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## Surgical treatment of BPH, towards office/daycare treatment? Urolift, Rezüm, Aquaablation & PAE

BAU Congress,  
Jan Klein, 29.11.2019



### Urolift

Lateral lobes of the prostate are compressed by anchors

### Urolift

#### Surgical Steps

### Urolift

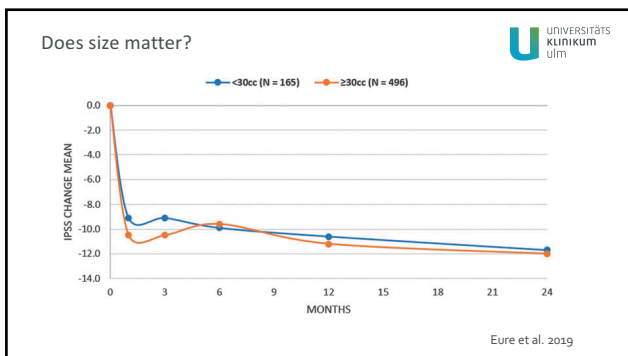
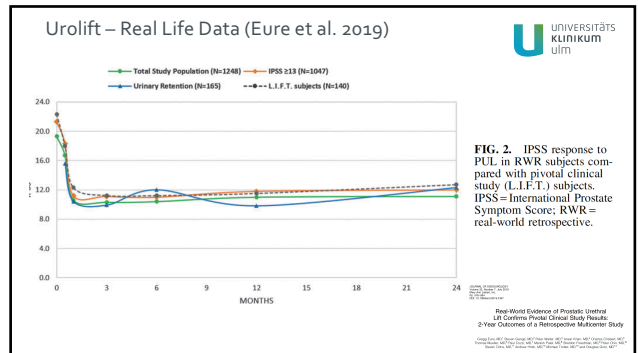
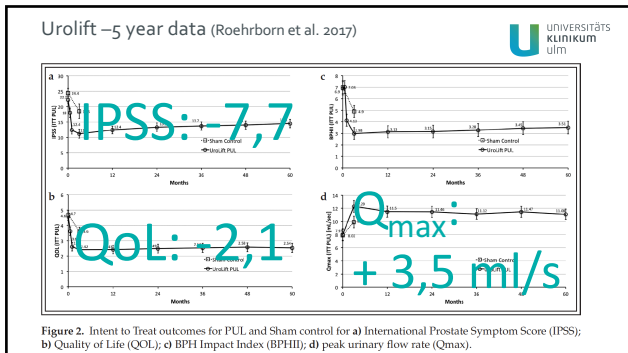
Number of anchors (avg 4)  
Midlobe contraindication

### Urolift - Data

Author	N	Urinary Results	Erectile Function	Follow up
Woo et al. 2011*	19	IPSS: -9.6 Qmax: +2.3 mL/s PVR: -40 mL		12 months
Chin et al. 2012**	64	IPSS: -9.2 Qmax: +2.9 mL/s PVR: -39 mL	SHIM: +1.1	24 months
McNicholas et al. 2013**	102	IPSS: -12.3 Qmax: +4.1 mL/s PVR: +3 mL		12 months
Cartwright et al. 2014*	53	IPSS: -8.7 Qmax: +2.6 mL/s PVR: -11 mL	IEF-5: +0.9	12 months
Ruktalis et al. 2016*	53	IPSS: -9.59 Qmax: +4.18 mL/s PVR: -7.32 mL	SHIM: +0.77	24 months
Sonksen et al. 2015*	45	IPSS: -11.3 Qmax: +4 mL/s PVR: -7.4 mL	SHIM: -0.9	12 months
Gratzke et al. 2017**	37	IPSS: -9.2 Qmax: +9 mL/s PVR: -10.6 mL	SHIM: -0.1	24 months
Roehrborn et al. 2013*	140	AUA-SI: -10.7 Qmax: +4 mL/s PVR: -12 mL	SHIM: +0.4	12 months
McVary et al. 2014**	140	IPSS: -8.83 Qmax: +3.47 mL/s PVR: -7.56 mL	SHIM: +0.54	8 years
Roehrborn et al. 2016**	140	IPSS: -8.8 Qmax: +4.3 mL/s	SHIM: -0.37	4 years
Roehrborn et al. 2017**	140	IPSS: -7.56 Qmax: +5.48 mL/s	IEF-5: -0.37	5 years

IPSS: better (10)  
Q<sub>max</sub>: faster (3,6 ml/s)

AUA-SI = American Urological Association symptom score; IEF-5 = International Index of Erectile Function; IPSS = International Prostate Symptom Score; PVR = post-void residual volume; Qmax = peak urinary flow; SHIM = sexual health inventory for men

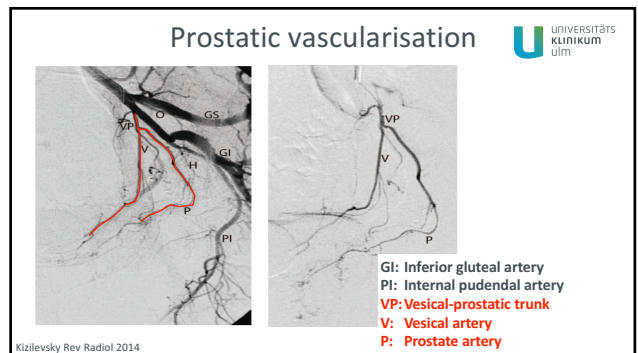
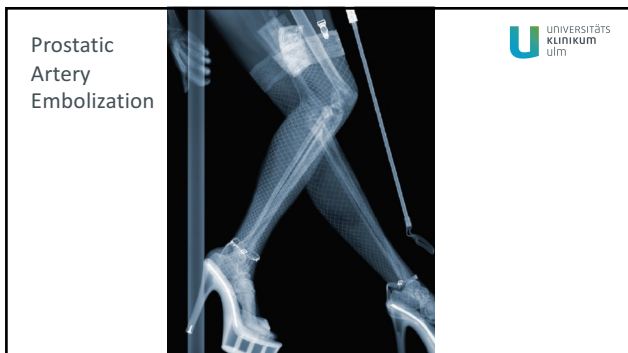


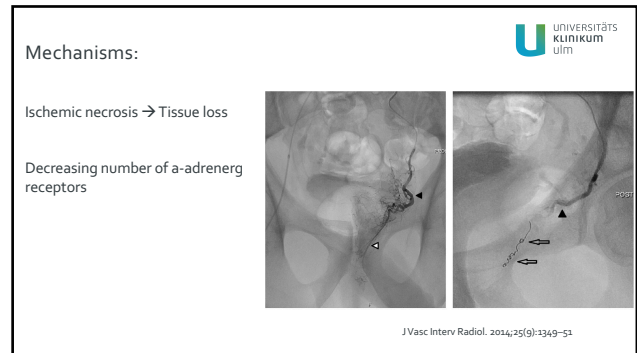
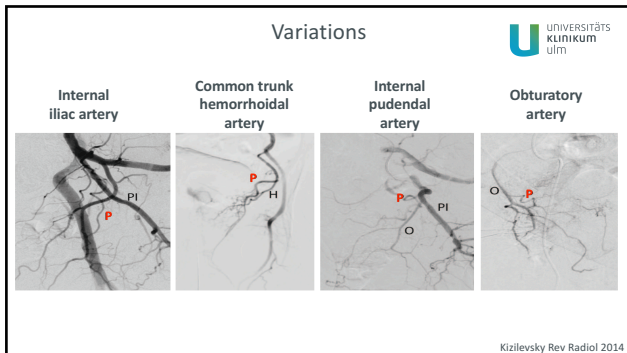
Urolift:

- Minimalinvasive – protects ejaculation
- Office procedure in local anaesthesia
- Initial Impact – stable status
- Medium term data (5 years)
- AUA & EAU Guidelines

Prostatic stents and prostatic urethral lift	
Offer prostatic stents as an alternative to catheterisation in men unfit for invasive procedures requiring spinal or general anaesthesia.	Weak
Offer Prostatic urethral lift (Urolift®) to men with LUTS interested in preserving ejaculatory function, with prostates < 70 mL and no middle lobe.	Strong

EAU Guidelines Non-neurogenic Mals LUTS 2019





### PAE

Local anaesthesia or sedation

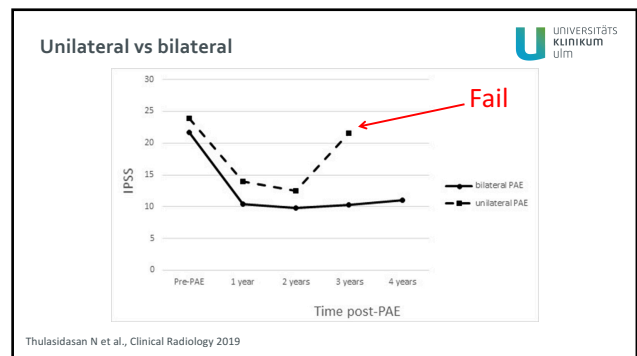
Technically demanding procedure

Major complications (Prostatic abscess, Bladder necrosis) - rare

Coiling both Prostatic arteries : 47.8% volume reduction after 6 months

Coiling of one Prostatic artery: 27.8% volume reduction after 6 months

J Vasc Interv Radiol. 2014;25(9):1349-51  
Cardiovasc Intervent Radiol. 2010;33(2):355-61



### Functional Data

Author	Mean IPSS						Mean QoL						Mean IIEF					
	B	1 mos	3 mos	6 mos	12 mos	24 mos	B	1 mos	3 mos	6 mos	12 mos	24 mos	B	1 mos	3 mos	6 mos	12 mos	24 mos
Bagla et al. (20)	27.2	14	11.9	15.9	N/A	N/A	5.0	3.2	3.1	3.1	N/A	N/A	15	14.7	N/A	17.5	N/A	N/A
Bagla et al. (20)	25.6	17.2	16.3	13.5	N/A	N/A	4.9	3.2	3	2.1	N/A	N/A	14.8	14.4	N/A	16.9	N/A	N/A
Bagla et al. (20)	26.5	15.6	12.5	13.6	N/A	N/A	4.7	2	1.8	1.7	N/A	N/A	13.2	13.2	N/A	16.4	N/A	N/A
Bilhim et al.	22.4	11.8	N/A	10.9	10.2	8.1	4.2	2.5	N/A	2.4	2.3	2.4	16.6	16.8	N/A	18.1	18.4	18.8
Gabr et al. (22)	22.3	12.9	11.6	11.5	N/A	N/A	4.2	2.8	2.9	2.9	N/A	N/A	15.8	16.5	16.6	16.6	N/A	N/A
Li et al. (23)	27	12	7	8	7.5	N/A	4.5	2.5	2	2	2	N/A	20	18	19	18	17	N/A
Pisco et al. (12)	24	12.2	11	11.5	10.4	9	4.4	2.5	2.3	2.2	1.9	1.8	18.9	20.6	20.9	20.5	20.1	18.7
Wang et al. (24)	26	9.5	8.5	7.5	8	9	5	2.5	3	3	2.5	3	11	11	10	12	13	10

B, baseline; mos, months; IPSS, International Prostate Symptom Score; QoL, quality of life; IIEF, International Index of Erectile Function; N/A, not available.

### 4y, real life data, N = 159

	Baseline	6 months	1 year	2 years	3 years	4 years
IPSS	22	9.5	10.7	10	11.3	11
QoL	4,6	2	2.2	2.4	3.1	2.5
IIEF	14.8	14.4	16.3	19	18	15

Thulasidasan N et al., Clinical Radiology 2019

PAE

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Effective treatment 4y follow up

Low complication rate

Coiling both prostatic arteries is more effective

Petrillo et al. Gland Surg. 2018 Apr; 7(2): 188–199.  
Benign prostatic hyperplasia: prostatic arterial embolization versus transurethral resection of the prostate- a prospective, randomized, and controlled clinical trial. Gao YA et al. Radiology. 2014 Mar; 270(3):920-8.

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The new way to BPH treatment

Injection of hot steam

70°C - intracellular – tissue necrosis

FDA approval since 2015

Short catheter time (2-3 days)

Protection of ejaculation

Local anaesthesia



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Generator

Applicator

Tubes



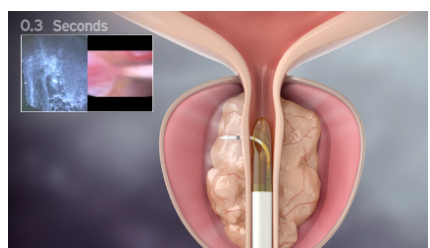
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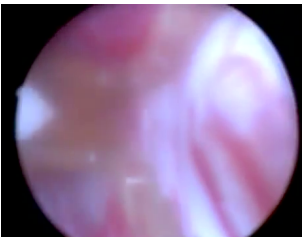
Tubes



0.3 Seconds

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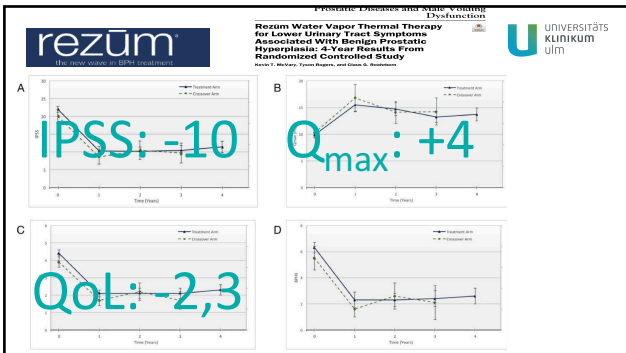


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**Table 1** All studies reporting on Rezūm with outcome measures and follow-up (IPSS International prostate symptom score, QoL quality of life, Qmax maximum urinary flow rate, PVR postvoid residual urine, IIEF-EF international index of erectile function)

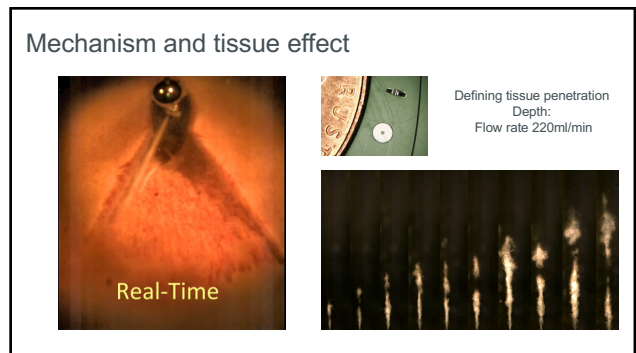
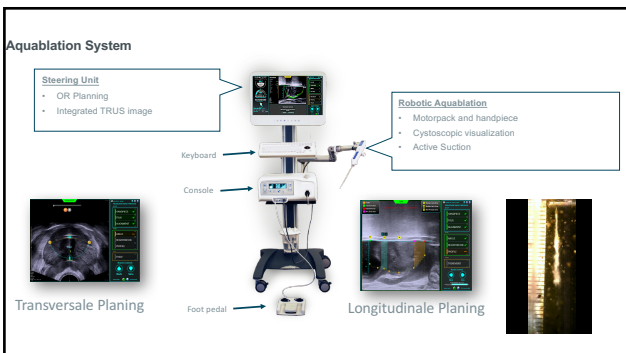
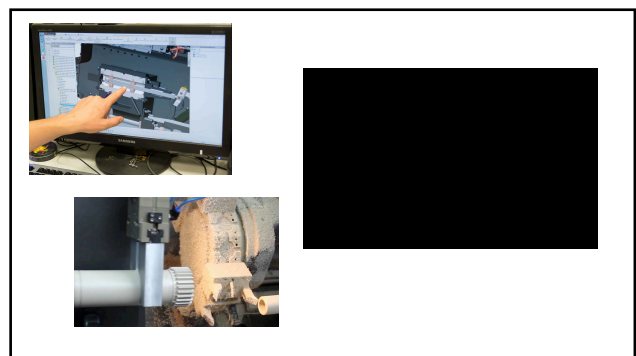
Year	Type of study	Authors	Number of participants	Duration of follow-up (months)	IPSS (%reduction)	QoL (% reduction)	Qmax (mL/s) (% improvement)	PVR (% reduction)	IIEF-EF (%improvement)
2016	Pilot study	Dixon et al.	65	24	55.7 (n = 43)	59 (n = 43)	44.5 (n = 39)	19.8 (n = 38)	30.5 (n = 31)
2017	Cross-over study	Rachleber et al.	53	12	56 (n = 45)	55 (n = 45)	53 (n = 44)	17 (n = 44)	18 (n = 26)
2017	Retrospective study	Davson et al.	131	12	45.2 (n = 87)	37.8 (n = 74)	53.6 (n = 73)	34.9 (n = 70)	n/a
2017	Retrospective study	Mollngarten	129	6	60 (n = 89)	n/a	71.7 (n = 43)	32.3 (n = 99)	n/a
2019	Randomised control trial	McClary et al.	197	48	46.7 (n = 81)	42.9 (n = 90)	49.5 (n = 81)	38 (n = 89)	7.6 (n = 58)



Rezūm:

- Minimalinvasive
- Office Procedure
- Initial Impact
- Medium term data 4y
- AUA Guidelines listed

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## Conclusions

Rezüm, Urolift & PAE – Day based office procedures – mid term data

Initial impact – stable phase

Aquaablation non inferior to TUR-P with lower OR times but bleeding complications

All new procedures provide better ejaculation preservation than TUR-P



Maximilian Stern