Options for radical prostatectomy

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Academic Medical Center
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Surgical treatment of localized prostate cancer

- Pre-operative staging
- Approaches
- Extent of surgery
Surgery and alternative treatments

• Radical prostatectomy
  – Open
  – Laparoscopic
  – Robot-assisted

• Temperature based treatments

• Focal treatment
Surgical treatment of localized prostate cancer

- Optimal cancer control
- Minimal morbidity
- Best functional results
Approaches

- Open
  - Perineal (Young 1905)
  - Retropubic (Millin 1945, Walsh 1983)

- Laparoscopic (Robotic) (Raboy 1997, Schuessler 1997)
  - Transperitoneal
  - Extraperitoneal
Robotics in Laparoscopy

Surgeons Console

Immersive 3D Display

Close Up of surgical field

No goggles / headset
Robotics in Laparoscopy

Finger Ring Attachments Allow Endoscopic surgery to be performed using same skills as Open Surgery
Robotics in Laparoscopy

EndoWrist Instruments

Allow complex manipulative surgery
ROBOTIC-ASSISTED SURGERY MADE ME FAMOUS
BRINGING IT TO BRIGHTON MAKES ME PROUD
Radical prostatectomy - Complications

Complications more frequent than generally reported

N=101,606
RRP (n=93,986)  RPP (n=7,718)
28.8%  25%

Actuarial PSA Progression-free and Cancer Specific Survival after RP

## Continence at 1 year

<table>
<thead>
<tr>
<th>Author</th>
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<td>Bollens</td>
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<td>94⁺</td>
<td>Leandri</td>
<td>620</td>
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**Total USA** 79-94

**ESRPE** 82-96

Djavan et al, BJU, 2007

+ 1 safety pad
**Potency rate at 1 year (bilateral NS)**

<table>
<thead>
<tr>
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<td><strong>Total USA</strong></td>
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<td><strong>ESRPE</strong></td>
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</table>

**Total USA** 59-67

**ESRPE** 56-86
LAP vs Open

- Oncological results: No Difference
- Continence: No Difference
- Potency: No Difference
- Pain & QoL: No Difference
- Surgical Technique matters and not the Approach

SUO, AUA, 2008
Minimally Invasive da Vinci Robotic Prostate Surgery

- Less Pain
- Faster Recovery
- Reduced Impotency
- And Incontinence

Is there any truth in advertising?
# Retropubic, Laparoscopic, and Robot-Assisted Radical Prostatectomy: A Systematic Review and Cumulative Analysis of Comparative Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Institution location</th>
<th>No. of cases</th>
<th>Urinary continence rates*, %</th>
<th>Potency rates*, %</th>
<th>Anastomotic strictures, %</th>
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<td>Costello et al [75]</td>
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<td>Joseph et al [76]</td>
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<td>24 mo: 86</td>
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<td>36 mo: 86</td>
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<td>6 mo: 95</td>
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<td>12 mo: 97</td>
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<tr>
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<td>6 mo: 68</td>
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<td></td>
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<td>24 mo: 92</td>
<td>24 mo: 84</td>
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</table>

* Postoperative period in months.
Retropubic, Laparoscopic, and Robot-Assisted Radical Prostatectomy: A Systematic Review and Cumulative Analysis of Comparative Studies

Vincenzo Ficarra a,*, Giacomo Novara a, Walter Artibani a, Andrea Cestari b, Antonio Galfano a, Markus Graefen c, Giorgio Guazzoni b, Bertrand Guillonneau d, Mani Menon e, Francesco Montorsi f, Vipul Patel g, Jens Rassweiler h, Hendrik Van Poppel i

Conclusions: The quality of the available comparative studies was not excellent. LRP and RALP are followed by significantly lower blood loss and transfusion rates, but the available data were not sufficient to prove the superiority of any surgical approach in terms of functional and oncologic outcomes. Further high-quality, prospective, multicentre, comparative studies are needed.
Positive Surgical Margin and Perioperative Complication Rates of Primary Surgical Treatments for Prostate Cancer: A Systematic Review and Meta-Analysis Comparing Retropubic, Laparoscopic, and Robotic Prostatectomy

Ashutosh Tewari a, Prasanna Sordia Kumaran a,b, Daniel A. Bloch c, Usha Seshadri-Kreaden d, April E. Hebert d, Peter Wiklund b

Conclusions: This meta-analysis demonstrates that RALP is at least equivalent to ORP or LRP in terms of margin rates and suggests that RALP provides certain advantages, especially regarding decreased adverse events.
PASADENA CONSENSUS PANEL

- RARP is EQUIVALENT to RRP in terms of biochemical disease-free survival:
  95.1% at 1 yr; 90.6% at 3 yr; 86.6% at 5 yr; 81.0% at 7 yr

- RARP may be used in patients with high-risk cancers

- PSMs rates after RARP are EQUIVALENT to those reported after RRP and LRP
  Average rate of PSMs: in pT2= 8–10%; in pT3= 37%

- When appropriately performed, RARP DOES NOT expose patients to an increased risk of adjuvant therapies
Conclusions surgery

• In experienced hands all treatment options comparable

• Long term follow up seems to result in same oncological results
Guidelines on Prostate Cancer

Patients who are suitable for AS and radiotherapy must have these options discussed with them.

In patients with low- and intermediate-risk PCa and a life expectancy > 10 years, RP should be offered.

Nerve-sparing surgery may be attempted in pre-operatively potent patients with low risk for extracapsular disease (T1c, GS < 7 and PSA < 10 ng/mL, or refer to Partin tables/nomograms).

Multiparametric MRI may help in deciding when to perform nerve-sparing procedures in intermediate- and high-risk disease.

In patients who are surgical candidates for radical prostatectomy, all approaches (i.e. open, laparoscopic or robotic) are acceptable because none has clearly shown superiority in terms of functional or oncological results.
Rationale for focal treatment for prostate cancer

- Proven concept in other tumours (Breast, Renal, Testis, Bladder etc.)
- Could possibly reduce morbidity
- Could improve Quality of Life
- Reduce costs??
- Same efficacy compared with traditional treatment??
Techniques for non-radiation focal therapy are available

- Cryotherapy
- High Intensity Focused Ultrasound
- *Radio Frequency Ablation*
- *Photodynamic therapy*
- *Electroporation*
- *Indigo laser*
Focal cryotherapy
High Intensity Focused Ultrasound
Focal therapy for localised unifocal and multifocal prostate cancer: a prospective development study

Ahmed et al *Lancet Oncol* 2012
Focal Laser Ablation for Prostate Cancer Followed by Radical Prostatectomy: Validation of Focal Therapy and Imaging Accuracy

Lindner et al J Urol 182:1371-1377, 2009
Challenges – FUP of focal treatment

- Prostate in situ
- Untreated side
- PSA kinetics? ASTRO/Phoenix?
- Imaging
# Ongoing trials on focal therapy

<table>
<thead>
<tr>
<th>Modality</th>
<th>Protocol</th>
<th>$n$</th>
<th>Biopsy</th>
<th>PSA</th>
<th>GS</th>
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<td>MSKCC</td>
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<td>TRUS</td>
<td>&lt;10</td>
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<td>MD Anderson</td>
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<td>&lt;15</td>
<td>≤7</td>
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<td>PDT-WST-11 Variable</td>
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</table>

PSA, prostate-specific antigen; GS, Gleason Score; HIFU, high-frequency ultrasound; TRUS, transrectal ultrasound; MRI, magnetic resonance imaging; PDT, photodynamic therapy.

## Different selection criteria!!!
Definitions need to be uniform

• Focal
• Targeted
• Conformal
• Zonal
• Hemi-treatment
• Lumpectomy
Focal therapy

Does an index tumour exist and if yes, can we identify it?
### Recommendations

<table>
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<th>Recommendation</th>
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<td>In patients who are unfit for surgery or radiotherapy, CSAP can be an alternative treatment for PCa.</td>
<td>C</td>
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<tr>
<td>If HIFU is offered, the lack of long-term comparative outcome data (&gt; 10 y) should be discussed with the patient.</td>
<td>C</td>
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<tr>
<td>Focal therapy of PCa is still in its infancy and cannot be recommended as a therapeutic alternative outside clinical trials.</td>
<td>A</td>
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