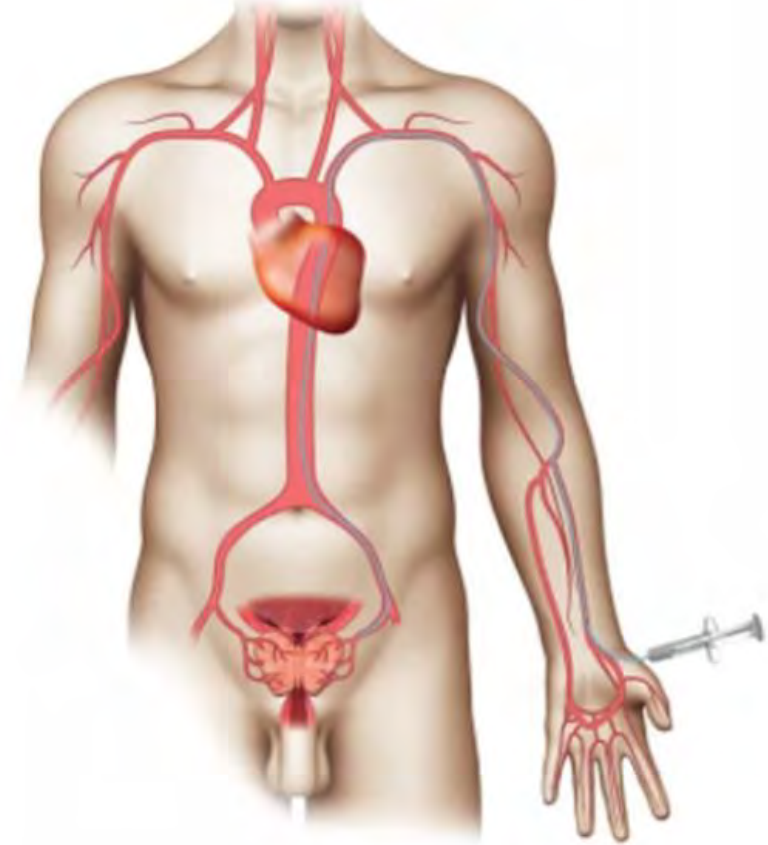
Items: 1 to 20 of 399

<< First < Prev Page 1 of 20 Next > Last >>

Comment se déroule PAE



Abord artériel fémoral

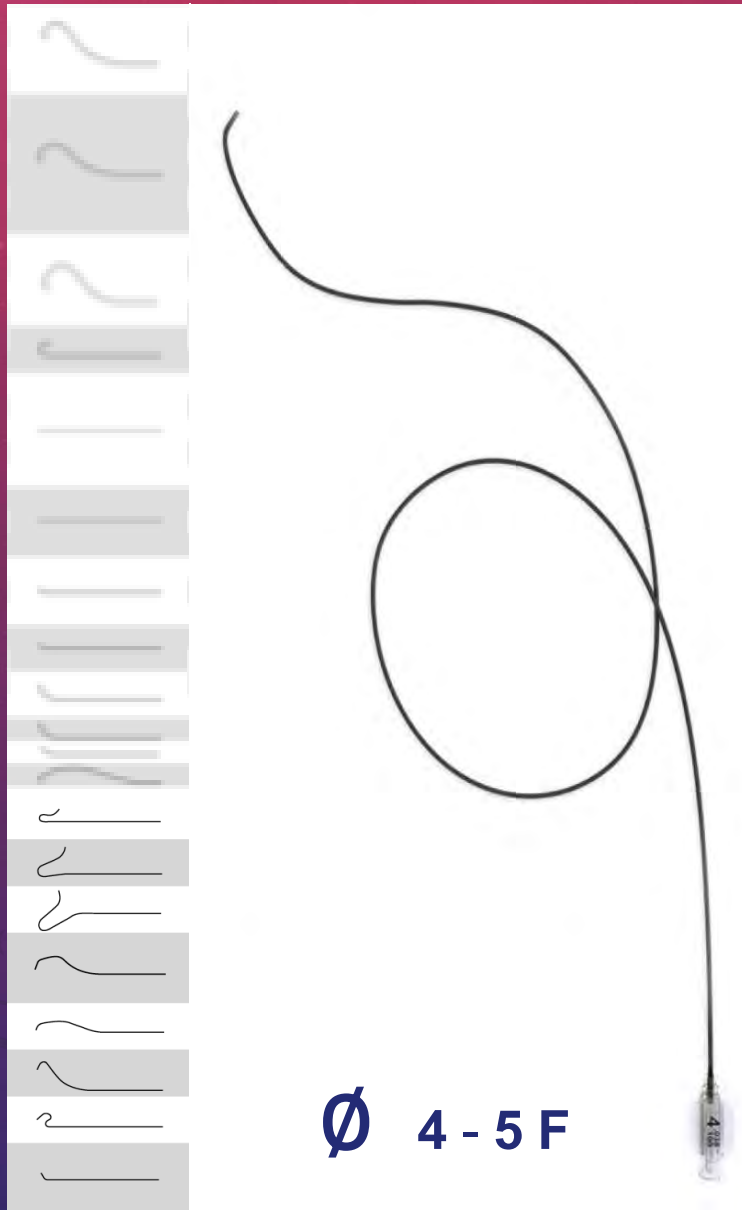


Abord artériel radial

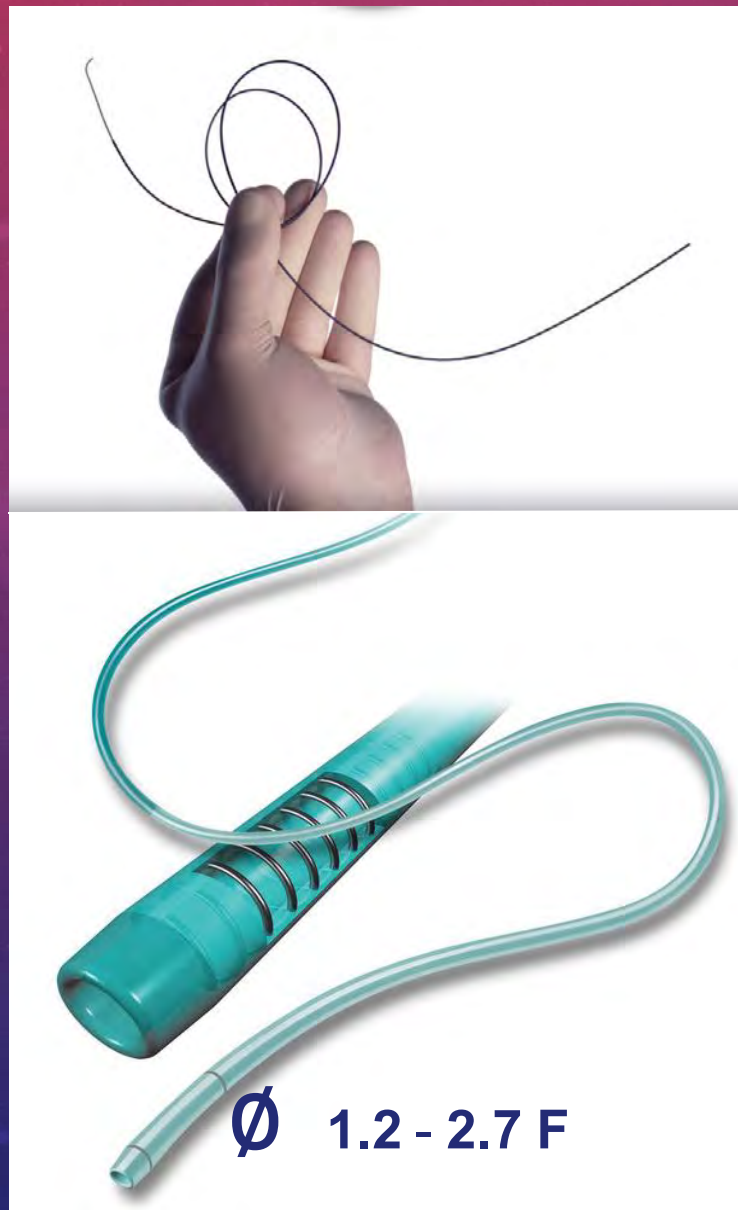


Charles Bushe

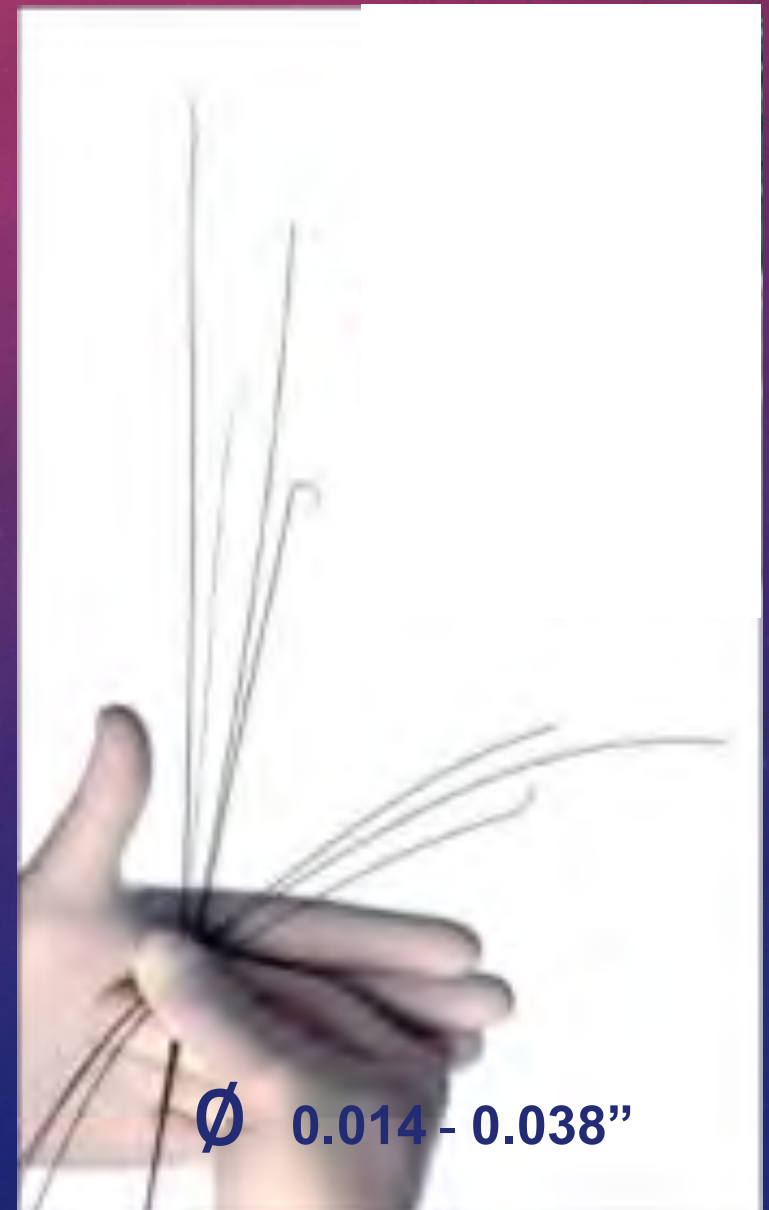
catheters

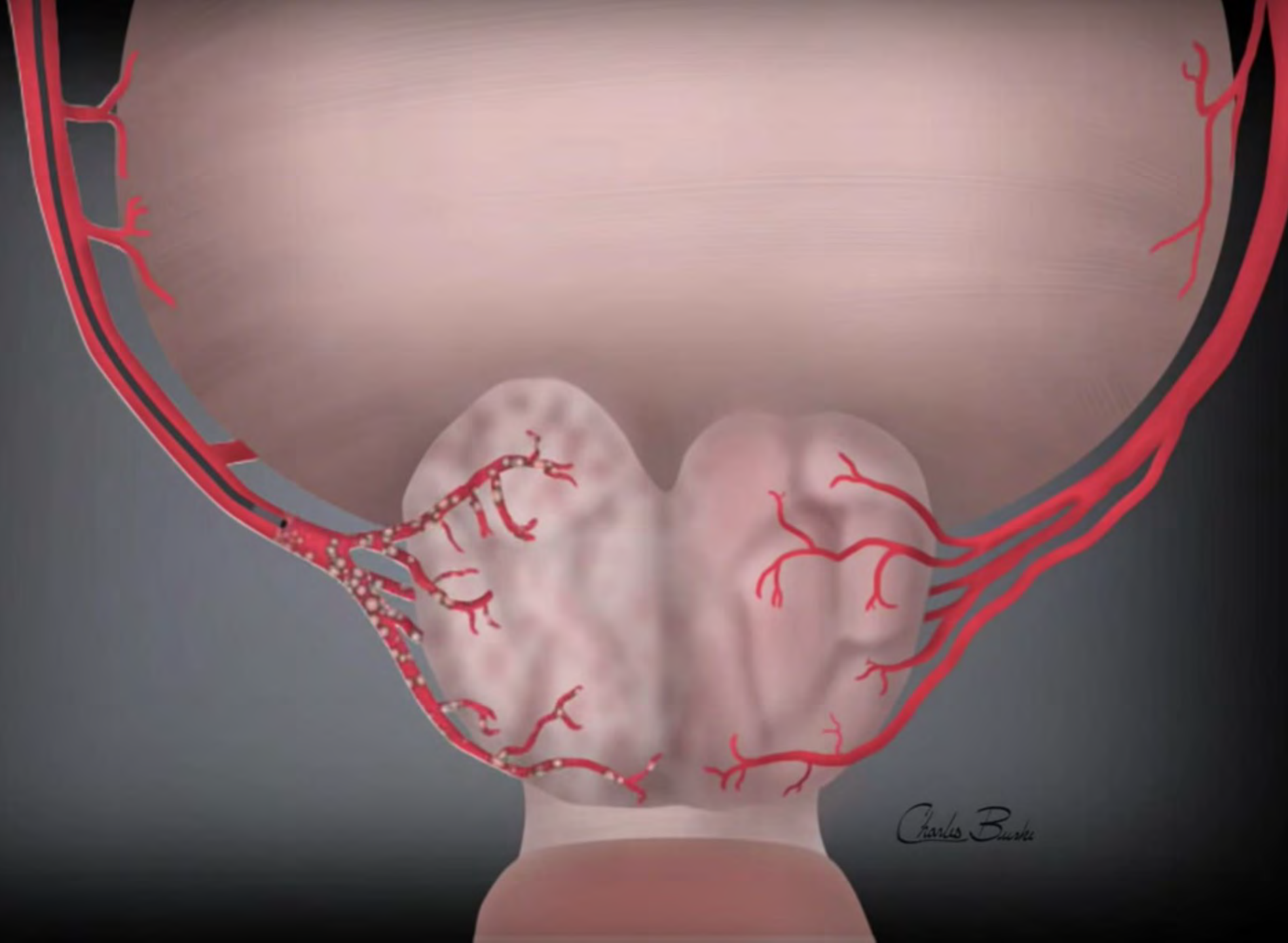


microcatheters



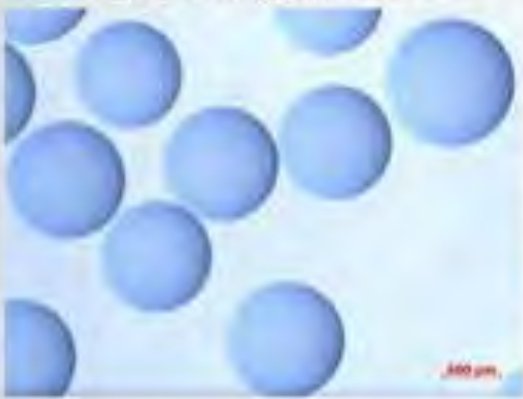
guide
wires





Charles Buske

10 x Optical Magnification



BeadBlock

10 x Optical Magnification



Contour SE

10 x Optical Magnification



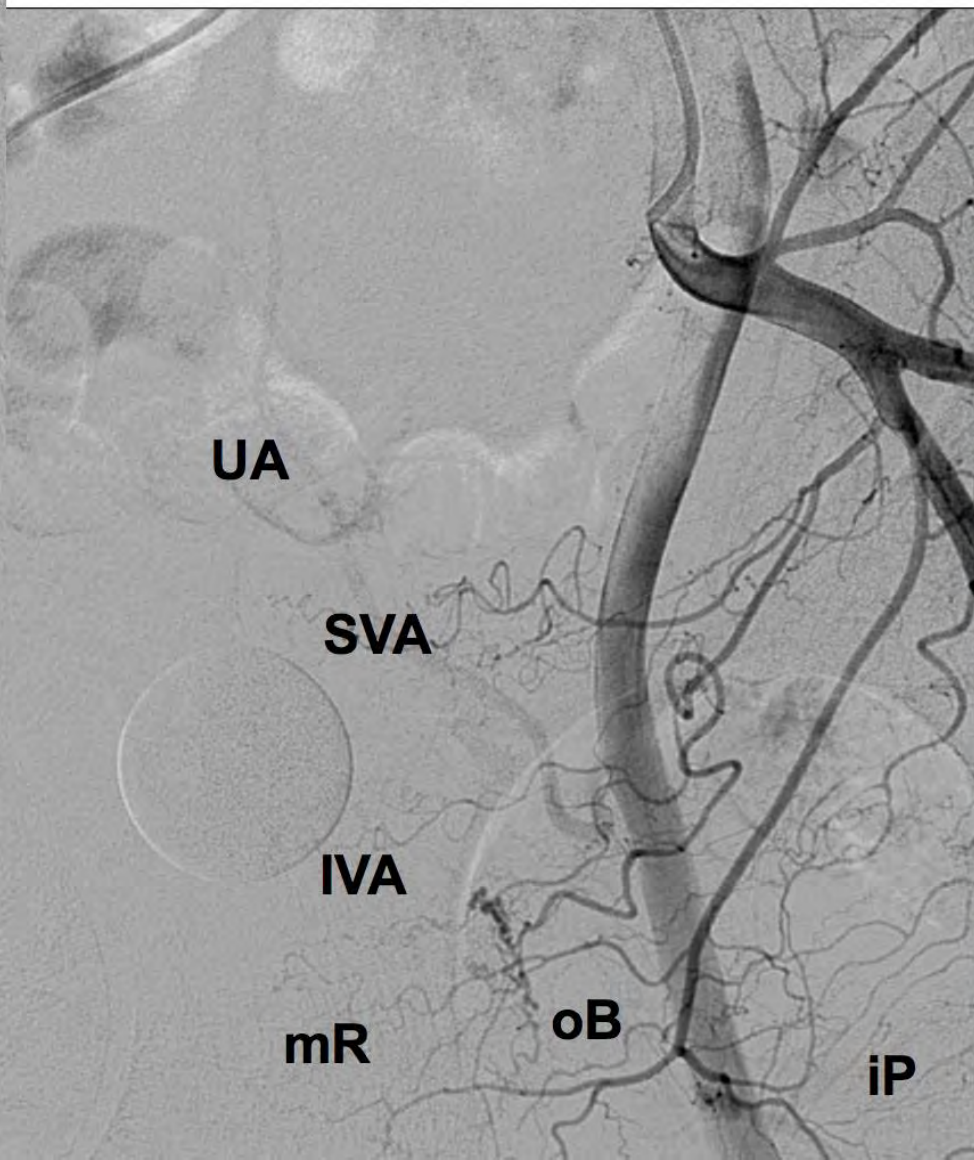
Embosphere

10 x Optical Magnification



Contour (irreg. PVA)



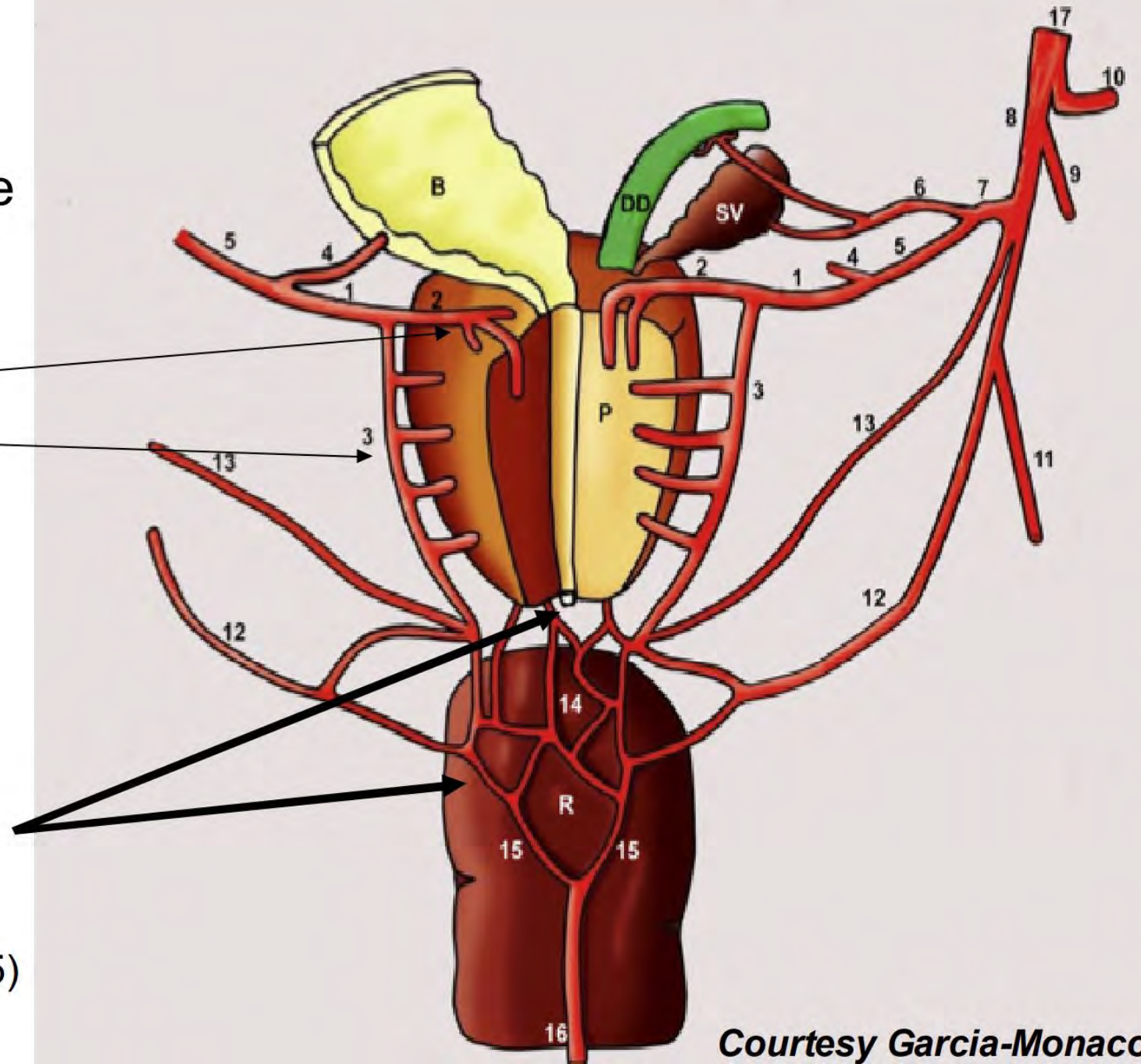


UA- umbilical artery
SVA- superior vesical artery
IVA- Inferior vesical artery
mR- medial retal artery
oB- Obturator
iP- internal pudendal artery

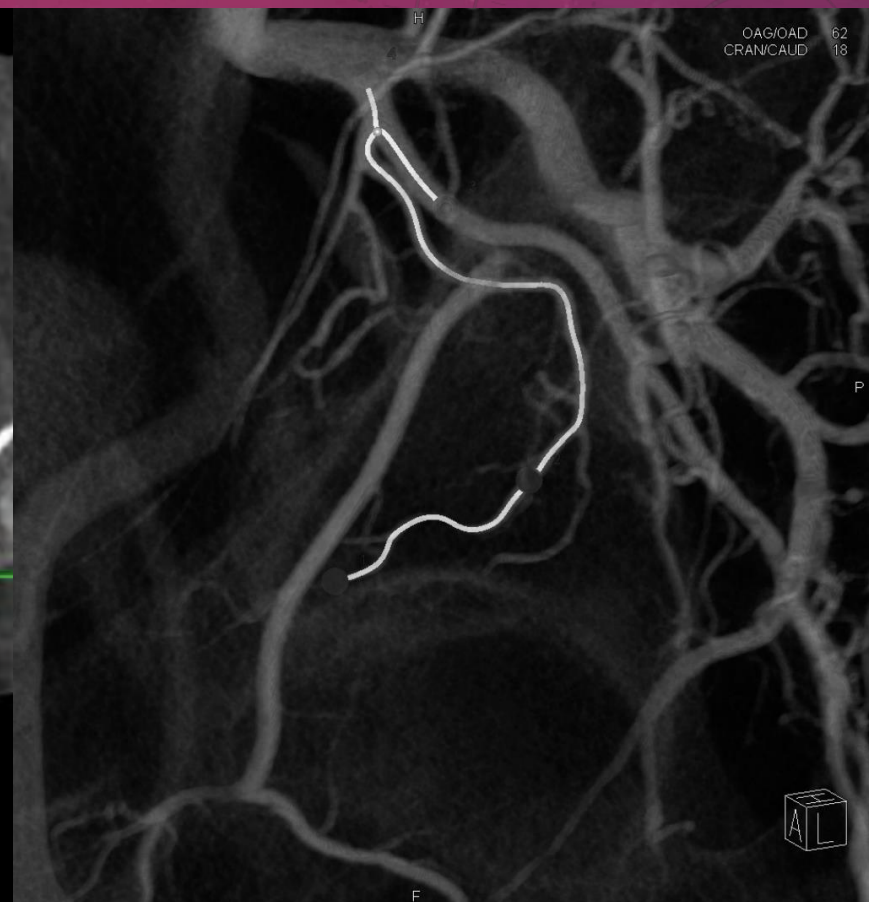
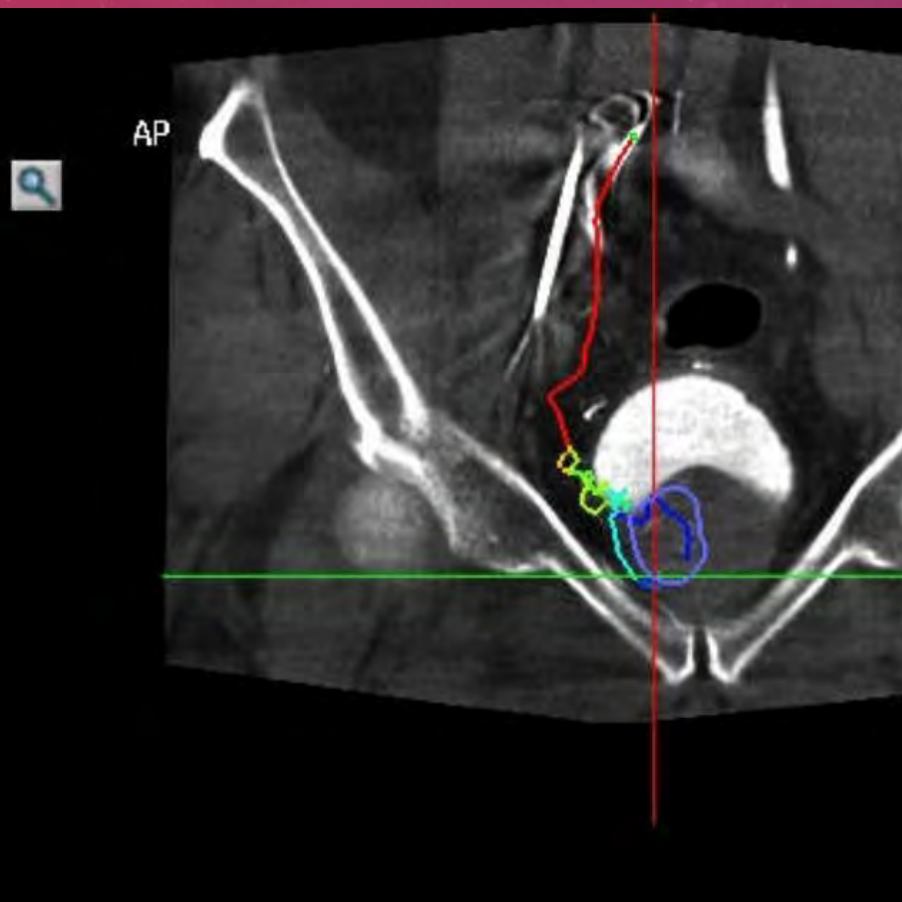
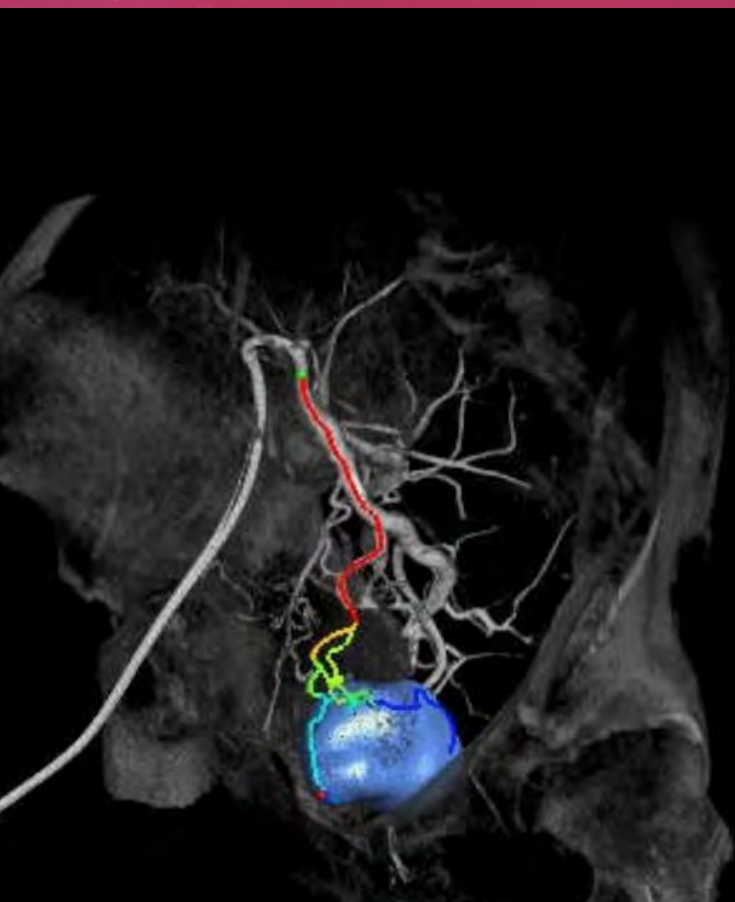
Pédicule Supérieur: L'artère Prostatique (AP):

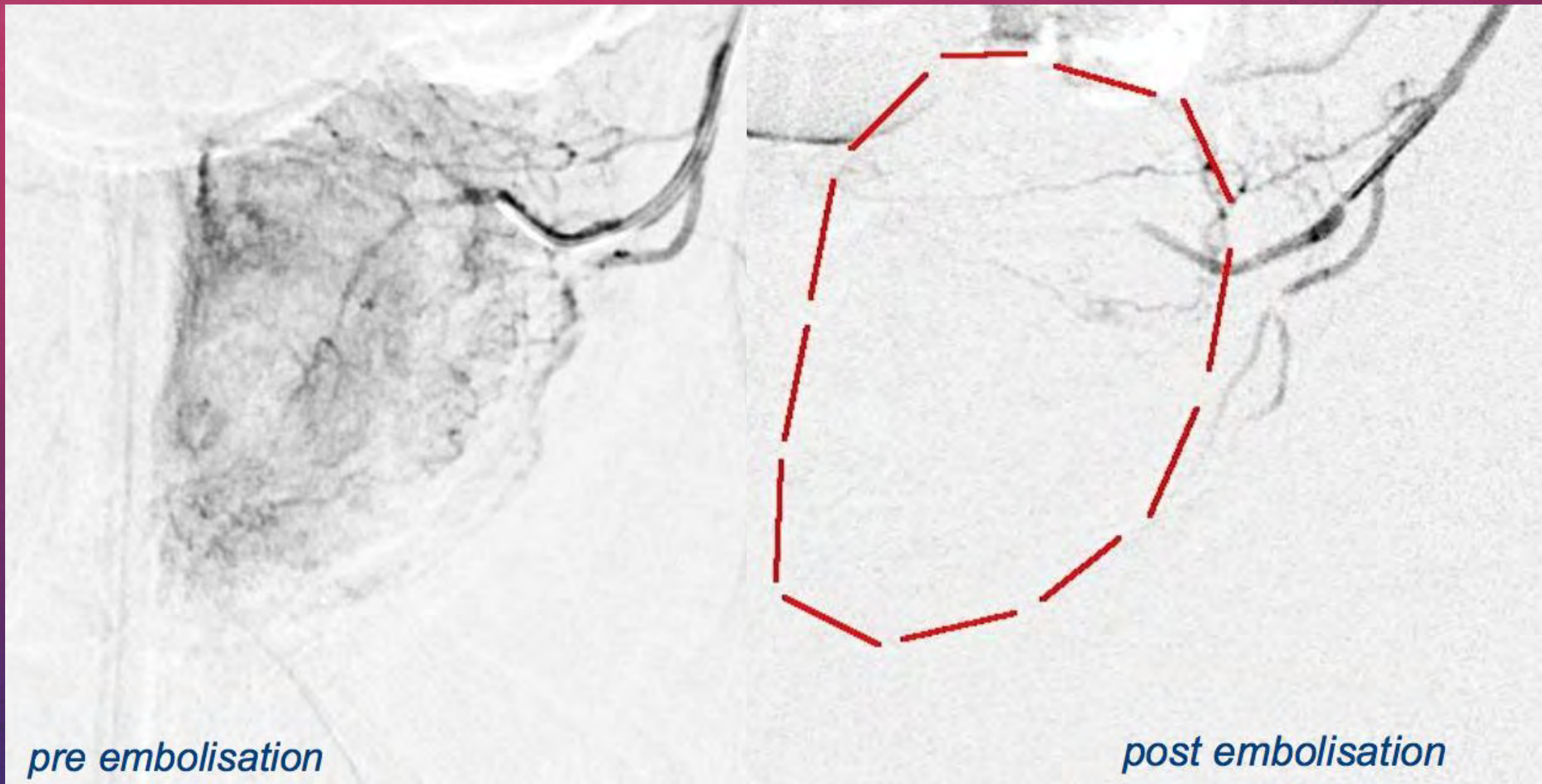
- Branche médiale
- Branche latérale

Pédicule inférieur: plexus anastomotique (14):
Pudendal +++ (12) , rectal ++ (15)

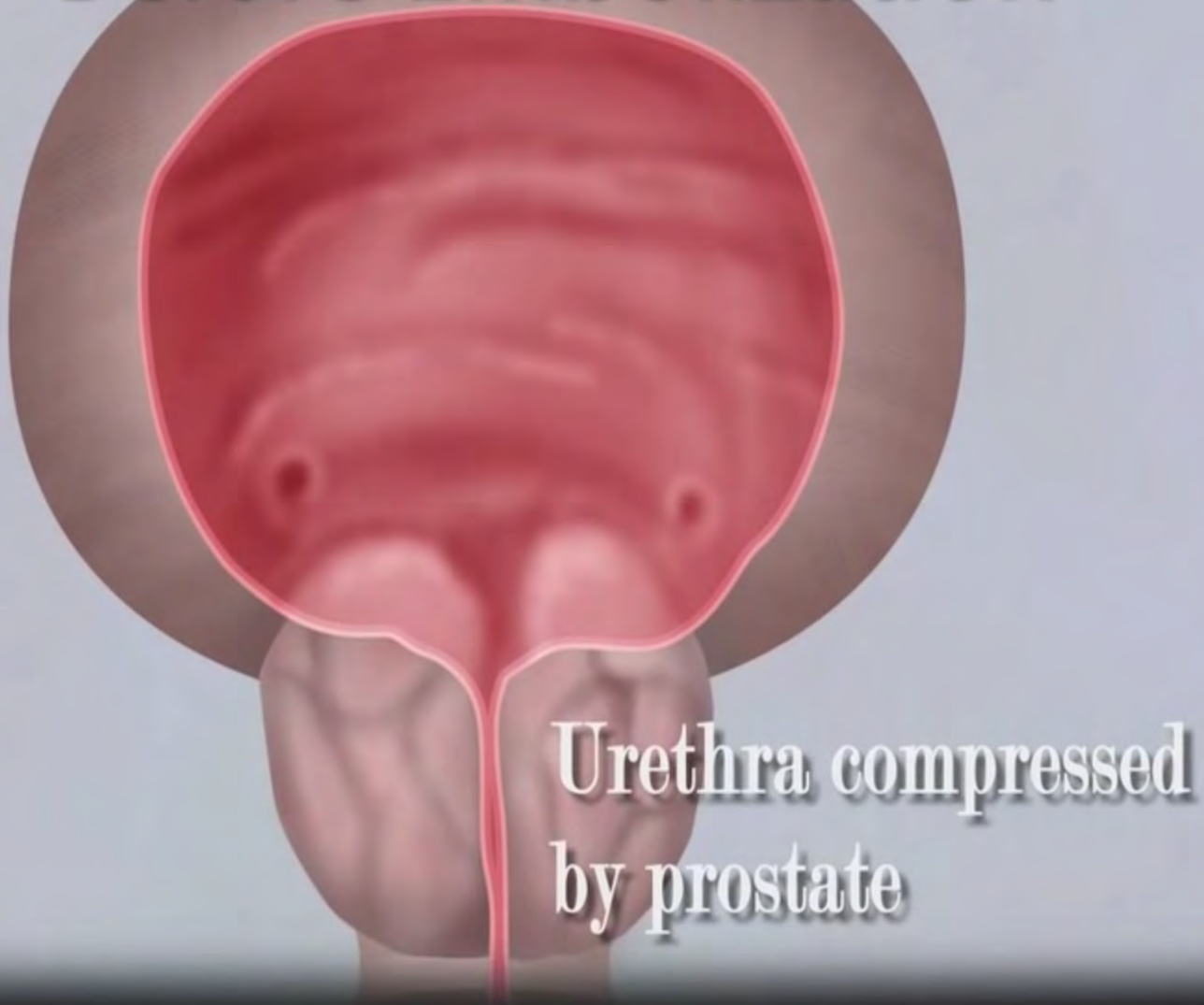


Courtesy Garcia-Monaco





Before Embolization



After Embolization

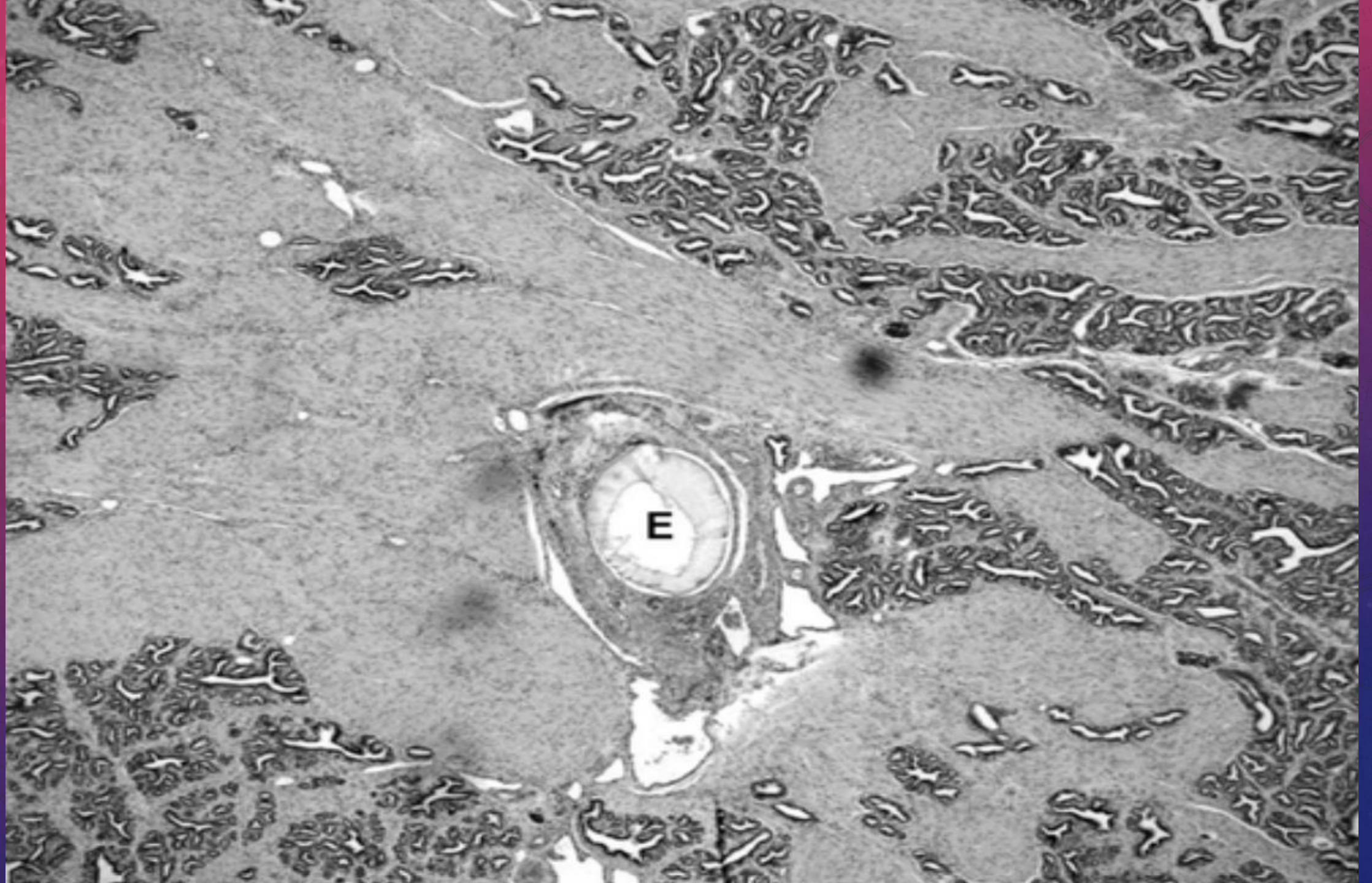


Comment PAE fonctionne?



Comment PAE fonctionne?

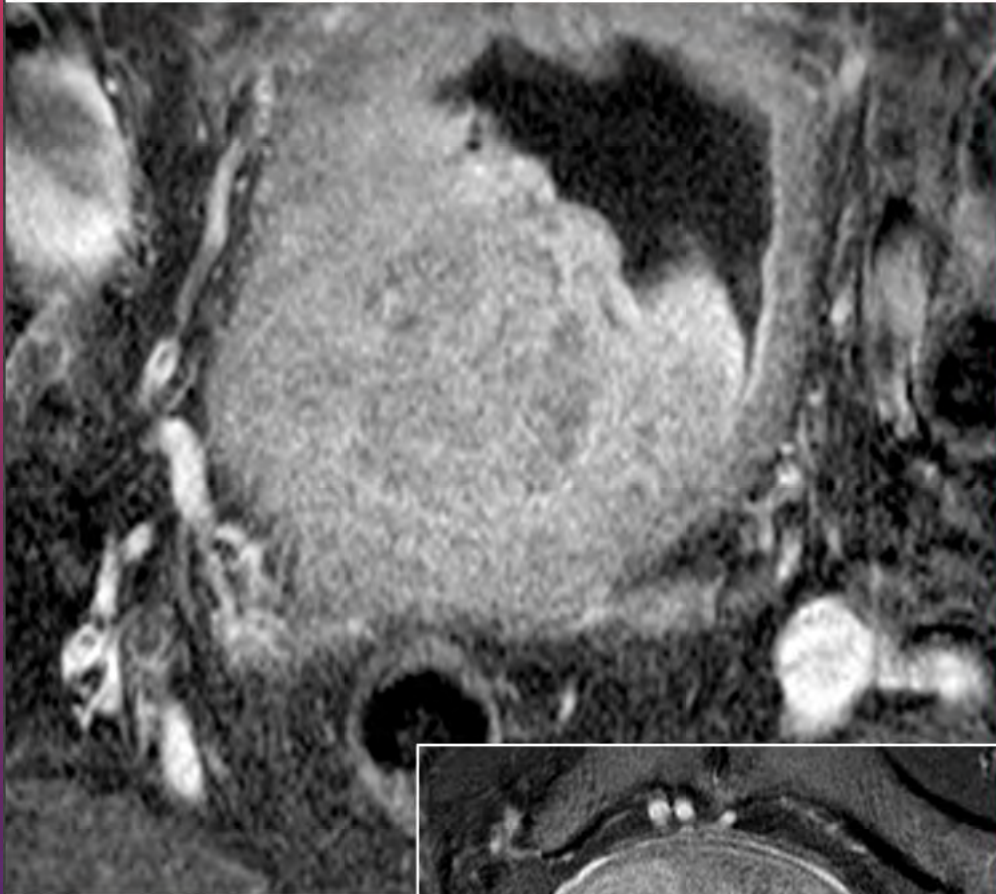
- L'infarctus immédiat de la glande centrale entraîne une diminution globale du volume et un ramollissement.
- Dénervation alpha-adrénergique
- Une fibrose retardée entraîne une diminution supplémentaire du volume



Transarterial prostatic embolization: initial experience in a canine model.

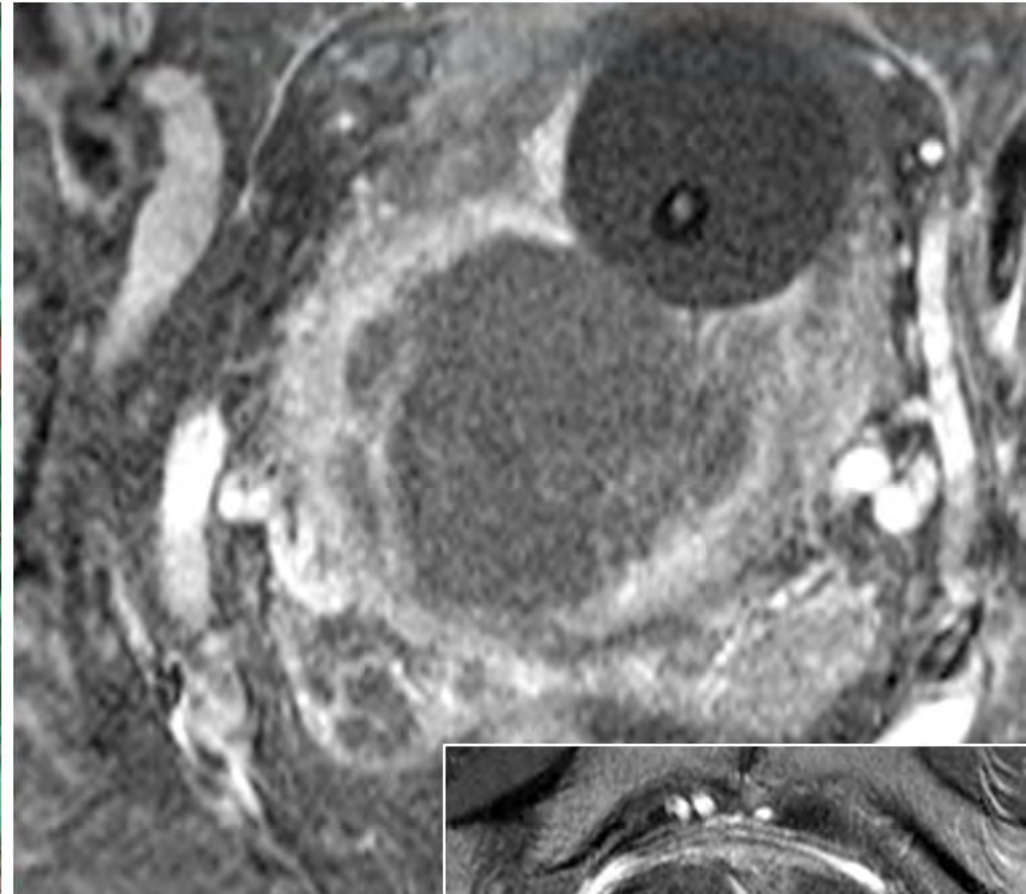
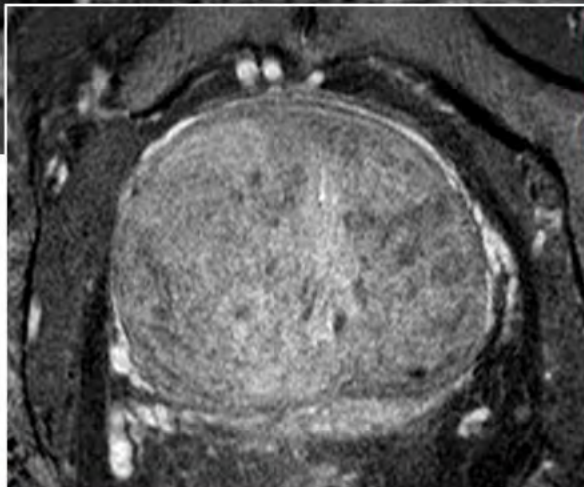
Sun F¹, Sánchez FM, Crisóstomo V, Díaz-Güemes I, López-Sánchez C, Usón J, Maynar M.





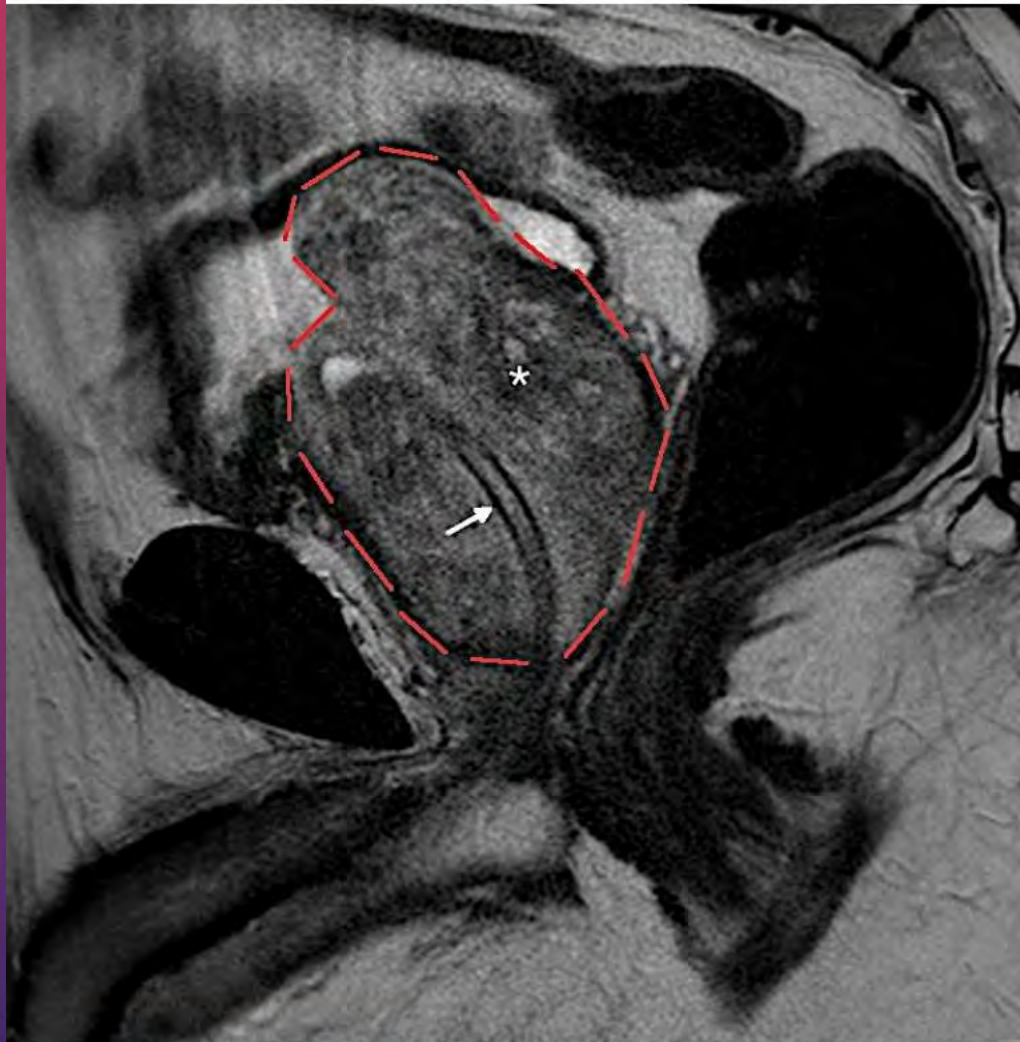
CE-MRI

pre embolisation

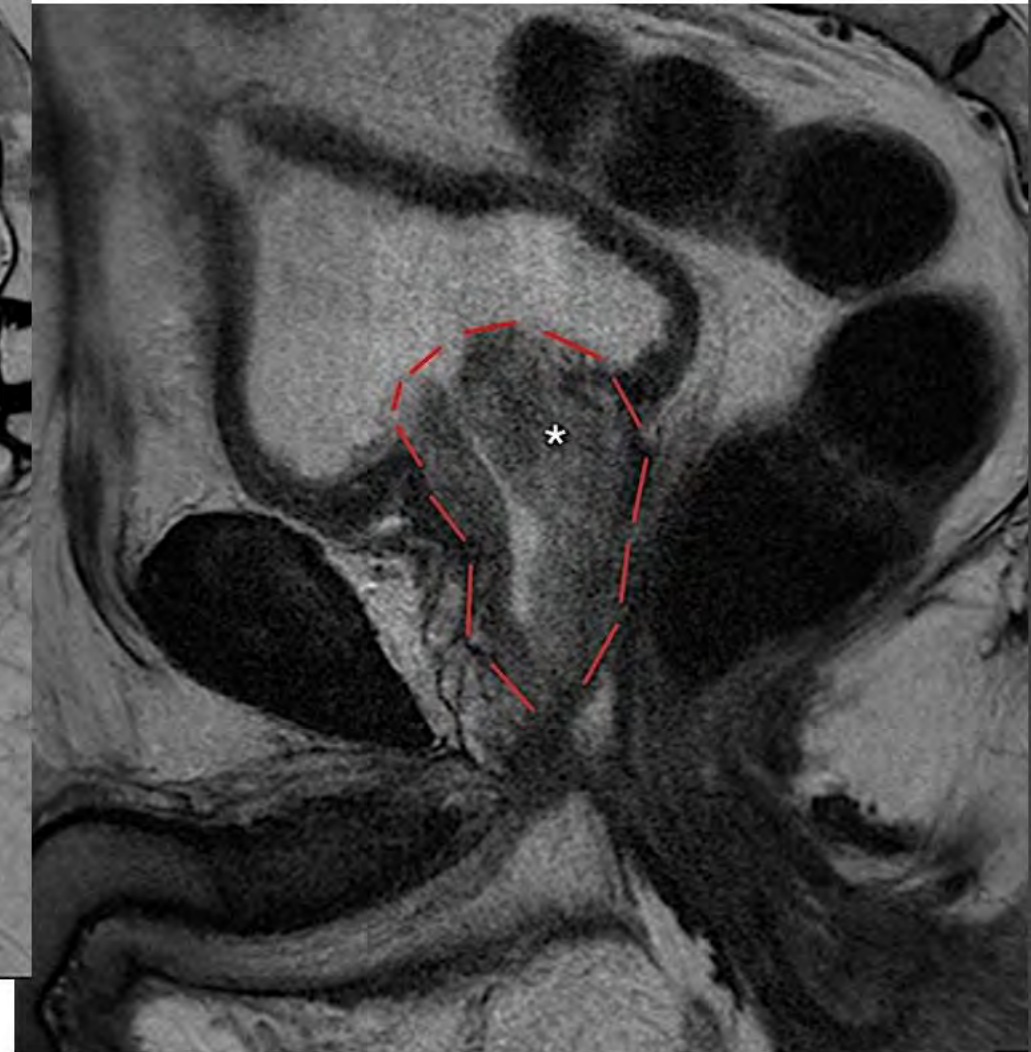


Post embolisation 1 d





pre embolisation



follow-up 3 months

COMPLICATIONS:

- Syndrome post-embolisation
- Douleur, brûlure de l'urètre, pollakiurie
- Hématurie/Hematospermie (traces)
- Rectorragies (traces)
- Hématome post-ponction

traitement symptomatique

COMPLICATIONS:

Non-target Embolisation




[CardioVascular and Interventional Radiology](#)

October 2017, Volume 40, [Issue 10](#), pp 1490–1500

A Review of Adverse Events Related to Prostatic Artery Embolization for Treatment of Bladder Outlet Obstruction Due to BPH

[Authors](#)

[Authors and affiliations](#)

Airton Mota Moreira , André Moreira de Assis, Francisco Cesar Carnevale, Alberto Azoubel Antunes, Miguel Srougi, Giovanni Guido Cerri

Rectum

Penis

Bladder

Seminal
Vesical



Meta-Analysis of Prostatic Artery Embolization for Benign Prostatic Hyperplasia

Andre Uflacker, MD, Ziv J Haskal, MD, Tiago Bilhim, MD, James Patrie, MS,
Timothy Huber, MD, and João Martins Pisco, MD

Table 5. Adverse Events (5,8,11-17)

Event	Pisco et al (5)	Carnevale et al (11)	Bagla et al (8)	Gao et al (12)	Kurbatov et al (13)	Wang et al (14)	Grosso et al (17)	de Assis et al (15)	Li et al (16)	Totals
No. of patients	250	12	78	57	88	109	12	34	22	662
Class F complications	0	0	0	0	0	0	0	0	0	0
Death	0	0	0	0	0	0	0	0	0	0
Class E complications										0
Permanent adverse sequelae	0	0	0	0	0	0	0	0	0	0
Class D complications										0
Major therapy, > 48 h hospital stay	0	0	0	0	0	0	0	0	0	0
Class C complications										0
Severe urinary tract infection	0	0	0	0	0	0	0	1	0	1 (0.15)
Bladder ischemia requiring intervention	1	0	0	0	0	0	0	0	0	1 (0.15)
Class B complications										0
Bladder ischemia	0	1	0	0	0	0	0	0	0	1 (0.15)
Acute transient urinary retention	0	0	0	14	0	31	0	0	7	52 (7.85)
Mild urinary tract infection	19	0	1	1	0	0	0	0	0	21 (3.17)
Inguinal hematoma	0	1	1	0	0	3	0	0	0	5 (0.76)
Arterial dissection	0	1	0	0	0	0	0	0	0	1 (0.15)
Radiation dermatitis	0	0	0	0	0	0	0	0	0	0
Class A complications										
Rectalgia and/or dysuria	23	9	0	1	0	19	0	0	8	60 (9.06)
Transient hematuria	14	1	0	0	0	11	0	0	3	29 (4.38)
Transient hematospermia	10	0	0	0	1	9	0	2	2	24 (3.63)
Transient rectorrhagia	6	1	0	0	0	8	0	2	3	20 (3.02)
Diarrhea	0	2	0	0	0	0	0	1	0	3 (0.45)
Total events	—	—	—	—	—	—	—	—	—	218 (32.93)

2 complications majeures sur 662 patients (0,3%)

PAE - Sélection de patients

Mauvais candidats PAE

- Pathologie cancéreuse sous-jacente
- Débit de Filtration Glomérulaire <45
- Vasculopathie / athérosclérose sévère
- Faible force du détrusor sur l'urodynamique
- Petites prostates (30-40g) avec lobe médian

PAE - Sélection de patients

Bon candidats PAE

- Grand volume prostatique (>80ml)
- Désir de préserver la fonction sexuelle
- Coagulopathie ou anticoagulation
- Comorbidités chirurgicales
- Patients qui refusent toute procédure transurétérale

✓ *International Prostate Symptom Score IPSS ≥ 8*

✓ *Quality of Life QoL ≥ 3*

✓ *Urinary flow $Q_{max} < 12$ ml/s or urinary retention*

RCT – F.Carnevale, 2016

Cardiovasc Intervent Radiol (2016) 39:44–52
DOI 10.1007/s00270-015-1202-4



CrossMark

CLINICAL INVESTIGATION

ARTERIAL INTERVENTIONS

Transurethral Resection of the Prostate (TURP) Versus Original and PErFecTED Prostate Artery Embolization (PAE) Due to Benign Prostatic Hyperplasia (BPH): Preliminary Results of a Single Center, Prospective, Urodynamic-Controlled Analysis

Francisco C. Carnevale^{1,3} · Alexandre Iscaife² · Eduardo M. Yoshinaga² ·
Airton Mota Moreira¹ · Alberto A. Antunes² · Miguel Srougi²

Received: 18 June 2015 / Accepted: 9 August 2015 / Published online: 27 October 2015

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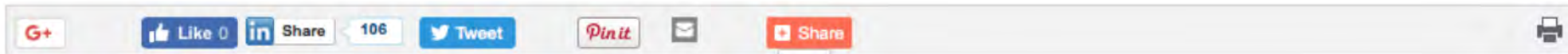
RCT – F.Carnevale, 2016

- 30 patients: 15 TURP ou PAE chacun
- Volume 50-90cc
- Les deux ont présenté des améliorations significatives cliniquement
- Moins de complications avec PAE
- Meilleur IPSS, QoL avec TURP

Approbation de la FDA juin 2017



Merit Medical's Embosphere® Microspheres Receive FDA 513(f)(2) (de novo) Classification for Prostatic Artery Embolization Indication



June 22, 2017 09:29 ET | Source: Merit Medical Systems, Inc.

SOUTH JORDAN, Utah, June 22, 2017 (GLOBE NEWSWIRE) -- Merit Medical Systems, Inc. (NASDAQ:[MMSI](#)), a leading manufacturer and marketer of proprietary disposable devices used in interventional, diagnostic and therapeutic procedures, particularly in cardiology, radiology and endoscopy, today announced that it has received 513(f)(2) (de novo) classification from the FDA to expand indication for Merit's Embosphere® Microspheres. The indication now includes prostatic artery embolization (PAE) for symptomatic benign prostatic hyperplasia (BPH).

Profile

Merit Medical Systems, Inc.

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2017 SIR – 1000 patients

■ ABSTRACT OF THE YEAR

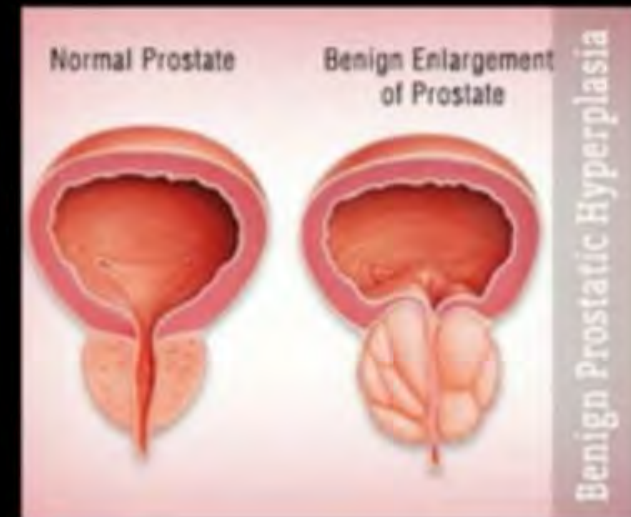
Short-, medium-, and long-term outcome of prostate artery embolization for patients with benign prostatic hyperplasia: 1000 patients

J. Pisco¹, T. Bilhim¹, M. Ribeiro¹, L. Fernandes²,
N. Costa³, A. Oliveira¹; ¹N/A, Lisbon, Portugal; ²N/A,
Lisboa, Portugal; ³Hospital Saint Louis, Lisboa,
Portugal

Presented at SIR 2017

PAE on 1,000 Patients (refractory to or refusing medications)

- Short term (up to 6 months): 89% clinical success
- Medium term (6 mo – 3 yrs): 82% clinical success
- Long term (3 yrs +): 78% clinical success



St Gallen, Zürich - 2018



OPEN ACCESS

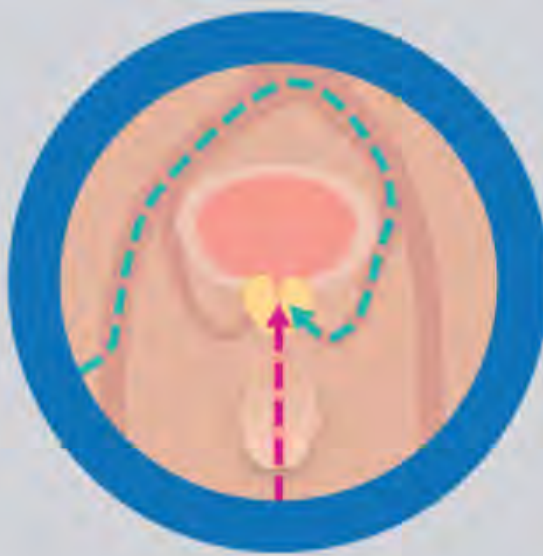
Comparison of prostatic artery embolisation (PAE) versus transurethral resection of the prostate (TURP) for benign prostatic hyperplasia: randomised, open label, non-inferiority trial

Dominik Abt,¹ Lukas Hechelhammer,² Gautier Müllhaupt,¹ Stefan Markart,² Sabine Güsewell,³ Thomas M Kessler,⁴ Hans-Peter Schmid,¹ Daniel S Engeler,¹ Livio Mordasini¹

¹Department of Urology, St Gallen Cantonal Hospital, 9007 St Gallen, Switzerland

CONCLUSIONS:

- Cette étude montre que le PAE est une alternative intéressante au traitement par TURP dans le traitement de l'HBP-LUTS.
- PAE doit être envisagée chez les patients pour lesquels l'indication chirurgicale est principalement basée sur les symptômes.



103

Age 40+

Men with refractory lower urinary tract symptoms secondary to benign prostatic hyperplasia



Randomisation

48

PAE

Prostate artery embolisation, performed with 250–400 μ m microspheres under local anaesthesia

51

TURP

Transurethral resection of the prostate, performed under spinal or general anaesthesia

Primary outcome

International prostate symptoms score (IPSS)

0–35, low scores better

Non-inferiority defined as difference of 3 points or less between trial arms

IPSS at baseline

Mean

19.38

Improvement in lower urinary tract symptoms was similar for both interventions ($P = 0.31$)

17.59

Change in IPSS at 12 weeks

-9.23 points


Difference = 1.54

-10.77 points

2018 UK-Registry (17 sites participants) - 305 patients inscrites

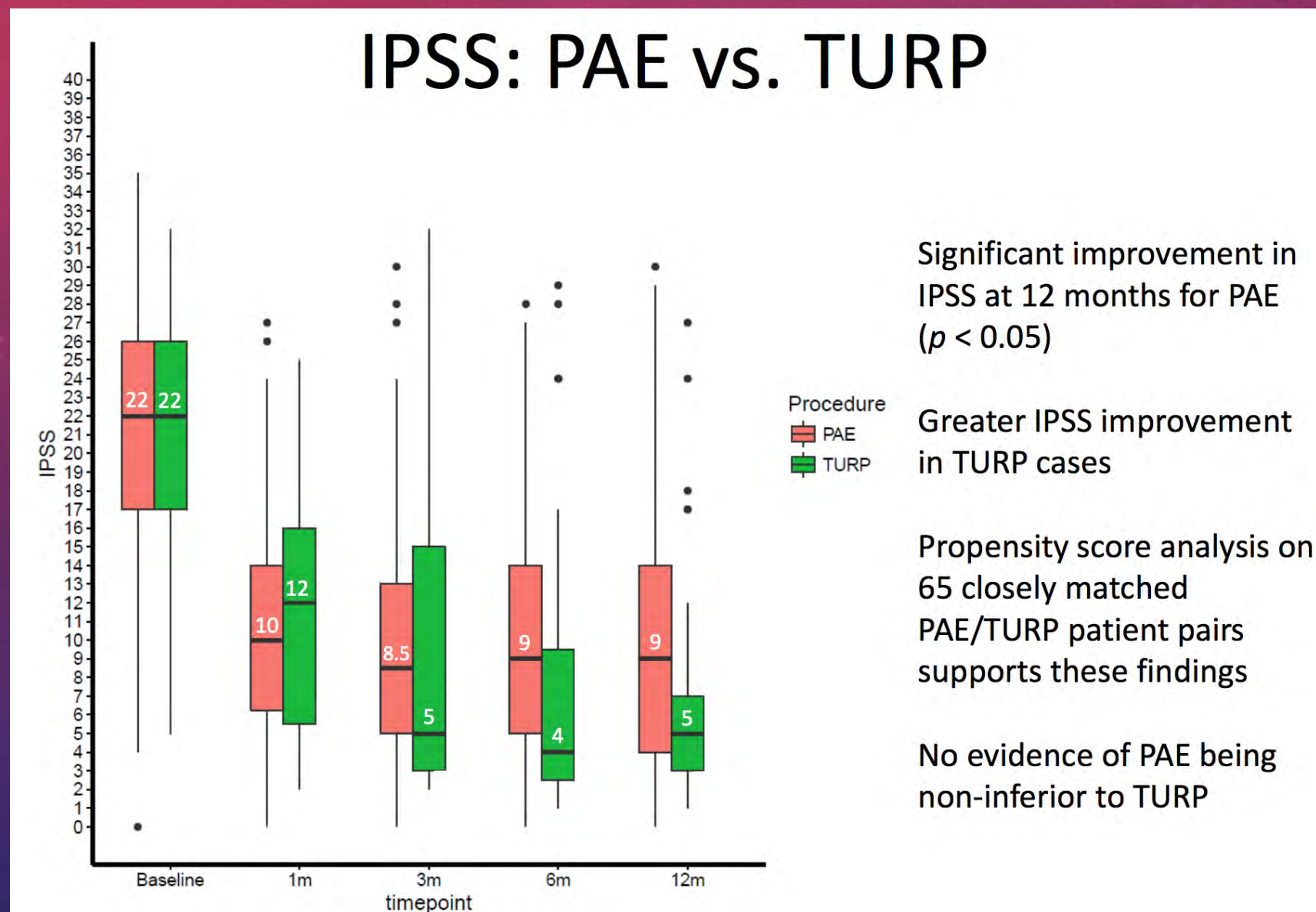


Efficacy and safety of prostate artery embolization for benign prostatic hyperplasia: an observational study and propensity-matched comparison with transurethral resection of the prostate (the UK-ROPE study)

Alistair F. Ray*, John Powell^{†‡}, Mark J. Speakman[§], Nicholas T. Longford[¶],
Ranan DasGupta^{**}, Timothy Bryant^{††}, Sachin Modi^{††}, Jonathan Dyer^{‡‡}, Mark Harris^{‡‡},
Grace Carolan-Rees* and Nigel Hacking^{††}

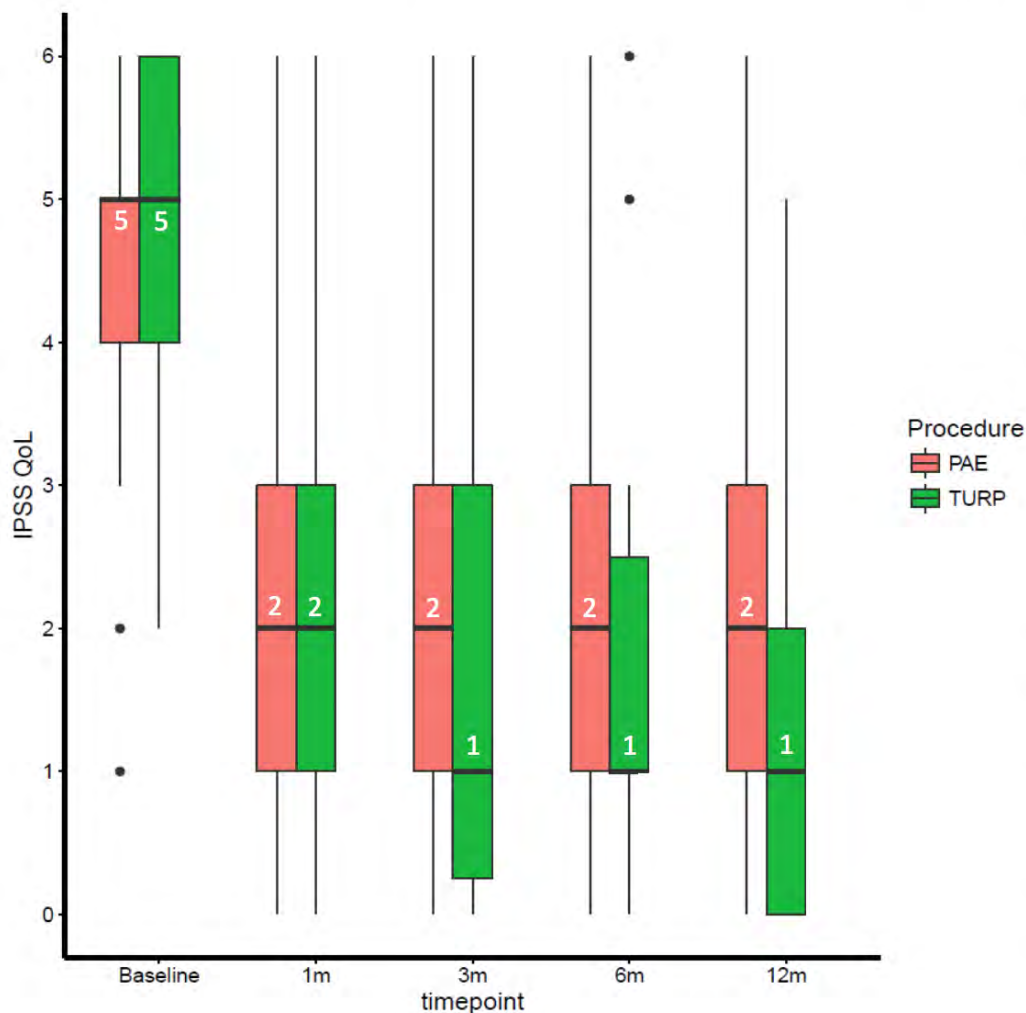
Cedar, Cardiff University/Cardiff and Vale University Health Board, Cardiff, [†]Centre for Health Technology Evaluation, National Institute for Health and Care Excellence, London, [‡]Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, [§]Department of Urology, Taunton and Somerset NHS Trust, Taunton, [¶]SNTL Statistics Research and Consulting, Department of Medicine, Imperial College London, ^{}Department of Urology, St. Mary's Hospital, Imperial College Healthcare NHS Trust, London, ^{††}Department of Interventional Radiology, and ^{‡‡}Department of Urology, Southampton General Hospital, University Hospital Southampton NHS Foundation Trust, Southampton, UK*

2018 UK-Registry (17 sites participants) - 305 patients inscirts



2018 UK-Registry (17 sites participants) - 305 patients inscirts

IPSS QoL: PAE vs. TURP



Significant improvement in IPSS QoL at 12 months for PAE ($p < 0.05$)

Greater QoL improvement in TURP cases. Final scores: PAE: "Mostly satisfied" TURP: "Pleased"

Propensity score analysis on 65 closely matched PAE/TURP patient pairs supports these findings

No evidence of PAE being non-inferior to TURP

2018 FDA-Approved prospective clinical trial

Urology. 2018 Oct;120:205-210. doi: 10.1016/j.urology.2018.07.012. Epub 2018 Jul 20.

Prostate Artery Embolization for Lower Urinary Tract Symptoms Secondary to Benign Prostatic Hyperplasia: Results From a Prospective FDA-Approved Investigational Device Exemption Study.

Salem R¹, Hairston J², Hohlastos E³, Riaz A³, Kallini J³, Gabr A³, Ali R³, Jenkins K³, Karp J³, Desai K³, Thornburg B³, Casalino D⁴, Miller F⁴, Hofer M², Hamoui N², Mouli S³.

PAE is safe and efficacious for BPH, with significant improvement in LUTS and reduction in total prostate (TV) and central gland (CG) volumes

CONCLUSIONS

- PAE est efficace pour réduire les LUTS et améliore QoL
- PAE est très sûr - taux de complications majeures $<0,5\%$
- PAE est particulièrement avantageux pour les patients avec prostate de très grande taille, coagulopathie, comorbidités chirurgicales ou hématurie

CONCLUSIONS

- PAE aide à réduire les coûts d'hospitalisation
- PAE préserve la fonction sexuelle (pas d'éjaculation rétrograde, dysfonction érectile possible mais extrêmement rare)
- PAE dans le parcours de soins se situe entre le médicament et la chirurgie.

