

MIST behandelingen voor goedaardige prostaatobstructie

Pieter Uvin

Uroloog

AZ Sint-Jan Brugge & AZ Sint-Lucas Brugge

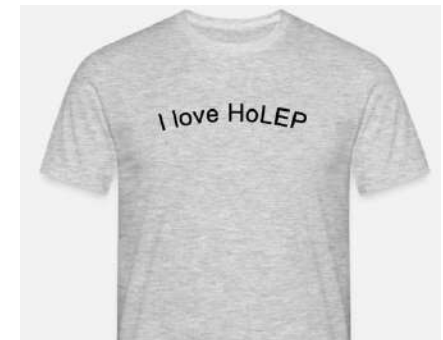
MIST

=

Minimally Invasive Surgical Treatments

Disclosures

- Proctor voor Quanta / Tobrix
- Bezitter van een “I love HoLEP” T-shirt



2018



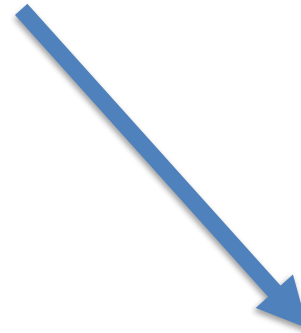
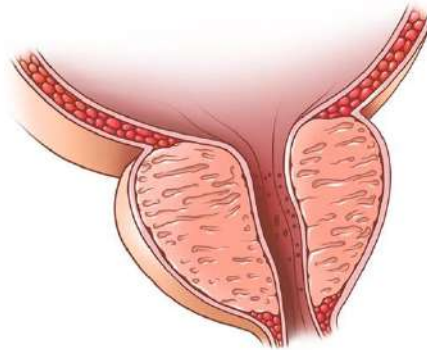
2026



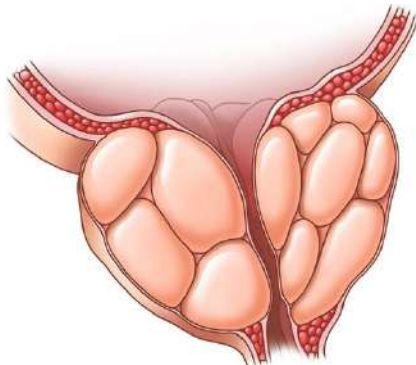


Luc De Laere

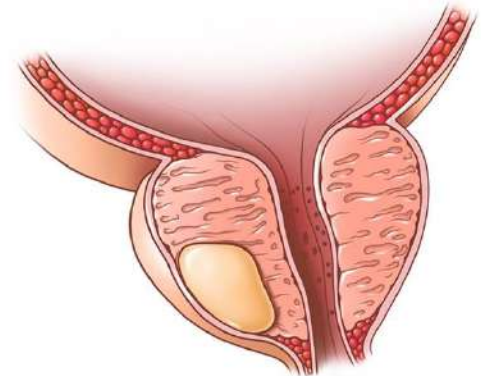




goedaardige prostaatvergroting



prostaatkanker



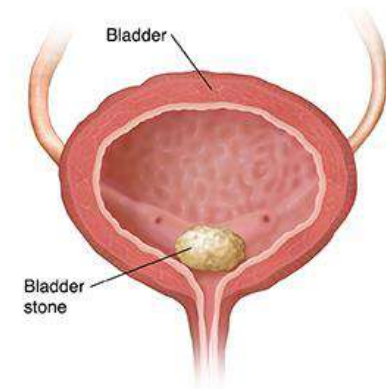
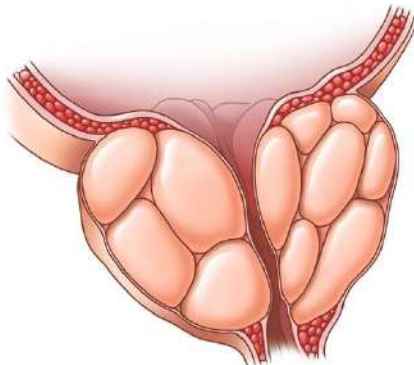
zwakke straal
urgency
hematurie
...



retentie en nierfalen



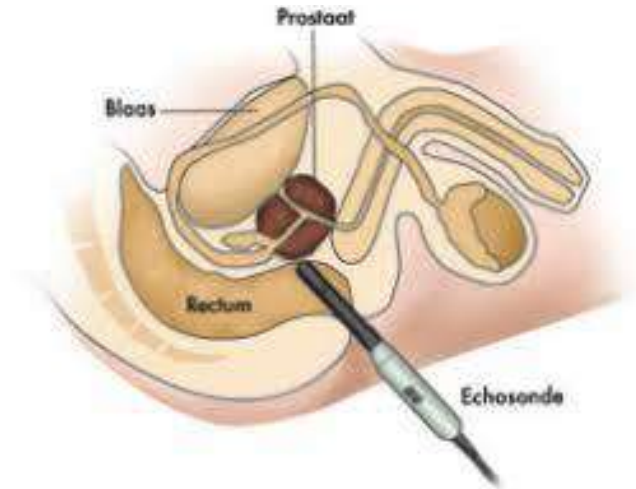
goedaardige prostaatvergroting



blaasstenen

Diagnose van goedaardige prostaatvergroting

- Klachten patiënt
- Rectaal toucher
- Echografie van de prostaat
- Bloed en urine
- Uroflow



Behandeling met medicatie

- Alfa blokkers (bvb tamsulosine, silodosine) *prostaatontspanner*
- 5 α reductase remmers (bvb dutasteride, finasteride) *prostaatkrimper*



Nadelen

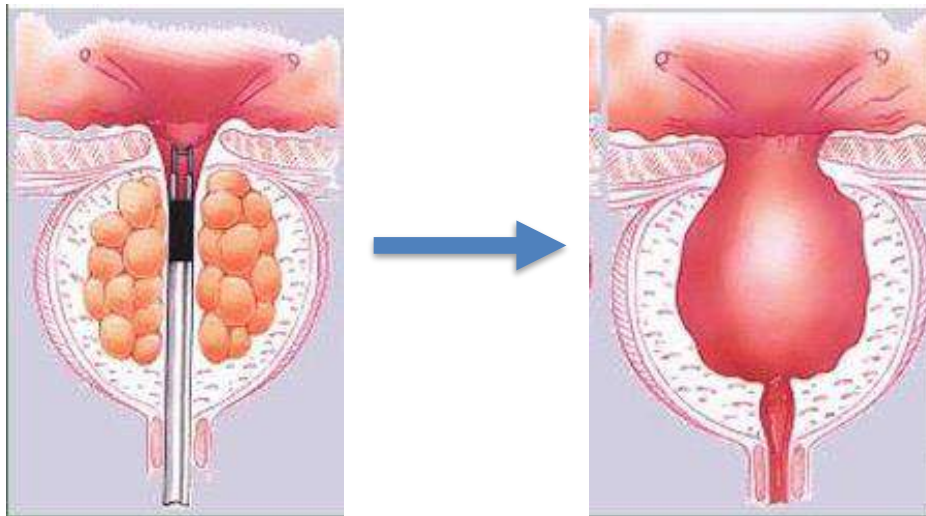
Efficiëntie

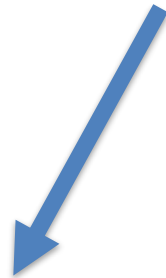
Neveneffecten

Kostprijs



Doel van chirurgie voor goedaardige prostaatvergroting





Klassieke behandelingen

Open prostatectomie (>80g)

TURP (< 80g)

Innovatieve behandelingen

HoLEP

Rezum, prostaatembolisatie



Klassieke behandelingen

Open prostatectomie (>80g)

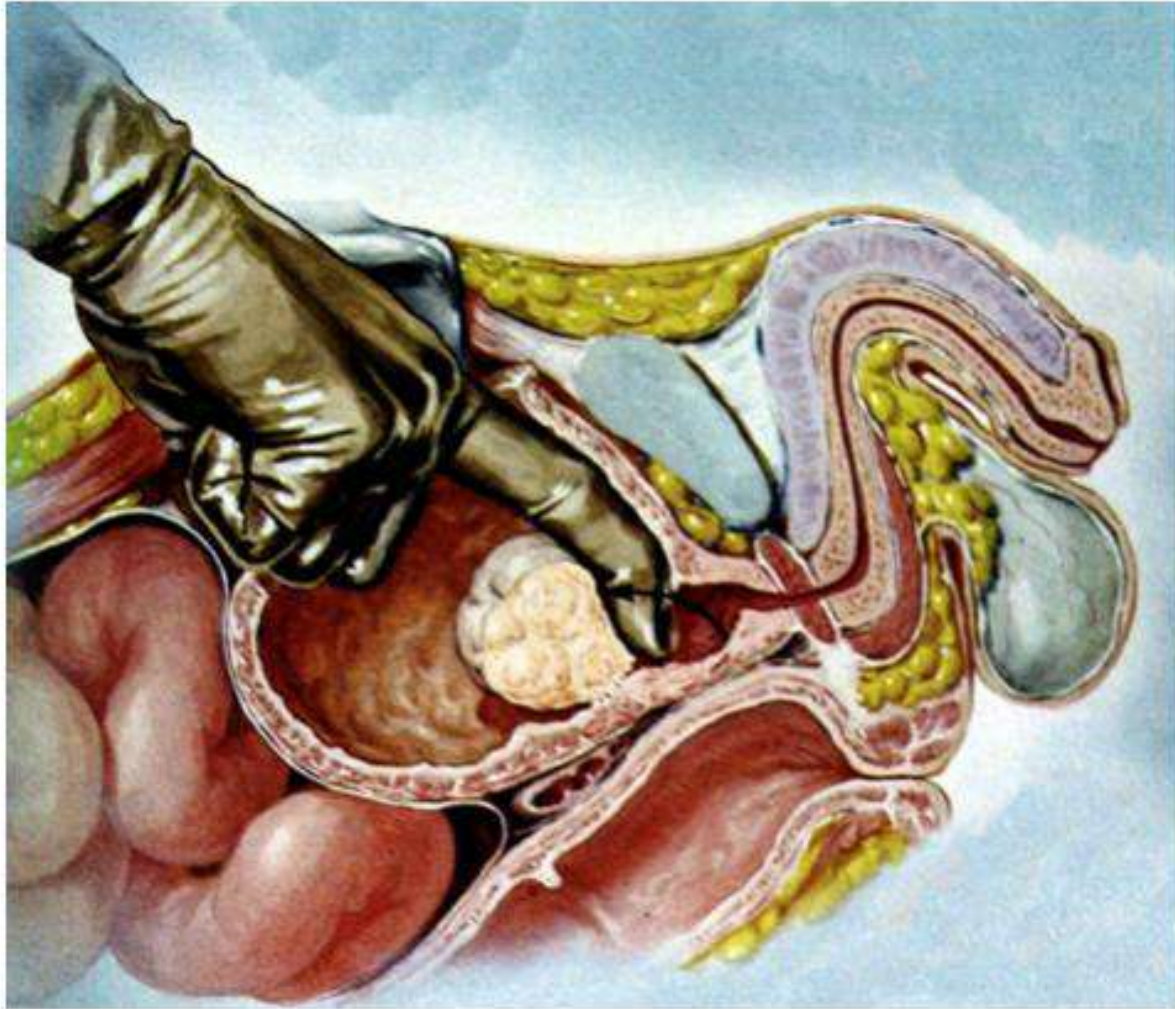
TURP (< 80g)

Innovatieve behandelingen

HoLEP

Rezum, prostaatembolisatie

Open prostatectomie



Open prostatectomie



Enucleatie

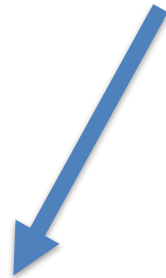
Resectie

Open prostatectomie



Open prostatectomie





Klassieke behandelingen

Open prostatectomie (>80g)

TURP (< 80g)

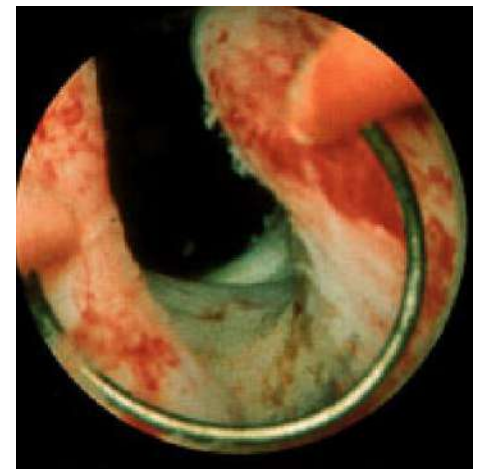
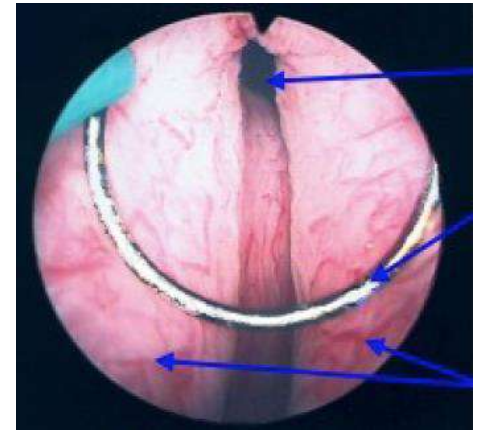
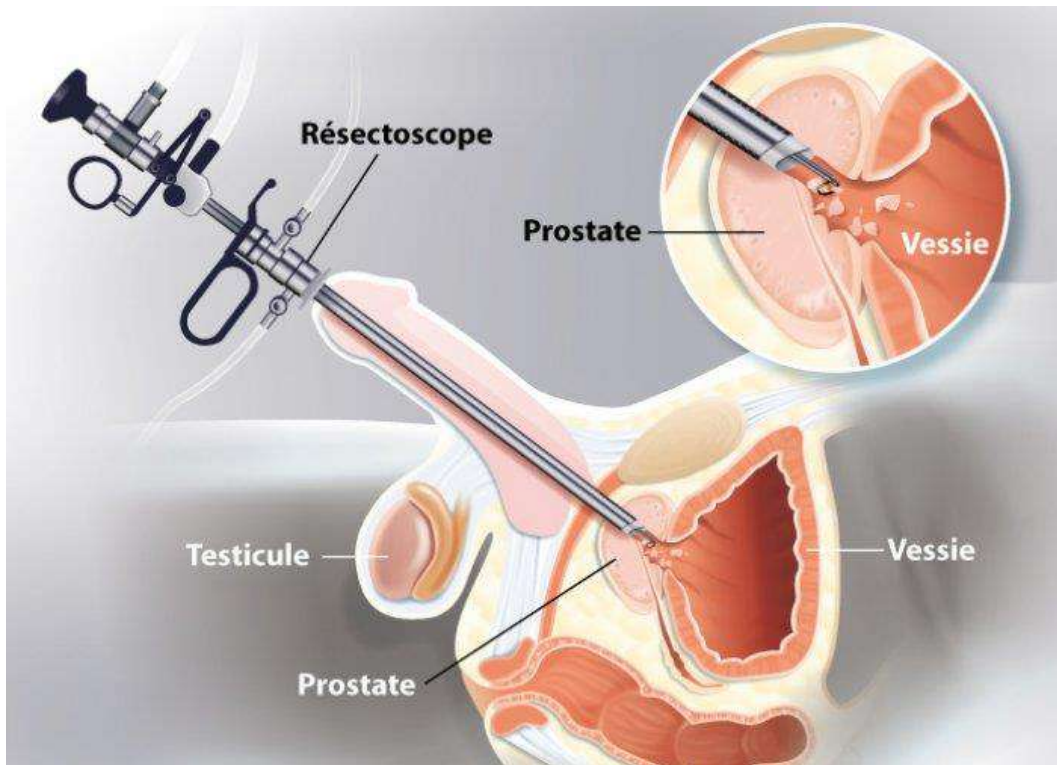
Innovatieve behandelingen

HoLEP

Rezum, prostaateMBOLISATIE

TUR P

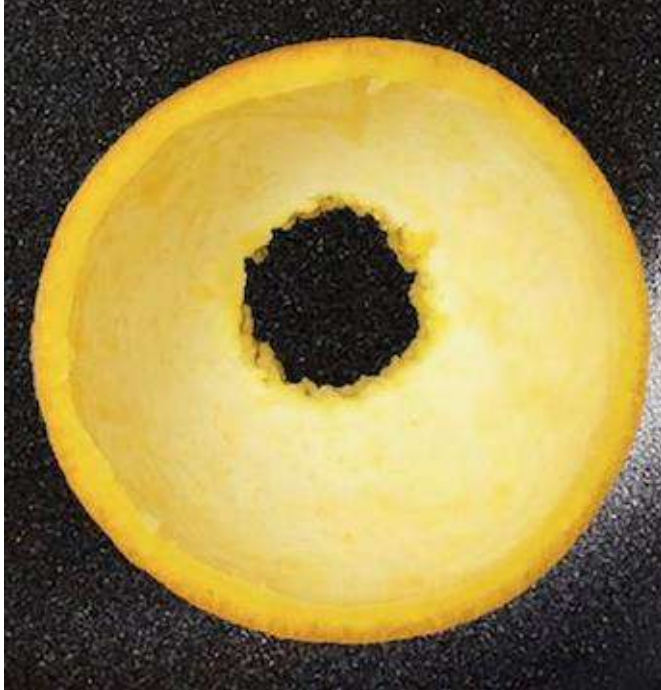
(=TransUrethral **Resectie** van de Prostaat)



Open prostatectomy

65% volume reduction

Saez et al. World J Clin Urol 2014

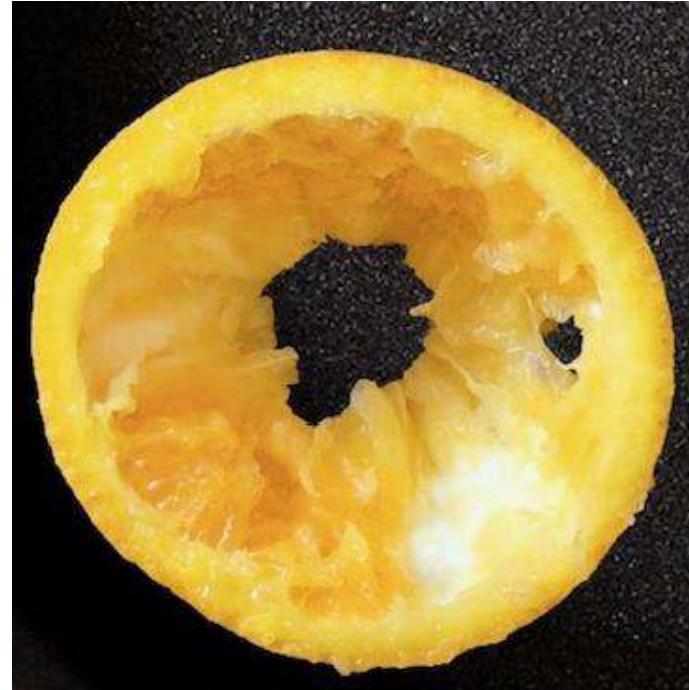


Enucleatie

TUR P

35% volume reduction

Wilson et al. Eur Urol 2006

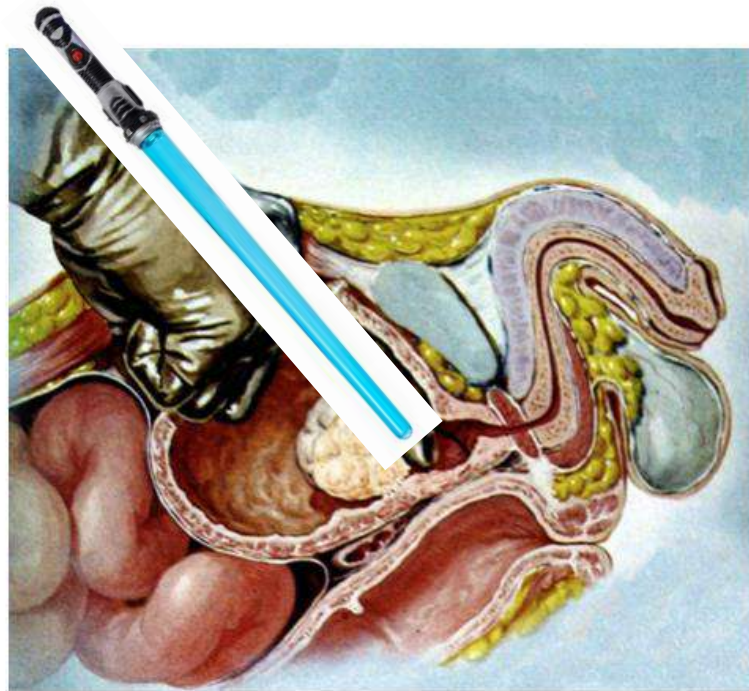


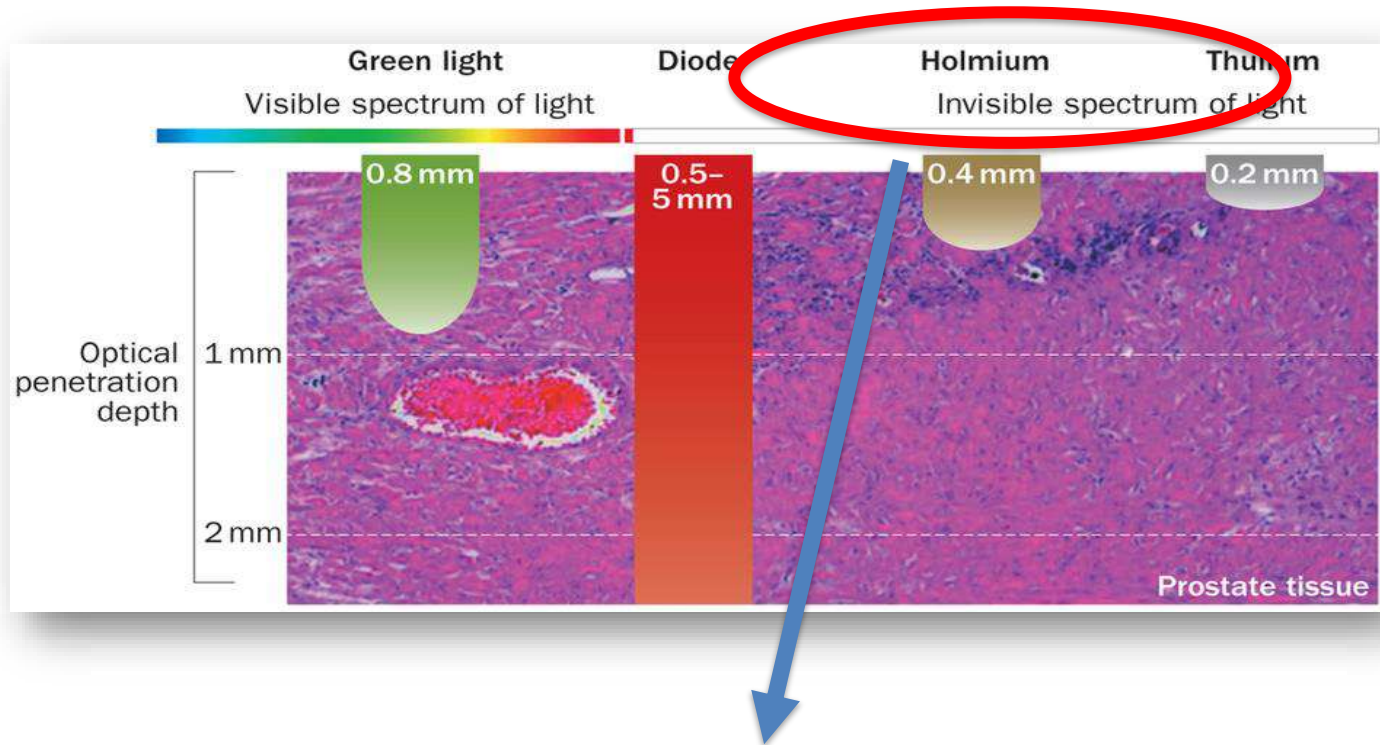
Resectie

Ideale ingreep voor goedaardige prostaatvergroting ?!

- enucleatie
- korte hospitalisatie
- weinig complicaties

Laser Enucleatie



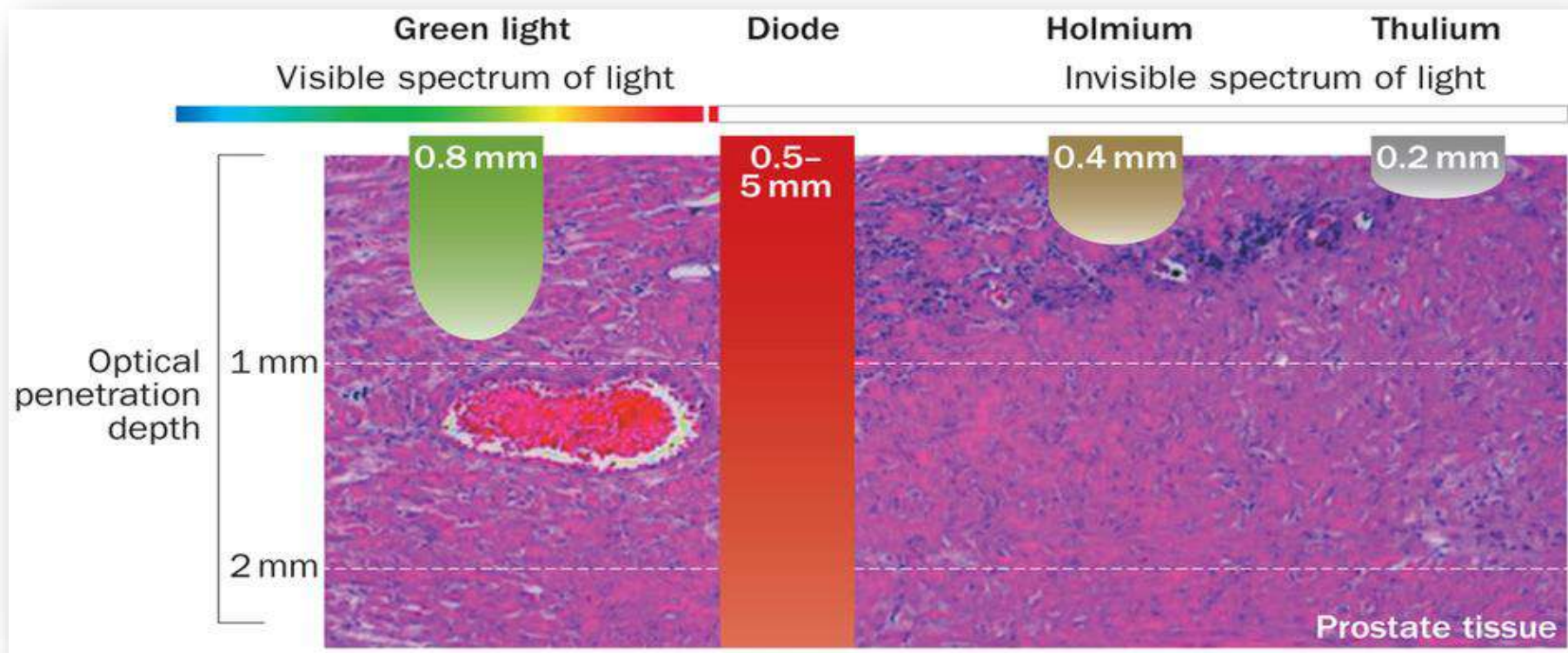


HoLEP = Holmium Laser Enucleation of the Prostate

Waarom Holmium ?

- Penetratie diepte 0.4mm
- Pulsed
- Ook voor stenen





Holmium
Thulium
Thulium fiber
Greenlight
Bipolar energy

HoLEP
ThuLEP
ThuFLEP
GreenLEP
BipoLEP

Endoscopic enucleation

World J Urol (2016) 34:1353–1355
DOI 10.1007/s00345-016-1922-3

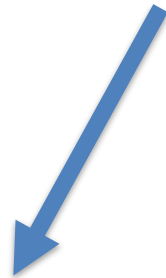
EDITORIAL

Enucleation is enucleation is enucleation is enucleation

Thomas R. W. Herrmann¹

Holmium
Thulium
Thulium fiber
Greenlight
Bipolar energy

HoLEP
ThuLEP
ThuFLEP
GreenLEP
BipoLEP



Klassieke behandelingen

Open prostatectomie (>80g)

TURP (< 80g)

Innovatieve behandelingen

HoLEP

Rezum, prostaatembolisatie

FARLEY



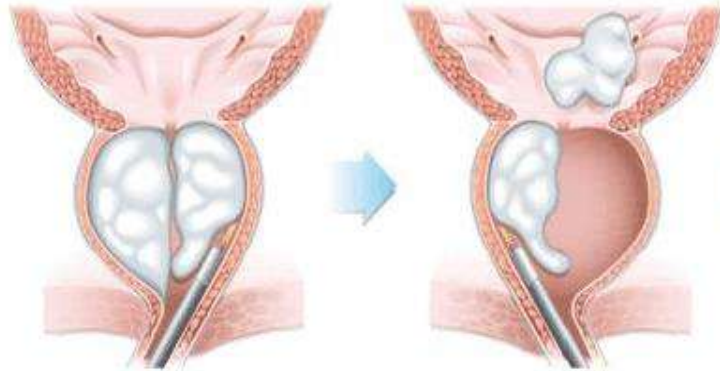






HoLEP

I. Enucleatie

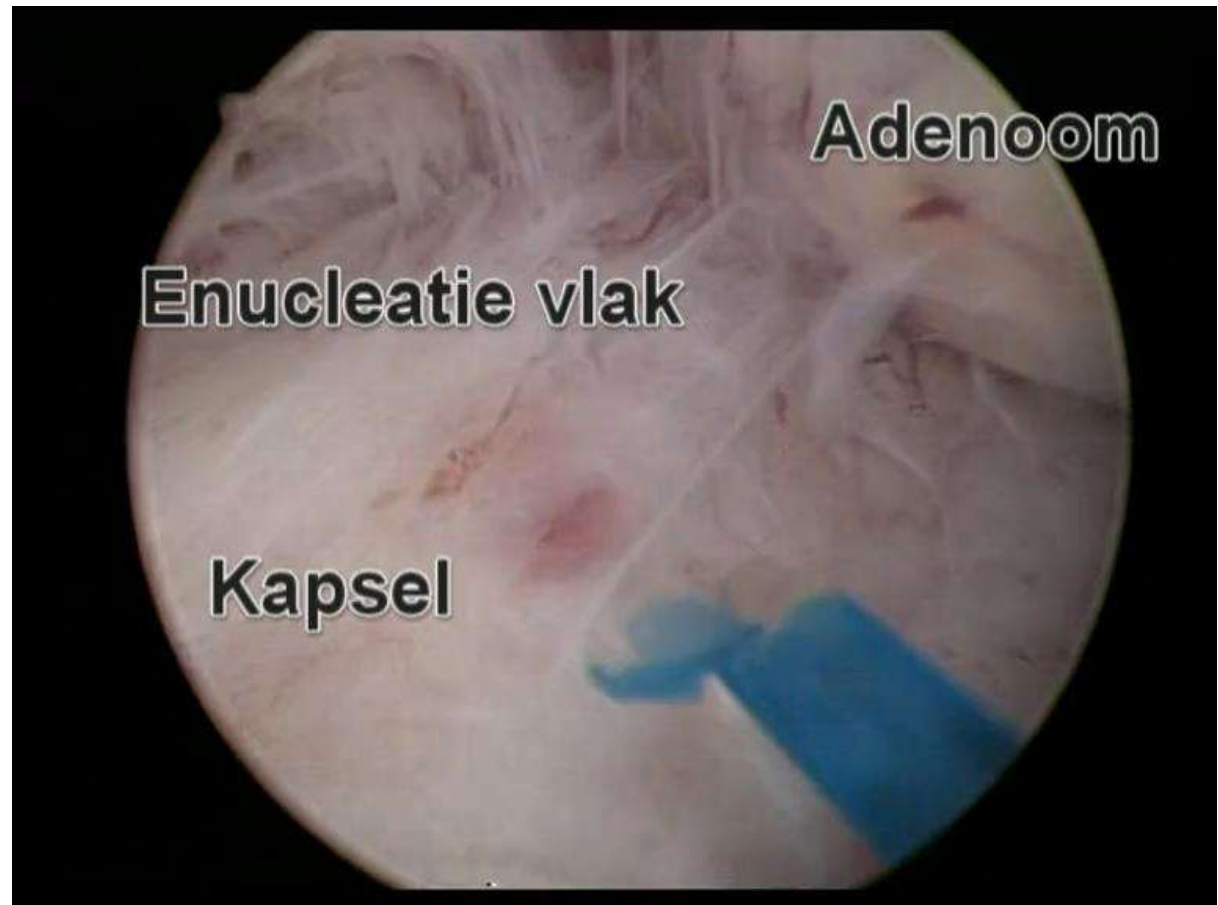


II. Morcellatie



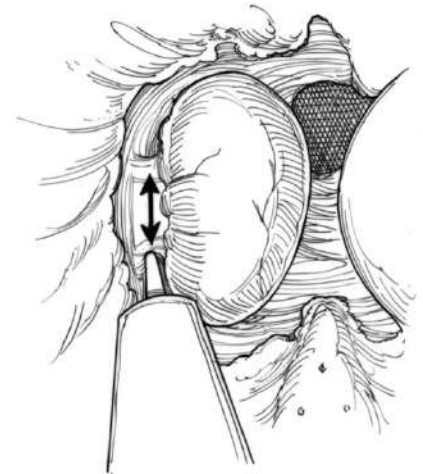
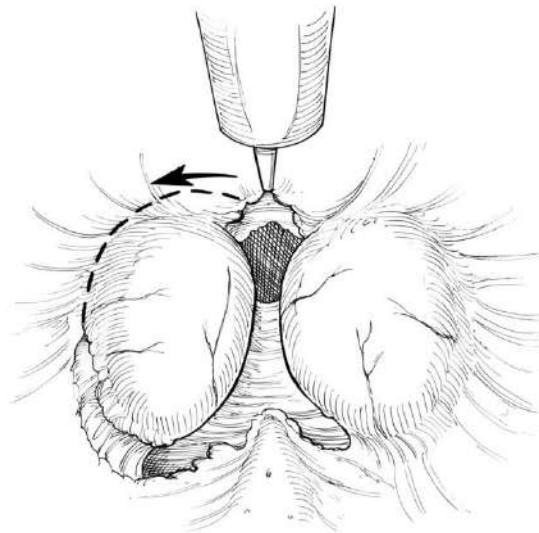
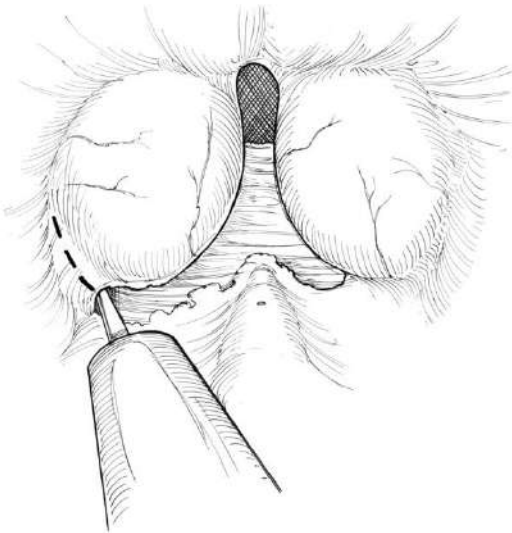
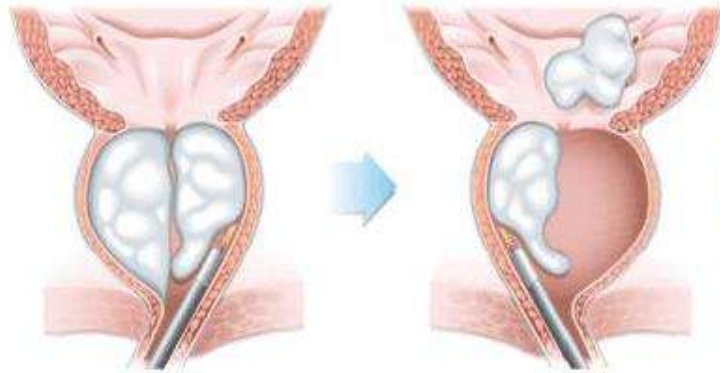
HoLEP

I. Enucleatie



HoLEP

I. Enucleatie



HoLEP “en bloc”



HoLEP “en bloc”



YouTube ^{BE}

pieter uvin

HoLEP number 1000 *March 8th 2024*

dr Pieter Uvin



urologischcentrum.be
Bruges, Belgium

0:03 / 35:04

HoLEP number 1000 of dr Pieter Uvin : full procedure (commented in English)

Dr Pieter Uvin
5 abonnees

Abonneren

1

Delen

Opslaan

...

DINSDAG = HoLEP dag in Brugge

Altijd welkom !

E-mail

pieter.uvin@azsintjan.be



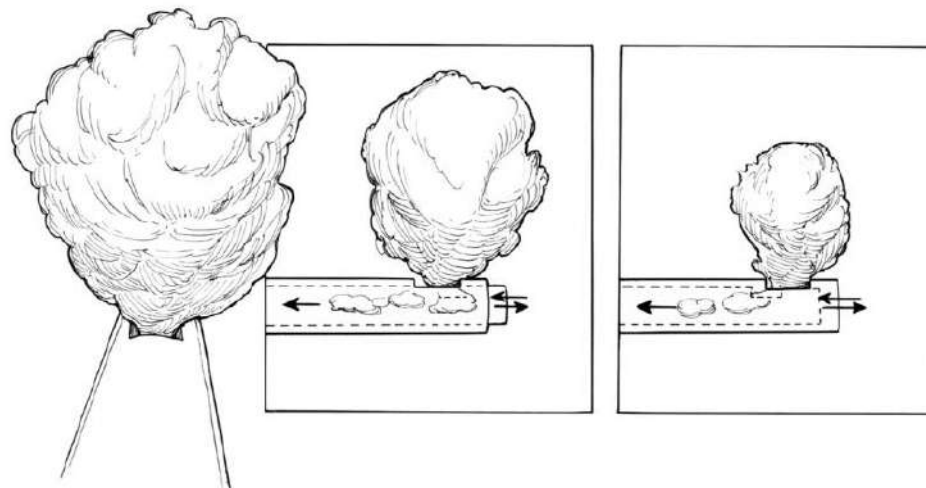
@PieterUvin



HoLEP

Holmium Laser Enucleation van de Prostaat

II. Morcellatie



HoLEP

Holmium Laser Enucleation van de Prostaat

II. Morcellatie



HoLEP

Holmium Laser Enucleation van de Prostaat

II. Morcellatie

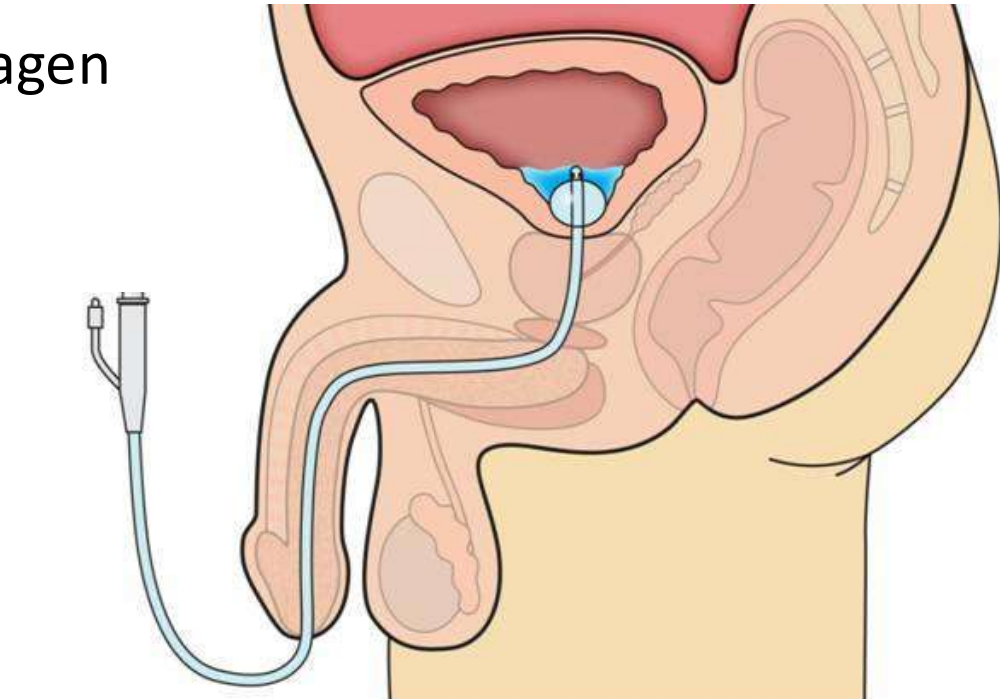


HoLEP

Holmium Laser Enucleatie van de Prostaat

Post-operatief

Transurethrale sonde 1 à 2 dagen

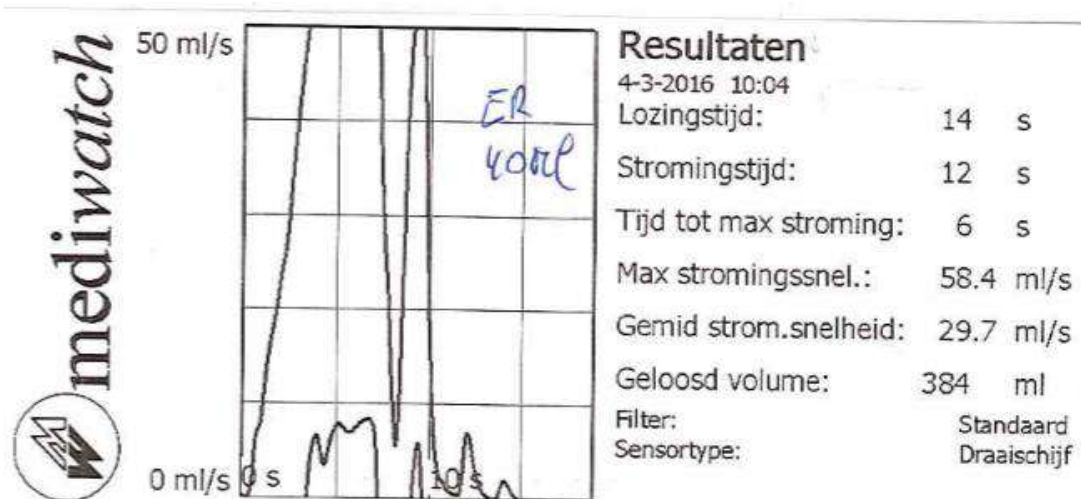


HoLEP

Holmium Laser Enucleation van de Prostaat

Post-operatief

Na zes weken...



Lange termijn resultaten van HoLEP



Lange termijn resultaten van HoLEP

Na 6 weken



Lange termijn resultaten van HoLEP

Na 10 jaar

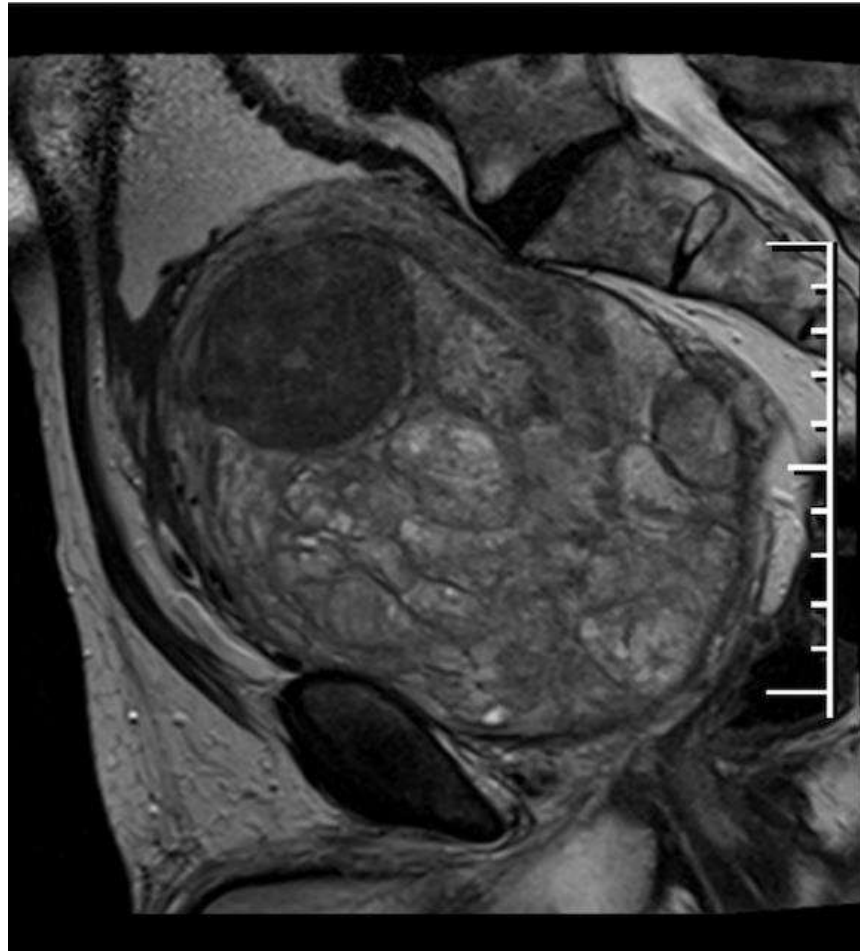
Table 1. Descriptive analysis of HoLEP outcomes

Follow-up	No. Pts	1-PSS Mean (range)/Median	QOL Mean (range)/Median	Onyx Mean (range)/Median	PVR Mean (range)/Median
Preop	340	19 (0-26)/19	3.8 (0-6)/4	8 (1-2-20)/8	311 (0-2,300)/192
1 Mo	300	7 (0-20)/6	1.6 (0-6)/1	22 (1.6-67.6)/20	40 (0-500)/52
3 Mos	176	1.2 (0-26)/4	1.2 (0-6)/1	22.2 (2.1-67.6)/21.8	36 (0-390)/22
6 Mos	123	4.7 (0-32)/4	1 (0-6)/1	24.3 (4.8-65.5)/23.2	33 (0-62)/18
1 Yr	771	4.4 (0-27)/3	1 (0-6)/1	24.6 (2.3-70)/23.2	31.7 (0-67)/15
2 Yrs	722	4 (0-30)/3	0.99 (0-6)/1	24.6 (2.4-72.5)/23.8	34 (0-63)/15
3 Yrs	670	4.3 (0-26)/3	0.99 (0-6)/1	24.5 (5.1-72)/22.9	32 (0-57)/14
4 Yrs	623	4.6 (0-27)/3	1 (0-6)/1	23.7 (3.7-67.5)/22.2	36 (0-64)/13
5 Yrs	563	4.6 (0-25)/3	1 (0-6)/1	23.7 (5.1-67.6)/22.5	36 (0-66)/15
6 Yrs	488	4.7 (0-25)/3	1 (0-6)/1	24.7 (0-67.5)/24.1	30 (0-66)/14
7 Yrs	324	4.3 (0-29)/3	1 (0-6)/1	25.6 (1-67.5)/25.1	27 (0-67)/18
8 Yrs	267	4 (0-26)/3	0.8 (0-6)/1	25.8 (4-67.5)/25.8	27.8 (0-62)/15
9 Yrs	161	3.5 (0-16)/2	0.7 (0-3)/1	26.6 (5.0-67.5)/27.1	27.1 (0-65)/15
10 Yrs	85	3.6 (0-12)/3	0.7 (0-3)/1	26.9 (6.6-64.5)/27.8	20.7 (0-65)/12

Elmansy et al. J Urol 2011; 186: 1972-1976

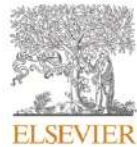


HoLEP voor gigantische prostaten



HoLEP voor gigantische prostaten

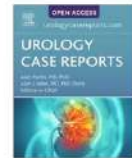
Urology Case Reports 45 (2022) 102203



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Urology Case Reports

journal homepage: www.elsevier.com/locate/eucr

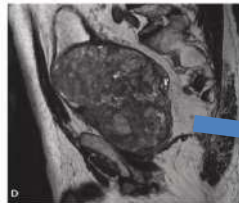


Holmium laser enucleation of a 696 cc prostate (HoLEP): The largest reported in the literature[☆]

Shahed Borojeni^a, Fares Kosseifi^{a,*}, Axel Dallongeville^b, Xavier Durand^a

^a Department of Urology, Groupe Hospitalier Paris Saint-Joseph, Paris, France

^b Department of Radiology, Groupe Hospitalier Paris Saint-Joseph, Paris, France



696 cc !



13-11-2023 00:00 - Prostaat, TUR

A23/016804 O23/017672 P23/016940 (23B9657)

Onderzoek :

Prostaat, TUR.

Klinische inlichtingen :

/

Macroscopie :

258g weefselsnippers verdeeld over 10 blokken.

Microscopie :

De talrijke snippers zijn opgebouwd uit prostaatklierbuizen en fibromusculair stroma. Enkele fragmenten zijn afgeboord door normaal uitrijpend urotheel. Het prostaatparenchym toont vorming van stromale en glandulaire noduli. Elke klierbuis is omgeven door een normale basale cellaag. Het epitheel toont geen atypieën. Er is geen manifeste inflammatie.

Besluit:

TUR prostaat: benigne prostaat hyperplasie.

Met collegiale groeten

Ignace Dalle

HoLEP bij patiënten met een hypotone blaas



HoLEP bij patiënten met een hypotone blaas

Clinical Trial > Urology. 2014 Feb;83(2):428-32. doi: 10.1016/j.urology.2013.09.035.

Epub 2013 Nov 12.

Efficacy of holmium laser enucleation of the prostate in patients with non-neurogenic impaired bladder contractility: results of a prospective trial

Christopher R Mitchell ¹, Lance A Mynderse ¹, Deborah J Lightner ¹, Douglas A Husmann ¹, Amy E Krambeck ²

Affiliations + expand

PMID: 24231217 DOI: [10.1016/j.urology.2013.09.035](https://doi.org/10.1016/j.urology.2013.09.035)

Conclusion: Intermediate follow-up results indicate that HoLEP is a viable management option for men with BPO and detrusor hypocontractility. Furthermore, detrusor acontractility does not appear to adversely affect postoperative results, with return of spontaneous urination and demonstration of detrusor contractility allowing for efficient voiding, in over 95% of patients.

95 % succes !

HoLEP na TURP / Rezum / Urolift / ...



HoLEP na TURP / Rezum / Urolift / ...

Comparative Study > J Urol. 2017 Jun;197(6):1517-1522. doi: 10.1016/j.juro.2016.12.098.

Epub 2016 Dec 30.

Outcomes of Holmium Laser Enucleation of the Prostate in the Re-Treatment Setting

Tracy Marien ¹, Mustafa Kadihasanoglu ¹, Teerayut Tangpaitoon ¹, Nadya York ², Andrew T Blackburne ³, Haidar Abdul-Muhsin ⁴, Michael S Borofsky ², Amy E Krambeck ³, Mitchell R Humphreys ⁴, James E Lingeman ², Nicole L Miller ⁵

Affiliations + expand

PMID: 28043843 DOI: [10.1016/j.juro.2016.12.098](https://doi.org/10.1016/j.juro.2016.12.098)

Free article

Conclusions: Immediate perioperative outcomes of holmium laser enucleation of the prostate performed in the re-treatment setting were no different from those in the primary setting. While re-treatment was associated with an increased likelihood of clot retention, urethral stricture and higher AUA symptom score, these minimal differences must be considered against the overall favorable symptom improvement across both cohorts.

Outcomes were no different

De perfectie???



HOLMIUM LASER RESECTION OF THE PROSTATE: PRELIMINARY RESULTS OF A NEW METHOD FOR THE TREATMENT OF BENIGN PROSTATIC HYPERPLASIA

PETER J. GILLING, CAROL B. CASS, MICHAEL D. CRESSWELL, AND MARK R. FRAUNDORFER



1996 !

Gilling et al. Urology 1996;47: 48-51

Adoption and Outcomes of Holmium Laser Enucleation of the Prostate in the United States

Ilon C Weinstein ¹, Xian Wu ², Camilo Arenas-Gallo ², Alec Zhu ³, Aaron Brant ³, Bashir Al Hussein Al Awamlh ⁴, Christopher Gaffney ⁵, Richard Lee ³, Michael Zell ², Irina Jaeger ², Lee Ponsky ², Jonathan Shoag ⁶

Affiliations + expand

PMID: 37328009 DOI: [10.1016/j.urology.2023.05.028](#)

Results: HoLEP accounted for 3.2% (n = 6967) of all the BPH procedures performed between 2000 and 2019 and increased from 1.1% of the procedures in 2008 to 4% in 2019. Patients undergoing HoLEP had lower odds of 90-days readmission compared to TURP (Odds ratio (OR) 0.87, p = 0.025). HoLEP had similar odds of retreatment compared to TURP at both 1-year (OR

1 % in 2008

4 % in 2019

Wat zijn de nadelen van HoLEP ?

I. Complicaties

II. Investerings

III. Eerder moeilijke procedure

Impact on Sexual Function of Holmium Laser Enucleation Versus Transurethral Resection of the Prostate: Results of a Prospective, 2-Center, Randomized Trial

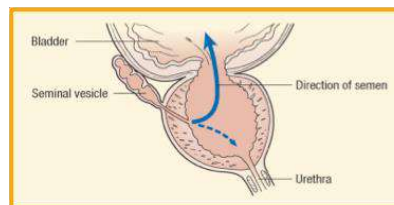
Alberto Briganti, Richard Naspro, Andrea Gallina, Andrea Salonia, Ivano Vavassori, Rodolfo Hurle, Enzo Scattoni, Patrizio Rigatti and Francesco Montorsi*

From the Departments of Urology, Università Vita-Salute San Raffaele, Milan and Hospital Gavazzeni (IV, RH), Bergamo, Italy

THE JOURNAL OF UROLOGY® Vol. 175, 1817-1821, May 2006



Geen erectie problemen



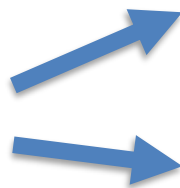
80% droog orgasme



THE REAL
PROBLEM

The **advantage** of
transurethral surgery
is also a
disadvantage





Schade aan sfincter

Schade aan urethra



TABLE 3. PERIOPERATIVE DATA

	No. of patients	
	HoLEP	TURP
Perioperative data		
Operative time	272	268
Resected weight	272	268
Blood loss	242	238
Catheterization time	272	268
Hospital stay	272	218
Adverse events		
Urethral stricture	10/251	11/195
Stress incontinence	7/251	6/239
Blood transfusion	0/257	8/252
Recatheterization	49/157	13/195

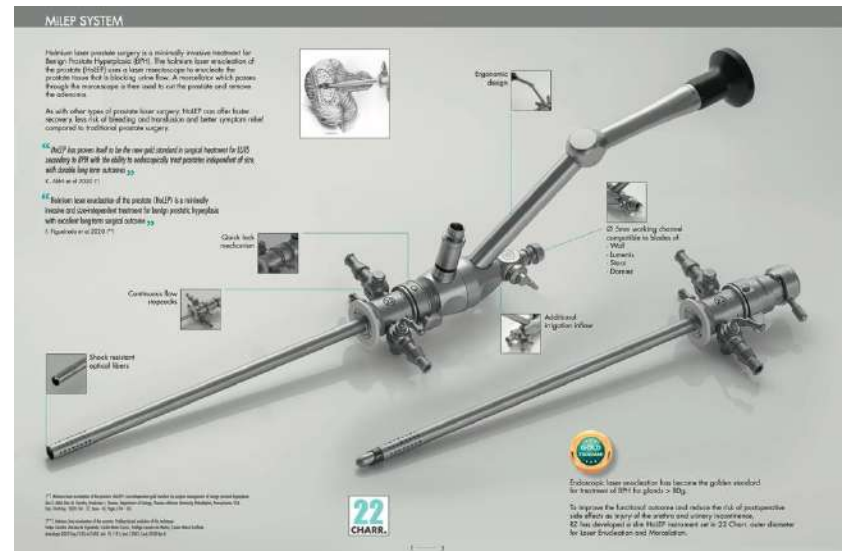
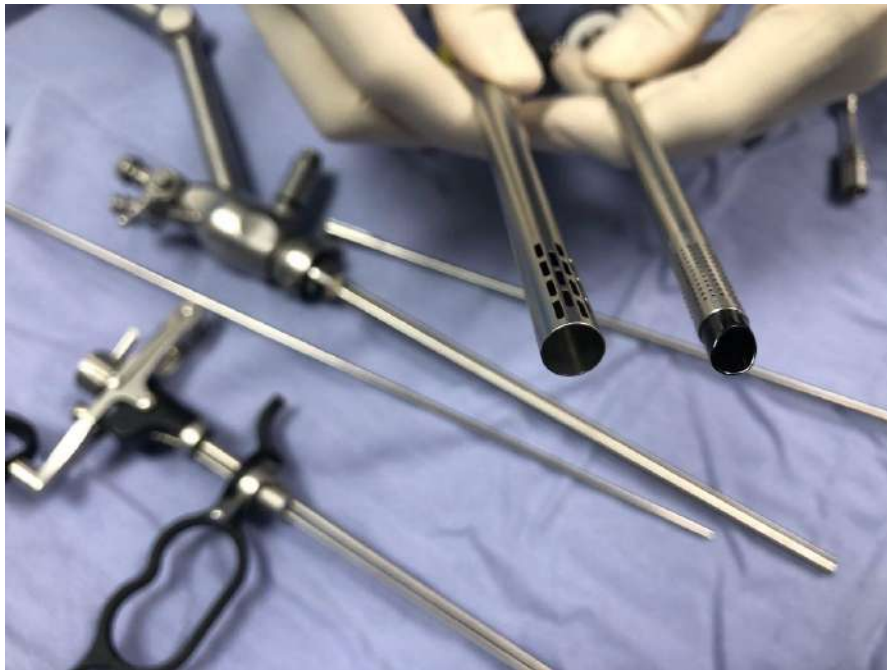
Incontinence: 2%

Stricture: 4%

^aMean difference [95% Confidence interval].
^bStandard mean difference [95% Confidence interval].
^cRisk Ratio [95% Confidence interval].
 HoLEP=holmium laser enucleation prostatectomy; TURP=transurethral resection of the prostate.

MiLEP !!!

Mini HoLEP



MiLEP



Dr Felipe Figueiredo

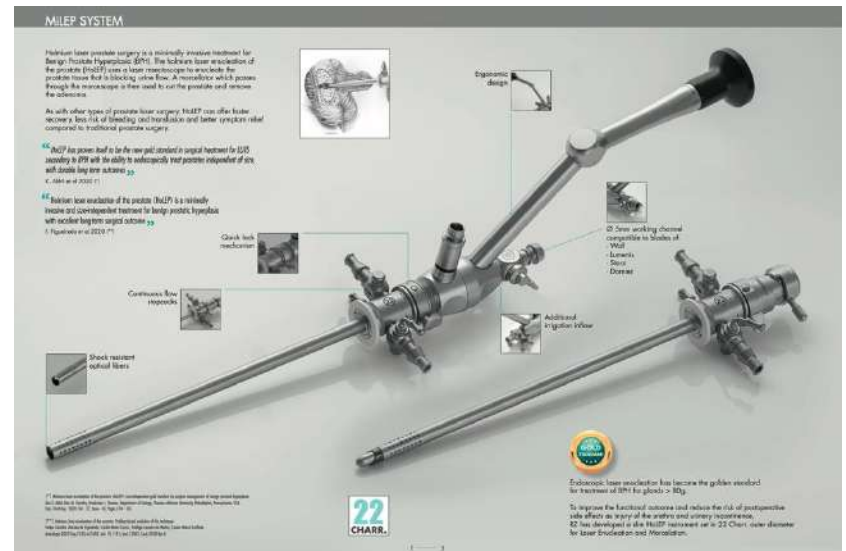
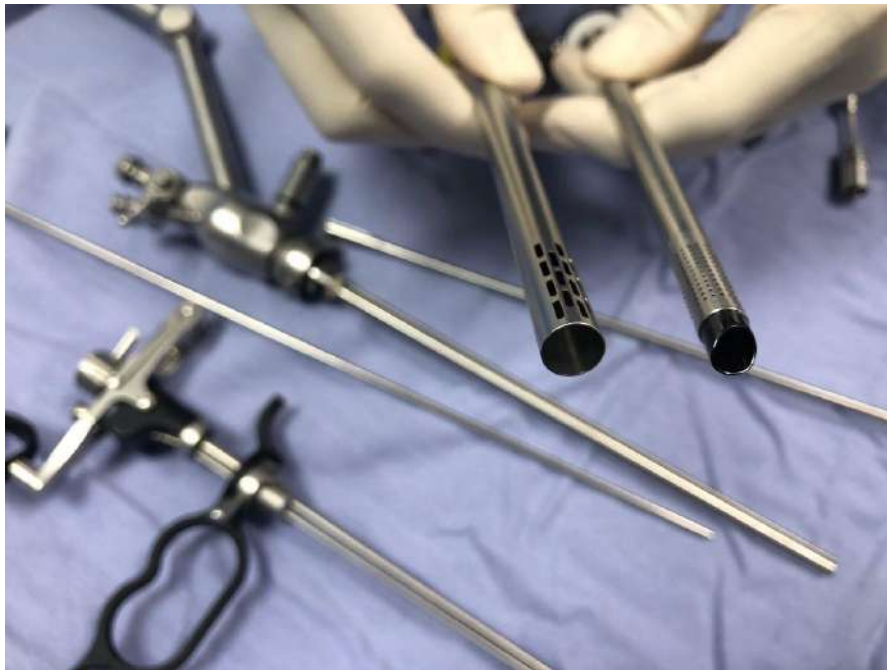


MiLEP :

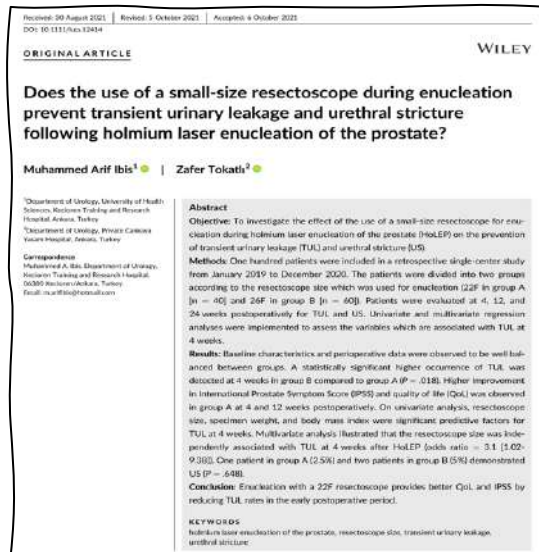
Mini HoLEP

de ideale MIST

Minimally Invasive Surgical Treatment







Ibis et al. Lower Urinary Tract Symptoms (2022) 14:86–91

Retrospective trial

n=40 Ch22

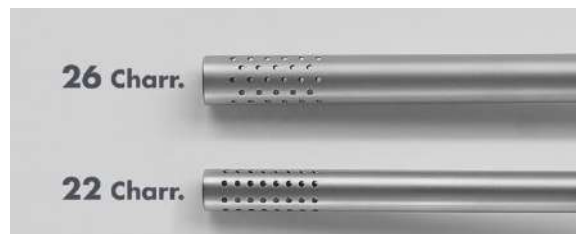
n=60 Ch26

Operation time: no difference

Ch 22:

less postoperative urinary incontinence

12.5% vs 33% at 1 month ($p=0.018$)



Lessons learned from our preliminary experience with MiLEP: a retrospective analysis of efficacy and safety using slim and ultra-slim instruments

Patrick Rein^{1,2,4} · Christina Meis^{2,3} · Orlando Burkardt⁴ · Dominik Abt⁴

Received: 21 March 2025 / Accepted: 18 June 2025
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Abstract

Purpose Minimally invasive laser enucleation of the prostate has emerged as a promising treatment for benign prostatic hyperplasia. This study investigates the efficacy and safety of miniaturized holmium laser enucleation of the prostate (MiLEP) using Slim (22 Fr) and Ultra-Slim HoLEP (18.5 Fr).

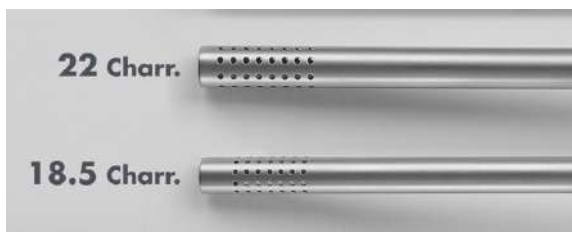
Methods We retrospectively analyzed 84 patients who underwent MiLEP between February 2022 and October 2023, performed by a single experienced surgeon. Thirteen patients were treated with Ultra-Slim HoLEP, and 71 with Slim HoLEP. Perioperative parameters, functional outcomes, and complications were assessed intraoperatively and at 2, 6, and 12 weeks postoperatively.

Results Median patient age was 62 [IQR 60–72] and 72 [IQR 65–77] years in the Ultra-Slim and Slim groups, respectively. The median prostate volume was 45 ml [IQR 35–65] and 65 ml [IQR 50–90], with similar median enucleation weights (36 g vs. 35 g). No urethral strictures were observed at three months. Continence rates at 12 weeks reached 100% in the Ultra-Slim group and 95.6% in the Slim group. Perioperative efficiency, including total operation time and laser energy use, was comparable between the groups despite differences in prostate volume.

Conclusion MiLEP using Slim and Ultra-Slim instruments provides a safe and effective alternative to standard HoLEP (≥26 Fr), demonstrating favorable postoperative continence and a low complication profile. The findings suggest potential benefits of miniaturized instruments in reducing urethral trauma while maintaining enucleation efficiency. Further prospective studies are warranted to validate these results and explore long-term outcomes.

Keywords Benign prostatic hyperplasia (BPH) · Miniaturized holep · MiLEP · Slim holep · Ultra-Slim holep · Minimally Invasive

Rein et al. World Journal of Urology (2025) 43:424



Retrospective trial

n=71 Ch22

n=13 Ch18.5

Operation time and complication rate: no difference

Ch 18.5:

less postoperative urinary incontinence ?

23% vs 10% at 2 weeks ($p=0.181$)



Wat zijn de nadelen van HoLEP ?

I. **Complicaties**

II. **Investering**

III. **Eerder moeilijke procedure**



Evaluation of the Cost-Effectiveness of Surgical Treatment Options for Benign Prostatic Hyperplasia

Kevin M Wymer¹, Gopal Narang², Austen Slade³, Vidit Sharma⁴, Viengneesee Thao⁵,
Bijan J Borah⁵, Marcelino Rivera³, Scott Cheney², Mitchell R Humphreys⁶

Affiliations + expand

PMID: 36270339 DOI: [10.1016/j.urology.2022.09.026](#)

Results: At 5 years, costs per patient for index patient 1 were \$3292 (WVTT), \$6532 (HoLEP), \$6670 (B-TURP), and \$10,257 (PUL). HoLEP resulted in the highest QALYs (4.66), followed by B-TURP (4.60), PUL (4.38), and WVTT (4.38). This translated to HoLEP being most cost-effective (ICER \$11,847). For index patient 2, HoLEP was less costly (\$6,585 vs \$15,404) and more effective (4.654 vs 4.650) relative to SP. On sensitivity analysis for index patient 1, B-TURP became most cost-effective if cost of HoLEP increased two-fold or chronic stress incontinence following HoLEP increased ten-fold. When follow-up time was varied, WVTT was preferred at very short follow up (<1 year), and HoLEP became more strongly preferred with longer follow up.

HoLEP is most cost-effective compared to TURP, Rezum, Urolift

Wat zijn de nadelen van HoLEP ?

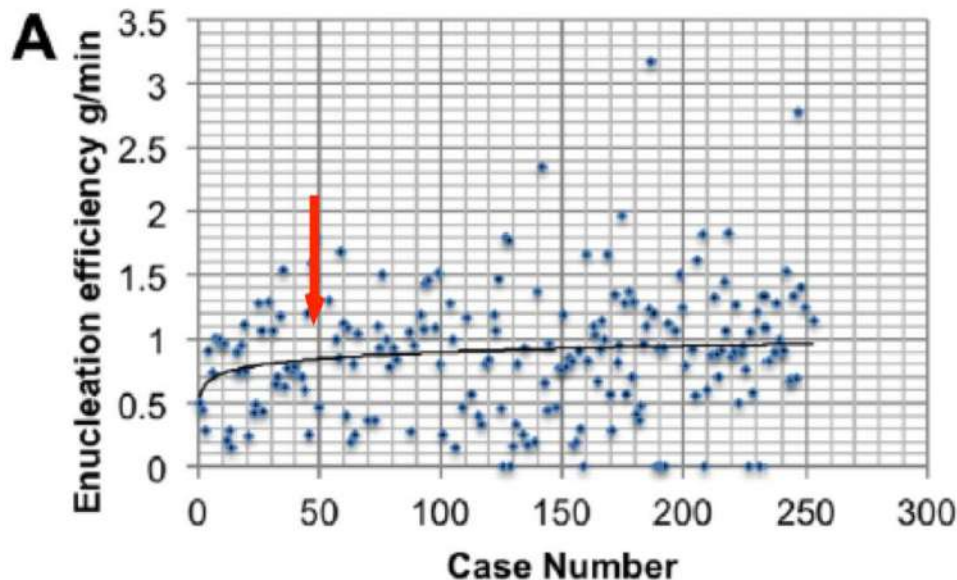
- I. Complicaties
- II. Investering
- III. Eerder moeilijke procedure

Evaluation of the Learning Curve for Holmium Laser Enucleation of the Prostate Using Multiple Outcome Measures

of THE JOURNAL
UROLOGY®



Brunckhorst O et al, 2015



*“Within our single Surgeon cohort, we experienced a **learning curve of 40-60 cases** for the HoLEP procedure”*



Petraphobia

Petraphobia or **petrophobia** (from Greek *petros*, meaning "rock", "stone") is the fear of [rocks](#). This phobia is often caused by negative experiences involving rocks back in the childhood, like getting hit by a rock.

Sufferers would stay away from rocks,

Wegen de nadelen op tegen de voordelen?

JA



uroweb.org

Recommendation	Strength rating
Offer laser enucleation of the prostate using Ho:YAG laser (HoLEP) to men with moderate-to-severe LUTS as an alternative to transurethral resection of the prostate or open prostatectomy.	Strong

EAU richtlijnen

Bied HoLEP aan als alternatief voor TURP en open prostatectomie :

- Minder bloedverlies
- Kortere hospitalisatieduur
- Goede functionele resultaten

RCT

Klassieke behandelingen

Innovatieve behandelingen

Open prostatectomie (>80g)

HoLEP

TURP (< 80g)

Rezum, prostaatembolisatie

Benign Prostatic Obstruction

Holmium Laser Enucleation of the Prostate Versus Open Prostatectomy for Prostates >70 g: 24-Month Follow-up

Richard Naspro*, Nazareno Suardi, Andrea Salonia, Vincenzo Scattoni,
Giorgio Guazzoni, Renzo Colombo, Andrea Cestari, Alberto Briganti,
Bruno Mazzocchi, Patrizio Rigatti, Francesco Montorsi

Department of Urology, University "Vita-Salute", Scientific Institute H. San Raffaele, Milan, Italy

	Preoperatively	Postop 1-year mean $\pm$ SD (range)	Postop 2-year mean $\pm$ SD (range)	Postop 3-year mean $\pm$ SD (range)	Postop 4-year mean $\pm$ SD (range)	Postop 5-yr mean $\pm$ SD (range)
No. of patients	120	105	99	88	81	74
HoLEP group	60	56	53	48	45	42
OP group	60	49	46	40	36	32
AUA symptom score						
HoLEP group	22.1 $\pm$ 3.3 (11–30)	2.3 $\pm$ 2.0 (0–11)	2.3 $\pm$ 2.2 (0–12)	3.0 $\pm$ 3.1 (0–16)	3.0 $\pm$ 3.1 (0–10)	3.0 $\pm$ 3.2 (0–10)
OP group	21.0 $\pm$ 3.6 (13–28)	2.3 $\pm$ 1.7 (0–7)	2.4 $\pm$ 1.6 (0–8)	2.8 $\pm$ 1.6 (0–9)	2.8 $\pm$ 1.9 (0–9)	3.0 $\pm$ 1.7 (1–9)
p value	0.09	0.94	0.89	0.82	0.68	0.98
Peak flow (ml/s)						
HoLEP group	3.8 $\pm$ 3.6 (0–10)	27.4 $\pm$ 9.7 (11–49)	26.7 $\pm$ 8.3 (14–57)	27.0 $\pm$ 9.8 (8–50)	27.7 $\pm$ 9.6 (8–53)	24.3 $\pm$ 10.1 (8–54)
OP group	3.6 $\pm$ 3.8 (0–12)	28.3 $\pm$ 7.5 (12–49)	27.4 $\pm$ 6.8 (13–51)	25.3 $\pm$ 6.9 (11–47)	25.0 $\pm$ 8.3 (11–54)	24.4 $\pm$ 7.4 (11–49)
p value	0.60	0.86	0.65	0.32	0.20	0.97
Residual volume (ml)						
HoLEP group	280 $\pm$ 273 (50–1000)	5.8 $\pm$ 16.7 (0–90)	1.7 $\pm$ 6.5 (0–33)	6.1 $\pm$ 12.1 (0–40)	8.6 $\pm$ 13.5 (0–40)	10.6 $\pm$ 24.4 (0–138)
OP group	292 $\pm$ 191 (50–1000)	6.4 $\pm$ 12.3 (0–40)	2.4 $\pm$ 6.8 (0–30)	4.4 $\pm$ 10.5 (0–40)	6.5 $\pm$ 12.1 (0–40)	5.3 $\pm$ 11.2 (0–40)
p value	0.43	0.83	0.61	0.50	0.48	0.25

Postop, postoperative; SD, standard deviation; HoLEP, holmium laser enucleation of the prostate; OP, open prostatectomy; AUA, American Urological Association.

Long term functional results : no difference



Table 2 – Perioperative data

	HoLEP	OP	p value
Total operative time, min	72.09 ± 21.22	58.31 ± 11.95	p < 0.0001
Specimen weight, g	59.33 ± 34.77	87.90 ± 41.11	p = 0.0046
Hb levels drop, g/dl	2.12 ± 1.48	3.15 ± 1.33	p = 0.0073
Autologous blood transfusion	2 (4%)	5 (12.8%)	p < 0.001
Homologous blood transfusion	0	2 (5.1%)	p < 0.007
Catheterisation time, d	1.5 ± 1.07	4.1 ± 0.5	p < 0.0001
Hospital stay, d	2.7 ± 1.1	5.43 ± 1.05	p < 0.0001
Data shown as mean ± standard deviation of the mean. HoLEP = holmium laser enucleation of the prostate; OP = open prostatectomy.			

HoLEP

Open Prostatectomy

RCT

Klassieke behandelingen

Innovatieve behandelingen

Open prostatectomie (>80g)

HoLEP

TURP (< 80g)

Rezüm, prostaateMBOLISATIE



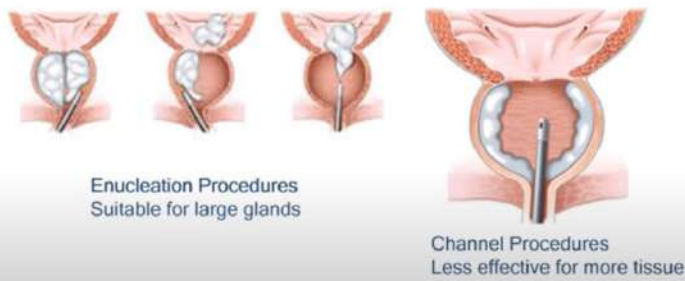
Comparison of EEP and TURP long-term outcomes: systematic review and meta-analysis

Andrey Morozov¹ · Mark Taratkin¹ · Anastasia Shpikina¹ · Yaron Ehrlich^{2,3} · Jonathan McFarland^{4,5} · Alim Dymov¹ · Vasiliy Kozlov⁶ · Harun Fajkovic^{7,8} · Juan Gomez Rivas⁹ · Lukas Lusuardi¹⁰ · Jeremy Yuen-Chun Teoh¹¹ · Thomas Herrmann^{12,13} · Jack Baniel^{2,3} · Dmitry Enikeev^{1,7,8} 

Received: 30 March 2023 / Accepted: 28 September 2023

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Conclusion EEP had a significantly lower reoperation rate and better functional outcomes ($Q_{\max}$ and IPSS) at long term compared with TURP. It may also be beneficial in terms of IIEF-5, PVR, and PSA level.



**GEEN
VERGELIJKING**

“old” treatments

Open prostatectomy (>80g)

TURP (< 80g)

Innovative treatments

HoLEP

Robot adenomectomy

Rezum, prostate embolisation

Treatment options : MIST



Minimally invasive surgical treatments : MIST

TUMT
TUNA

Urolift
iTIND
Aquablation

Rezum
Prostaatembolisatie

RISICO

CHIRURGIE



MIST (Minimally Invasive Surgical Treatments)



MEDICATIE



Prostaat embolisatie

Rezüm

Aquablation

Urolift

DUURZAAMHEID

Rezum



Stoom opgewekt door radiofrequentie (103°C)

Stoom in prostaatweefsel leidt tot necrose en krimpen van de prostaat

FDA approved sinds 2015

Praktisch

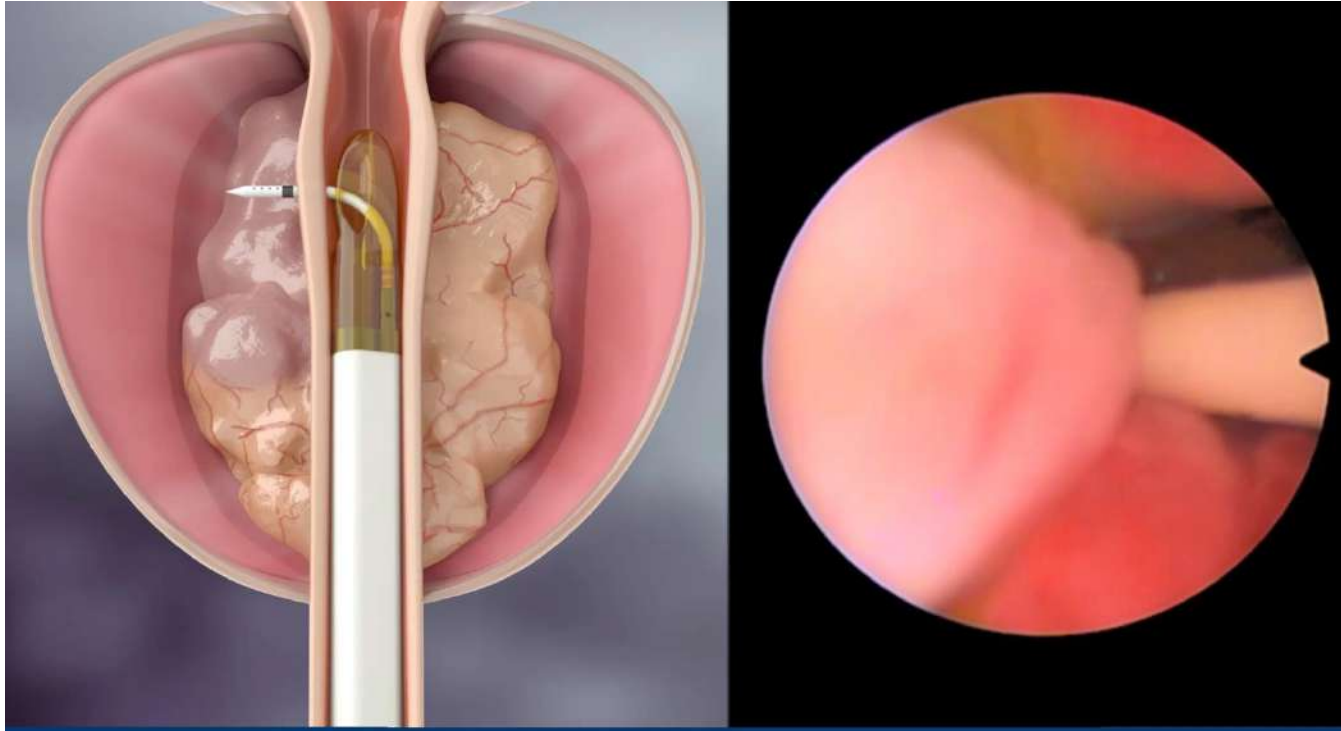


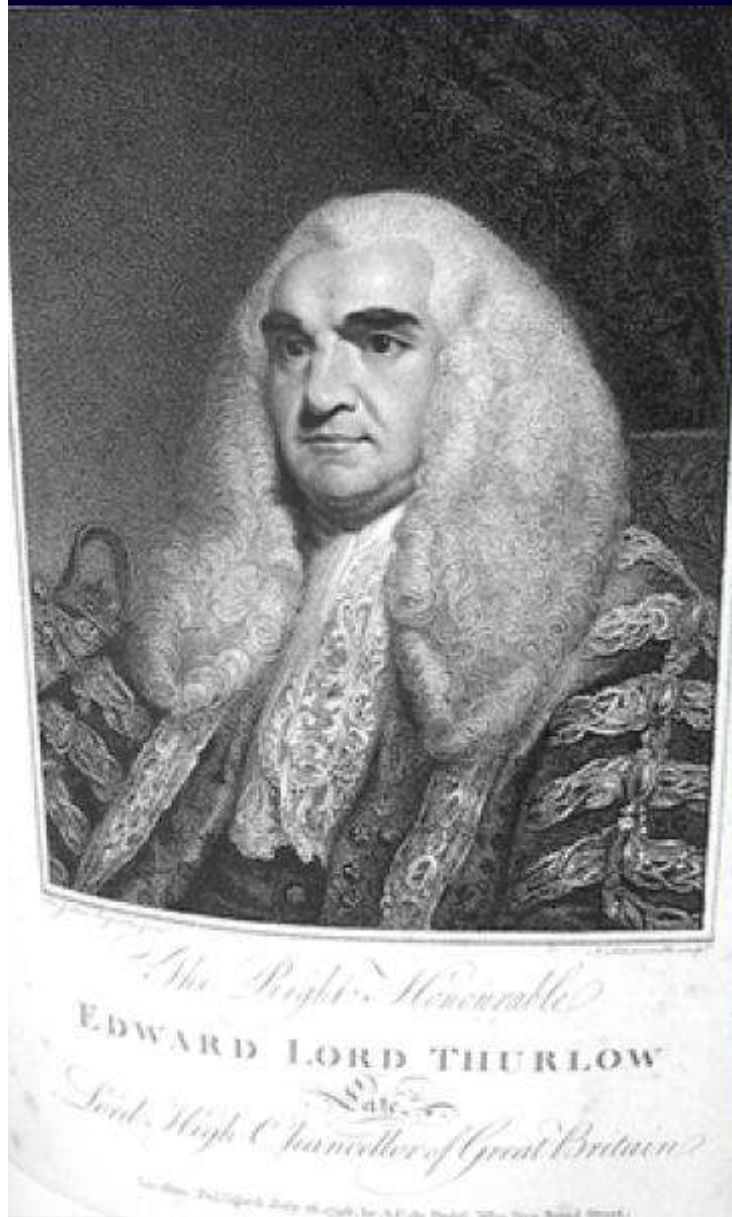
Anesthesie: algemeen of lokaal

Makkelijke procedure (5 min) in daghospitalisatie

Patiënt gaat naar huis met een verblijfsonde (3 tot 7 dagen)

Rezum





“There is no
more science
in surgery
than in
butchering,”

- *Lord Thurlow*

Parliamentary debate on the
establishment of a Royal College of
Surgeons in 1811

prostaatvolume tussen 30ml en 80ml
postmictioneel residu < 250ml

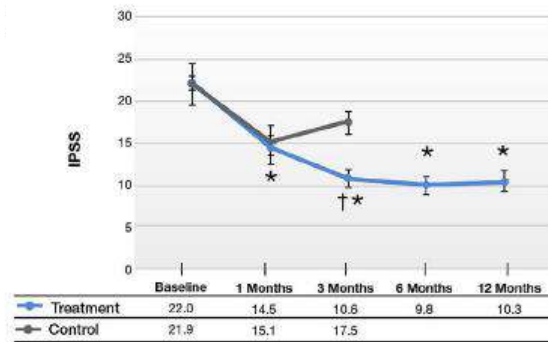


Rezum (136 patiënten)



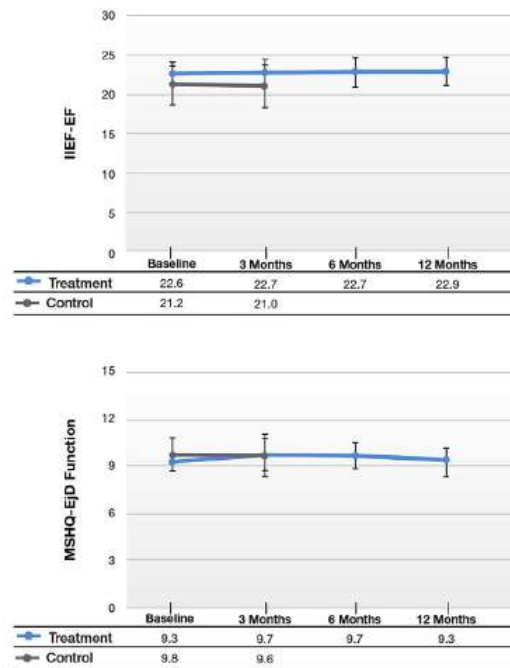
Sham procedure (61 patiënten)
cystoscopie + activatie van generator

Functioneel



IPSS beter dan “sham” na 3 maanden

Seksueel



Rezum

geeft verbetering van plasklachten bij patiënten met prostaatvolumes tussen 30 en 80g

Maar...

Wat met de lange termijn resultaten ?

NO DATA AVAILABLE

Rezum

geeft verbetering van plasklachten bij patiënten met prostaatvolumes tussen 30 en 80g

Maar...

Wat met de lange termijn resultaten ?

NO DATA AVAILABLE

Wat met patiënten met urineretentie?

**NO GOOD
DATA
AVAILABLE**

Rezum

geeft verbetering van plasklachten bij patiënten met prostaatvolumes tussen 30 en 80g

Maar...

Wat met de lange termijn resultaten ?

NO DATA AVAILABLE

Wat met patiënten met urineretentie?

**NO GOOD
DATA
AVAILABLE**

Wat is het verschil met TURP en HoLEP?

Rezüm

Medical therapy

TRUS (6 months after Rezüm): **18% volume reduction**

Mollengarden et al. Prostate Cancer Prostatic Dis 2017

TRUS (6 months after finasteride): **18% volume reduction**

Chiu et al. J Chin Med Assoc 2004

Enucleation

TRUS (6 months after HoLEP): **64% volume reduction**
Wilson et al. Eur Urol 2006

TURP

TRUS (6 months after TURP): **36% volume reduction**
Wilson et al. Eur Urol 2006

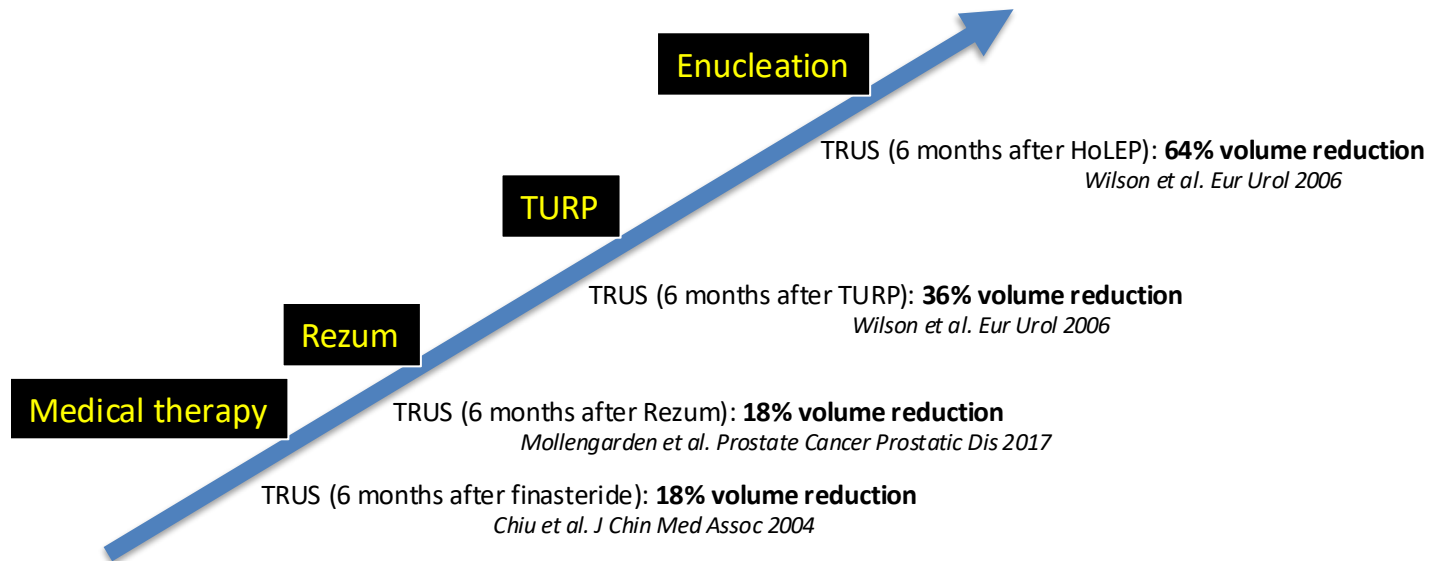
Rezum

TRUS (6 months after Rezum): **18% volume reduction**
Mollengarden et al. Prostate Cancer Prostatic Dis 2017

Medical therapy

TRUS (6 months after finasteride): **18% volume reduction**
Chiu et al. J Chin Med Assoc 2004

Volledige verwijdering adenoom



Geen verwijdering adenoom

Herbehandeling nodig na 5 jaar ?

Rezum

15%

McVary et al. AUA 2020

TURP

6%

Madersbacher et al. Eur Urol 47, 2005

HoLEP

1%

Gilling et al. Eur Urol 53, 2008

Seksuele resultaten

Rezum

- Geen veranderde erectiele functie
- Verminderd ejaculatie volume : 3%

McVary et al. Urology 2019

HoLEP & TURP

- Geen veranderde erectiele functie
- Droog orgasme : 80%

Montorsi et al. J Urol 2004

Briganti et al. J Urol 2006

One more thing...



Kost



Handstuk

1600 euro (éénmalig gebruik)

Generator

30 000 euro

Rezum

- Minder efficiënt dan TURP en HoLEP
- Minder invasief dan TURP en HoLEP
- Daarom:

nieuwe speler in de behandeling van plasklachten bij patiënten met

prostaatvolume tussen de 30 en 80g
postmictioneel residu < 250ml



Treatment options : MIST



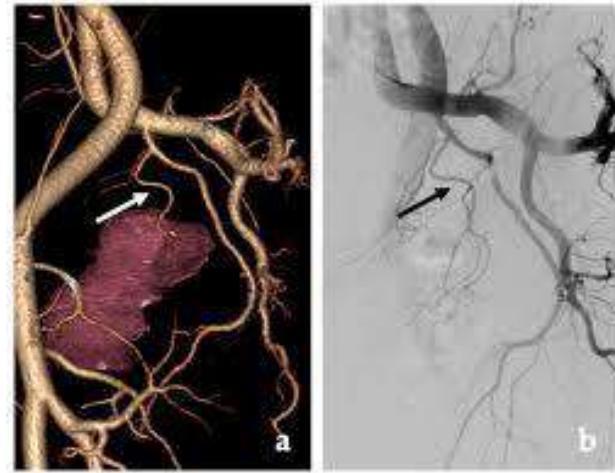
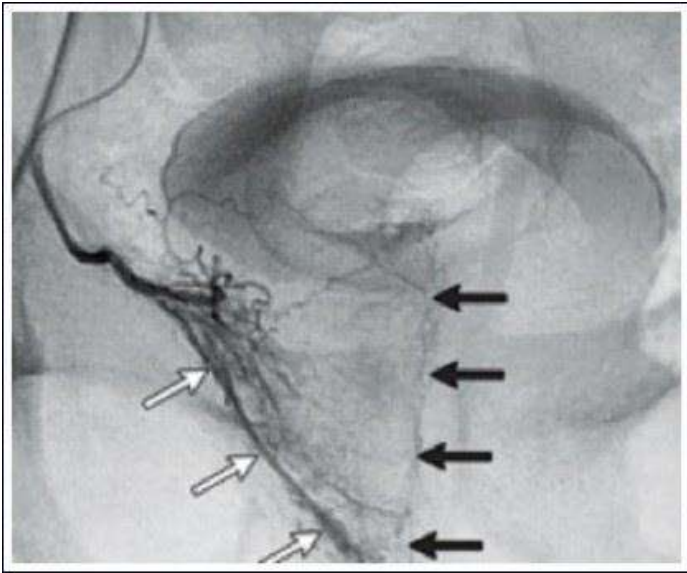
Minimally invasive surgical treatments : MIST

TUMT
TUNA

Urolift
iTIND
Aquablation

Rezum
Prostaatembolisatie

Prostaat embolisatie

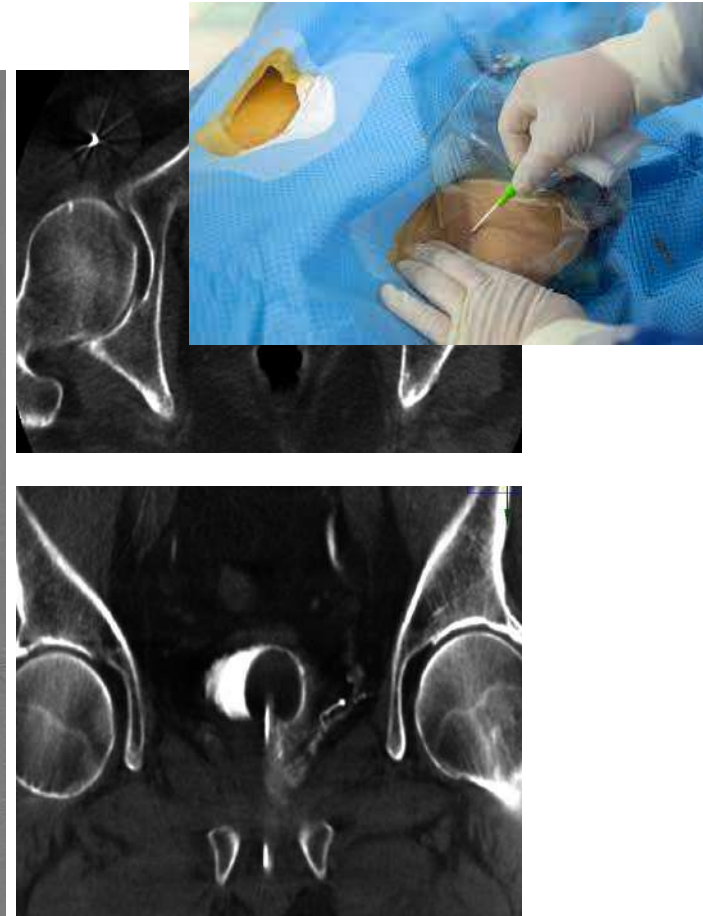
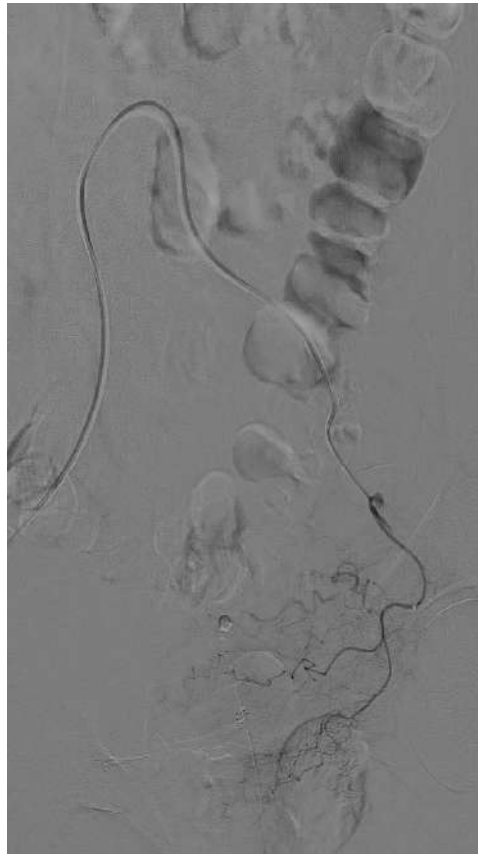


Anejaculation in 16 %

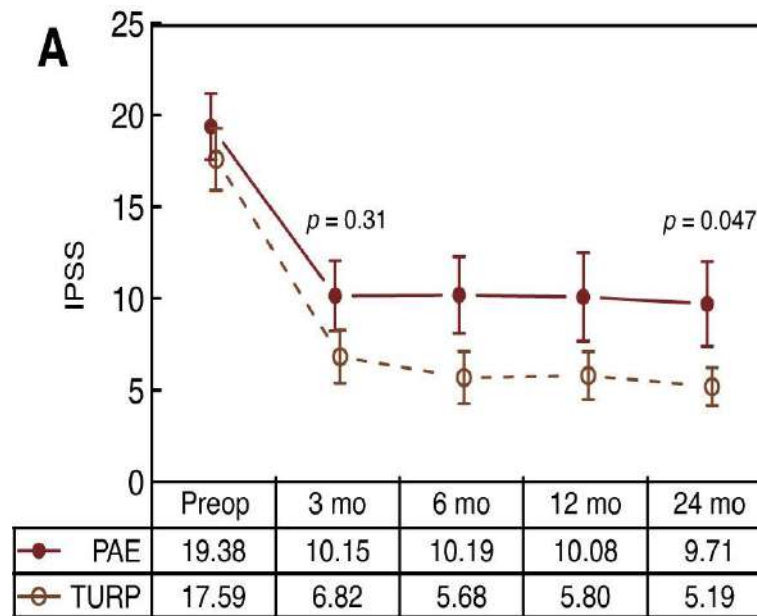
Wong et al. Techniques in vascular and interventional rad 2020

Lokale anesthesie !
Bloedverdunners !
Urethra !
Prostaatkanker !

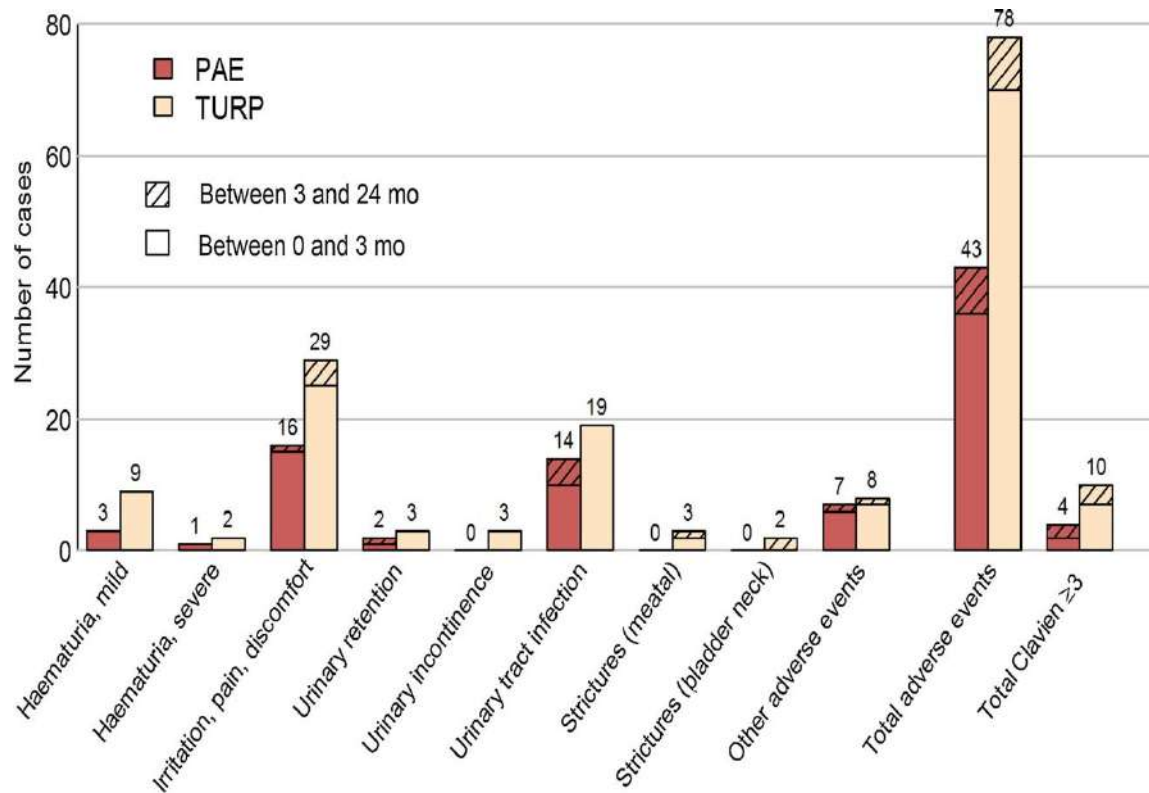
- Punctie van de arteria femoralis in de lies onder LOKALE anesthesie
- Catheterisatie van de prostaatarteriën



Resultaten prostaatembolisatie vs TURP



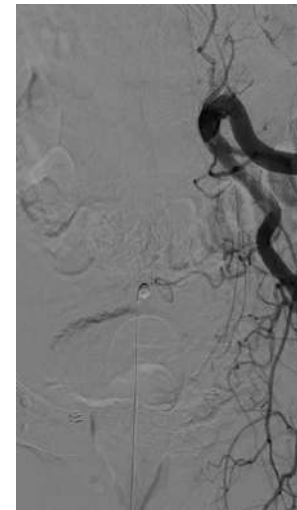
Risico's prostaatembolisatie



PAE (Prostatic Artery Embolisation)

Prostaatembolisatie

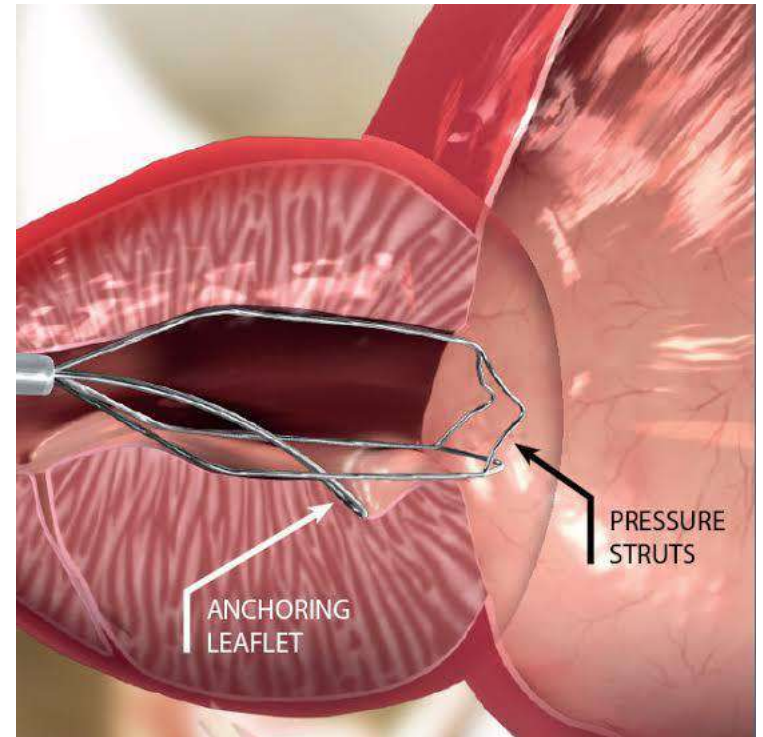
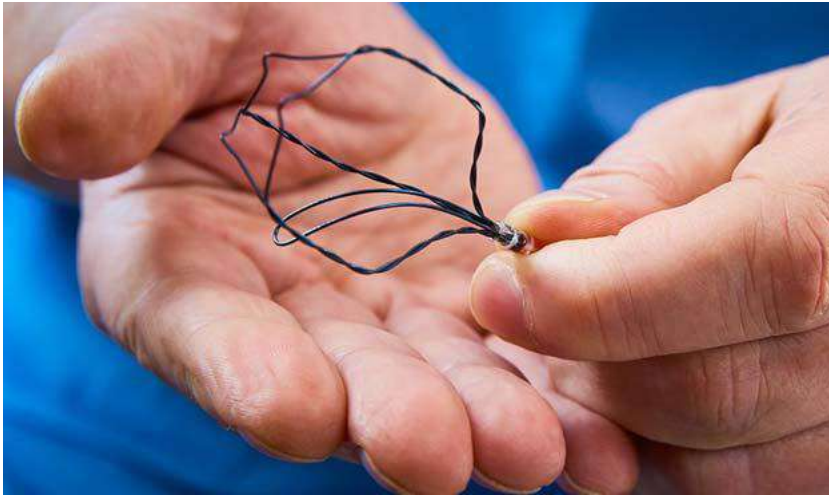
- Prostaat krimpt door afsluiten bloedvoorziening
- Verbetering van de klachten, maar minder dan na TURP
- Onder lokale anesthesie en zonder bloedverdunners te stoppen
- Behoud van ejaculatie



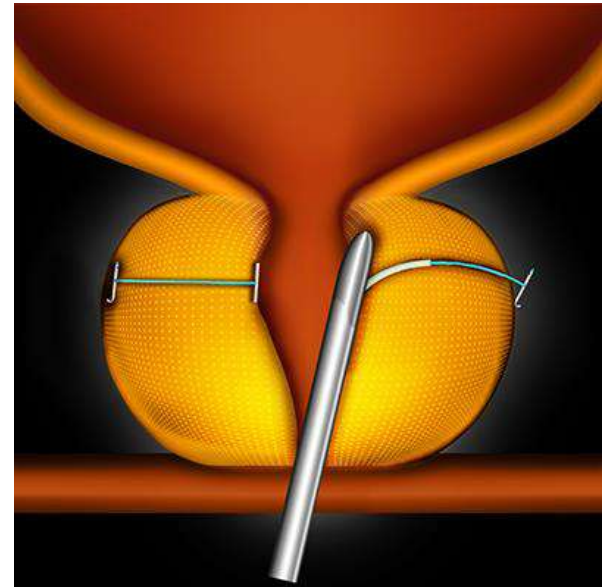
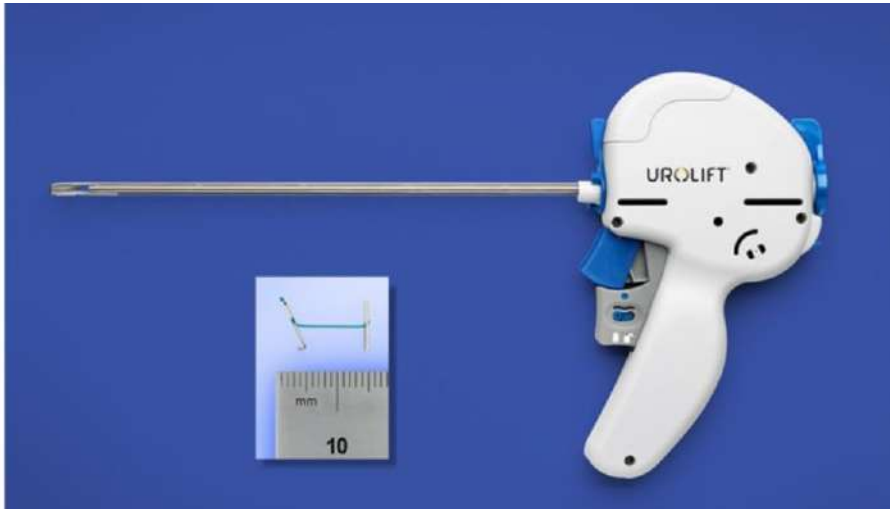
Andere MISTs

- iTind
- Urolift
- Aquablation
- ...

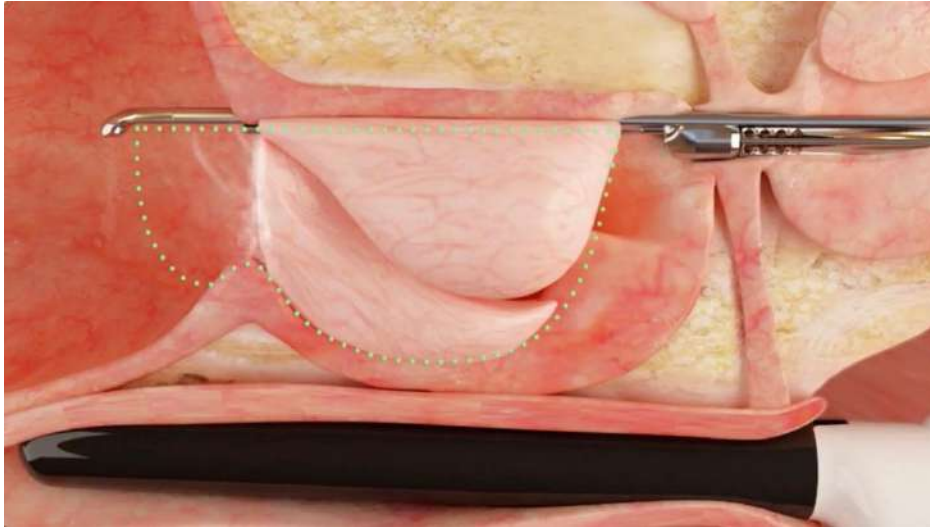
iTind



UroLift



Aquablation

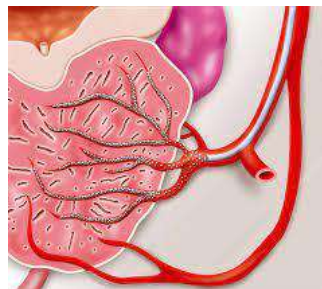




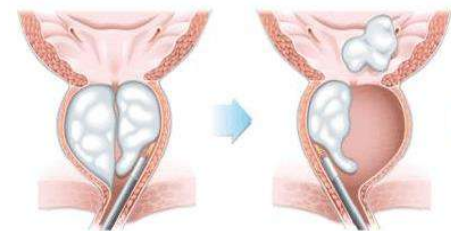
Rezum



**Robotic
adenomectomy**



Embolisatie



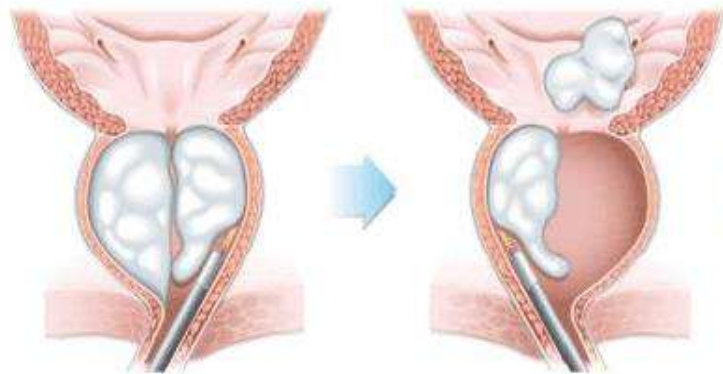
HoLEP

HoLEP

Holmium Laser Enucleation van de Prostaat

- prostaatweefsel wordt uitgesneden met laser
- efficiënte techniek met uitstekende lange termijn resultaten, met echter herstelperiode en droog orgasme
- de nieuwe referentie in de behandeling van goedaardige prostaatvergroting

95 % van mijn patiënten

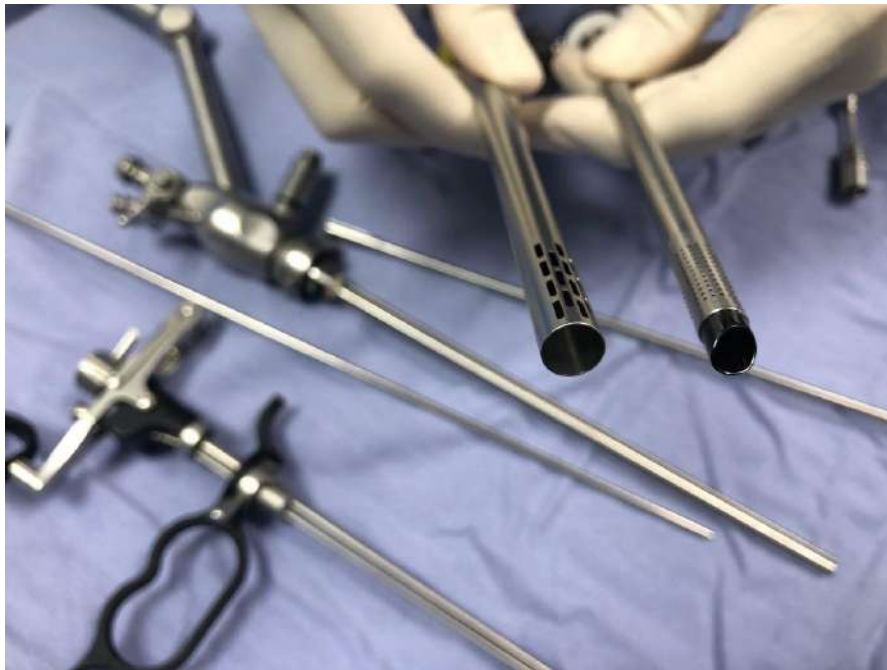


MiLEP :

Mini HoLEP

de ideale MIST

Minimally Invasive Surgical Treatment



MiLEP SYSTEM

Minimally Invasive prostate surgery is a minimally invasive treatment for Benign Prostatic Hyperplasia (BPH). The MiLEP laser enucleation of the prostate (MiLEP) uses a laser resectoscope to enucleate the prostate tissue that is blocking urine flow. A resectoscope which passes through the urethra is then used to cut the prostate and remove the adenoma.

As with other types of prostate laser surgery, MiLEP can offer faster recovery, less risk of bleeding and transfusion and better symptom relief compared to traditional prostate surgery.

Key features of the MiLEP system:

- 40°** The MiLEP laser system is the new gold standard in surgical treatment for BPH according to Urologists with its ability to resect prostate tissue independent of size, with durable long-term outcomes.^{1,2}
- 45°** Enucleation laser enucleation of the prostate (MiLEP) is a minimally invasive and outpatient procedure for benign prostatic hyperplasia with excellent long-term surgical outcomes.^{3,4}

Key features of the MiLEP system:

- Ergonomic design**
- Quick lock mechanism**
- Continuous flow resectoscope**
- Shock resistant optical fibers**
- 2° three working channel** compatible to handle all Urology Laser Diodes
- Additional irrigation inflow**

22 CHARR

Endoscopic laser enucleation has become the golden standard for treatment of BPH for glands > 80g.

To improve the functional outcome and reduce the risk of postoperative side effects as a part of the urinary and urinary incontinence, 42 has been developed in the MiLEP resectoscope as a 22 Char, outer diameter for laser Enucleation and Morcellation.

1. European Association of Urology (EAU) Guidelines on the management of benign prostatic hyperplasia (BPH) 2018. 2. J. Urol. 2018; 199(5): 1045-1052. 3. J. Urol. 2018; 199(5): 1045-1052. 4. J. Urol. 2018; 199(5): 1045-1052.

Wanneer is HoLEP niet ideaal ?

5 % van mijn patiënten

- Patiënt aanvaardt geen **droog orgasme**
Rezum, prostaat embolisatie
- Patiënt aanvaardt het kleine **risico** op urethrastricturen en urineverlies niet
prostaat embolisatie, Rezum
- Complexe **urethra**
prostaat embolisatie, Rezum
- **Anesthesie** en/of stop **anticoagulatie** is niet mogelijk
prostaat embolisatie

Bedankt voor uw aandacht!

Vragen?

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@PieterUvin

