

From laparoscopic to robotic surgical urology - 2 years of experience -



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Laparoscopy

- golden standard in Urology -

PROVED:

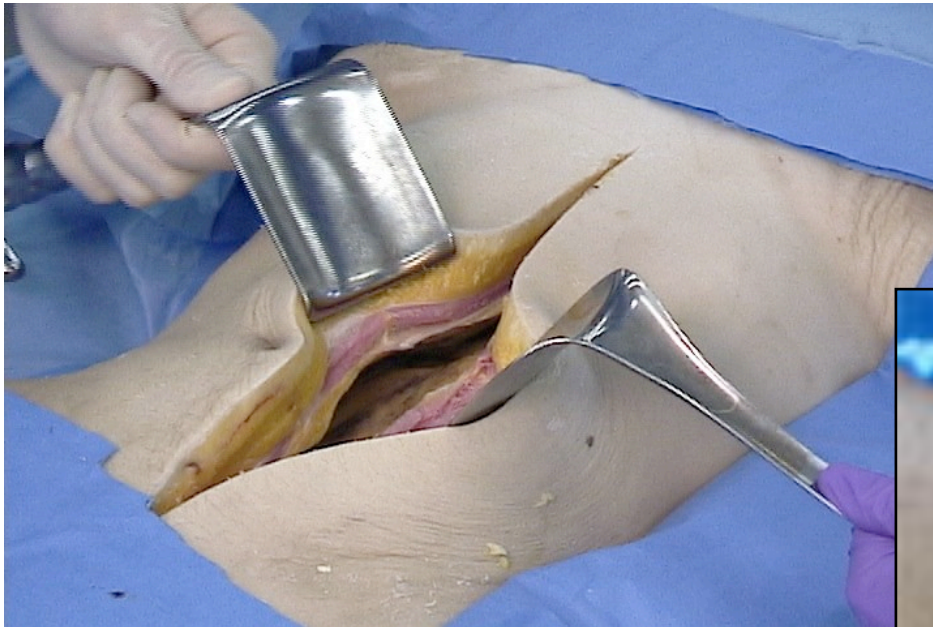
- Pyeloplasty
- Partial nephrectomy
- Simple or donor nephrectomy
- Radical nephrectomy for localized tumors
- Adrenalectomy

NOT PROVED, BUT IS GOING TO BE:

- Radical prostatectomy
- Radical cystectomy

Why laparoscopic over open urology?

Stop with the large and painful incisions



Laparoscopic Partial Nephrectomy - as example of validated proved data -

Comparative study Cleveland : 200 cases

Laparoscopy vs. Open

- Technically feasible, safe & effective option in selected patients with RCC who are candidate for nephron sparing surgery
- THIS IS A TECHNICAL ADVANCED PROCEDURE ...
- May only be considered if extended knowledge in laparoscopic surgery

I used to be laparoscopic surgeon ...

- My wide and advance laparoscopic spectrum:
 - Radical prostatectomy
 - Simple / radical nephrectomy
 - Partial nephrectomy
 - Nephroureterectomy
 - Pyeloplasty
 - Adrenalectomy
 - Sacropexy

I used to be laparoscopic surgeon ...

- Over 600 laparoscopic operations
- Over 400 laparoscopic radical prostatectomies
- Over 10 papers about laparoscopic urology in MEDLINE
- Acting as mentor and proctor of laparoscopic urology in Germany and in Greece

Disadvantages of laparoscopy

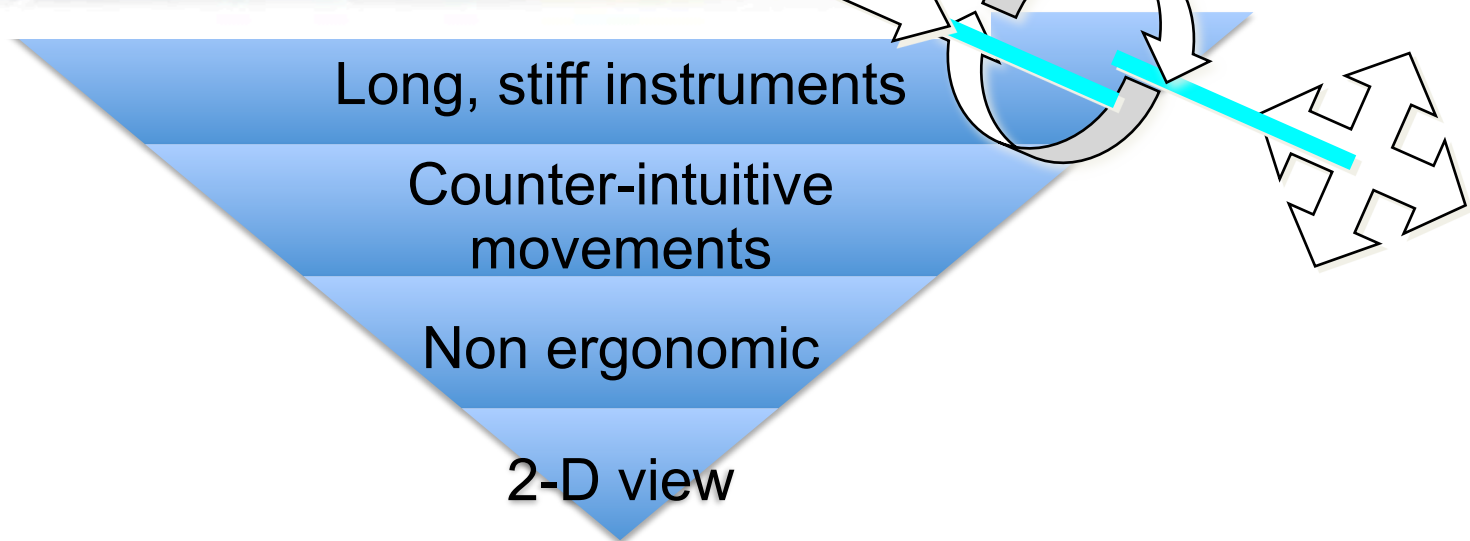
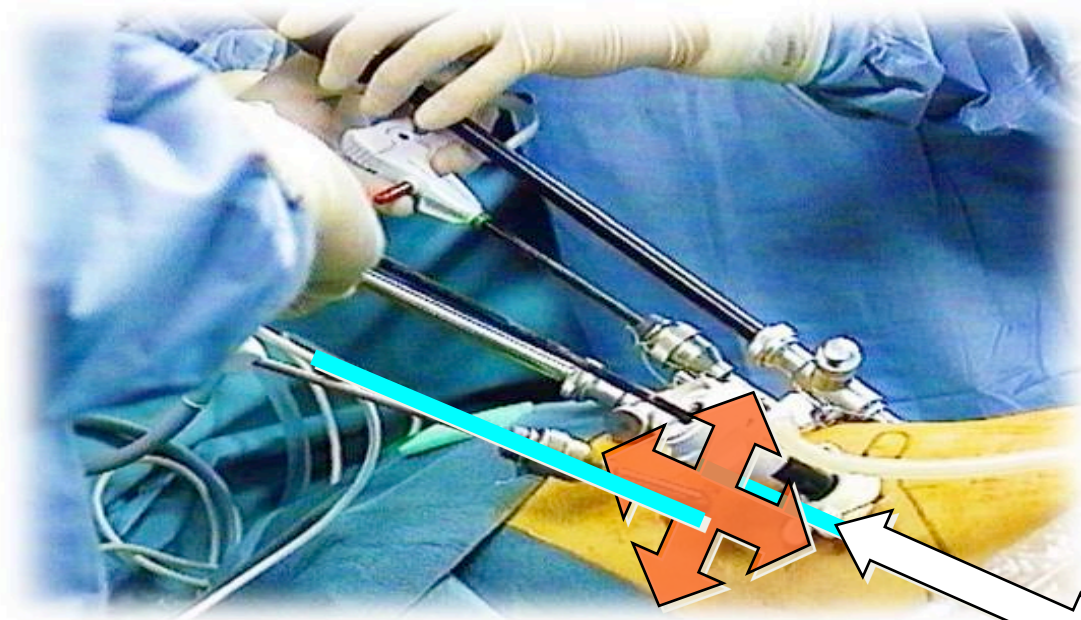
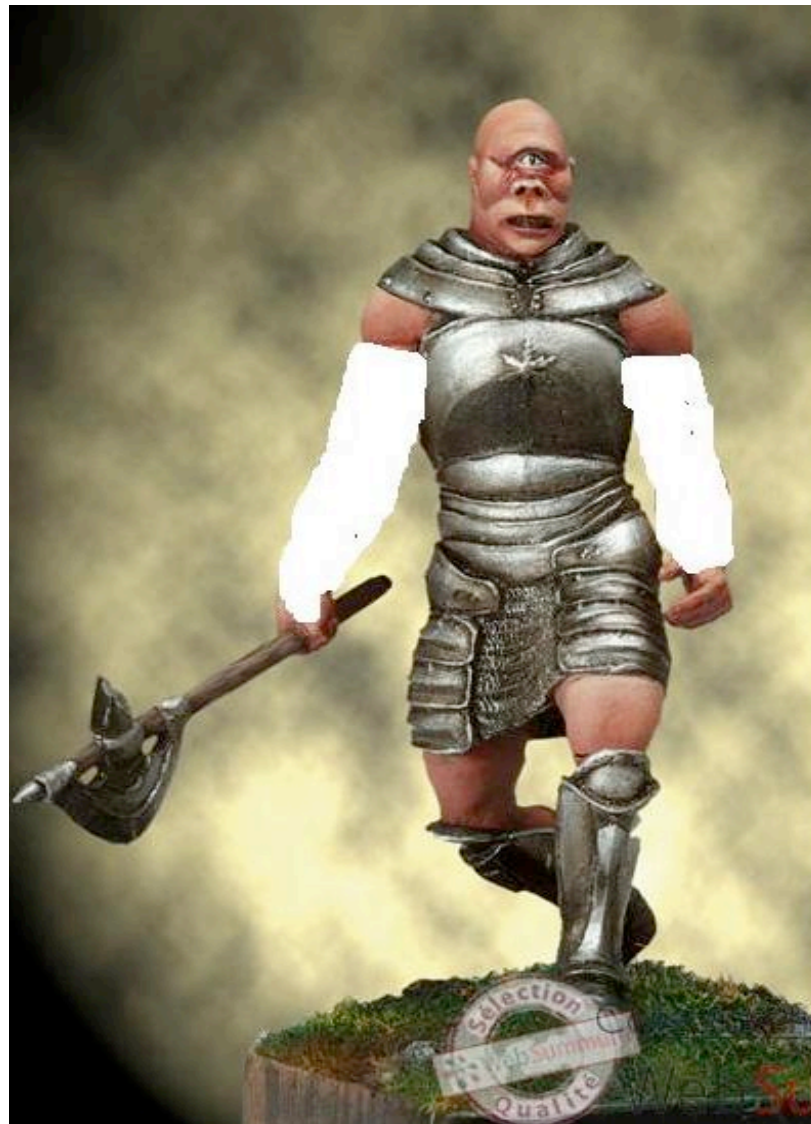
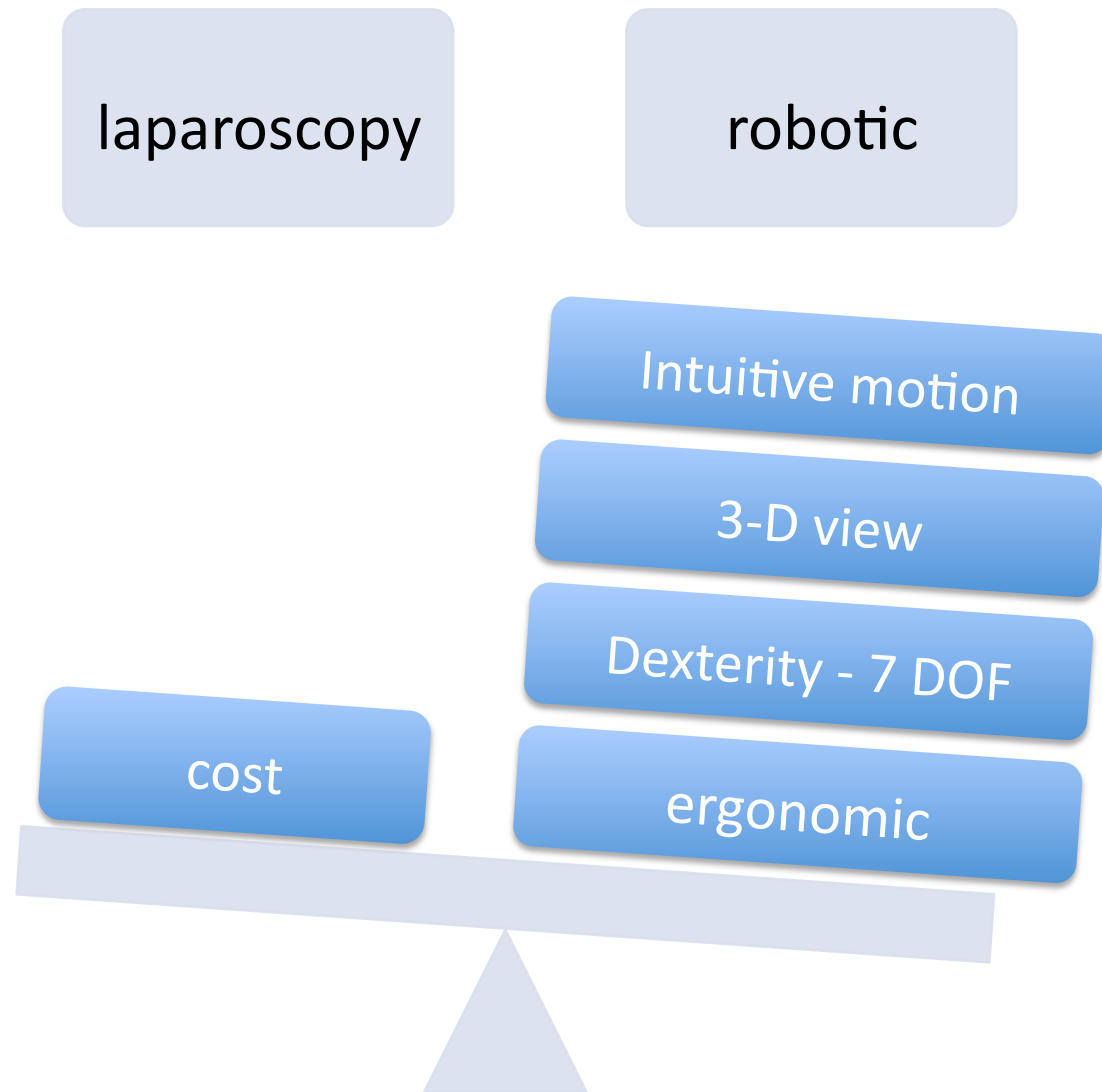


Image ... the laparoscopic surgeon ...



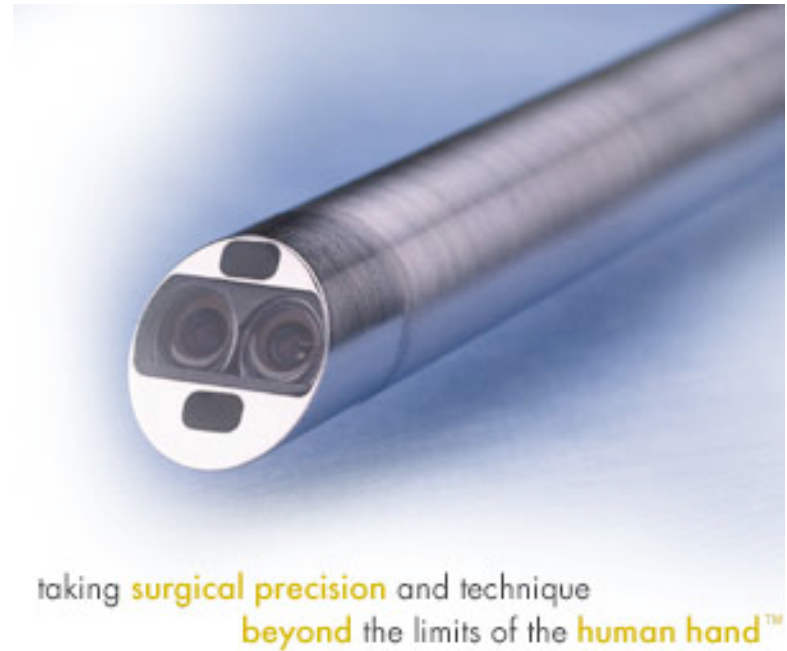
Laparoscopic or robotic urology?



Robotic Urology - advantages -



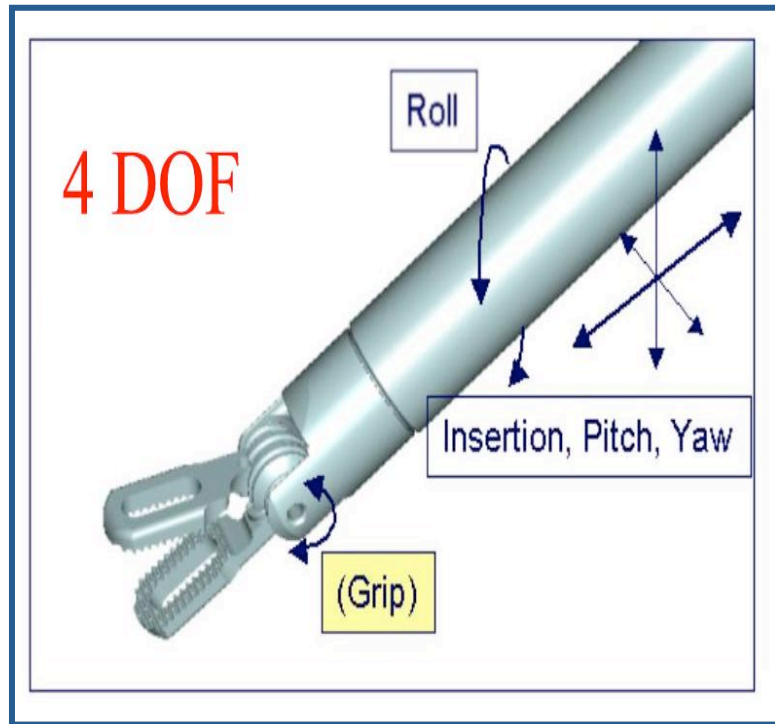
Twin optical paths, fused to
give 3-D image



Robotic Urology

- advantages -

Robotic instruments: - gain in freedom of movements (7DOF)
- no more counter-intuitive movements



Traditional laparoscopy



Endowrist® Instrument

Robotic Urology

- advantages -

“My dear colleagues, please believe me as a teacher of Surgery over 40 years

-

When I say that operations performed by robots will be done with greater manual skill than by the training surgeons of today”

K. Semm
(pioneer in laparoscopy)
1999

Using robotic technology I expand my operative spectrum

Robotic radical cystectomy
with intracorporeal neobladder

Simple prostatectomy for BPH

Bilateral varicelectomy

Ureteral new implantation in the bladder

Radical prostatectomy Meta-Analyses

- Compared
open \leftrightarrow laparoscopic \leftrightarrow robotic
- 2 Meta-Analyses
- 19 & 22 studies (>40 patients)
- Comparable results
 - Continence and potency after 1 year
 - Positive margins
- Advantages laparoscopic & robotic
 - Less bleeding
 - Fewer transfusions

Berryhill R et al, Urology 2008, 72: 15
Parsons JK et al, Urology 2008, 72: 412

Our experience

first 200 robotic radical prostatectomies

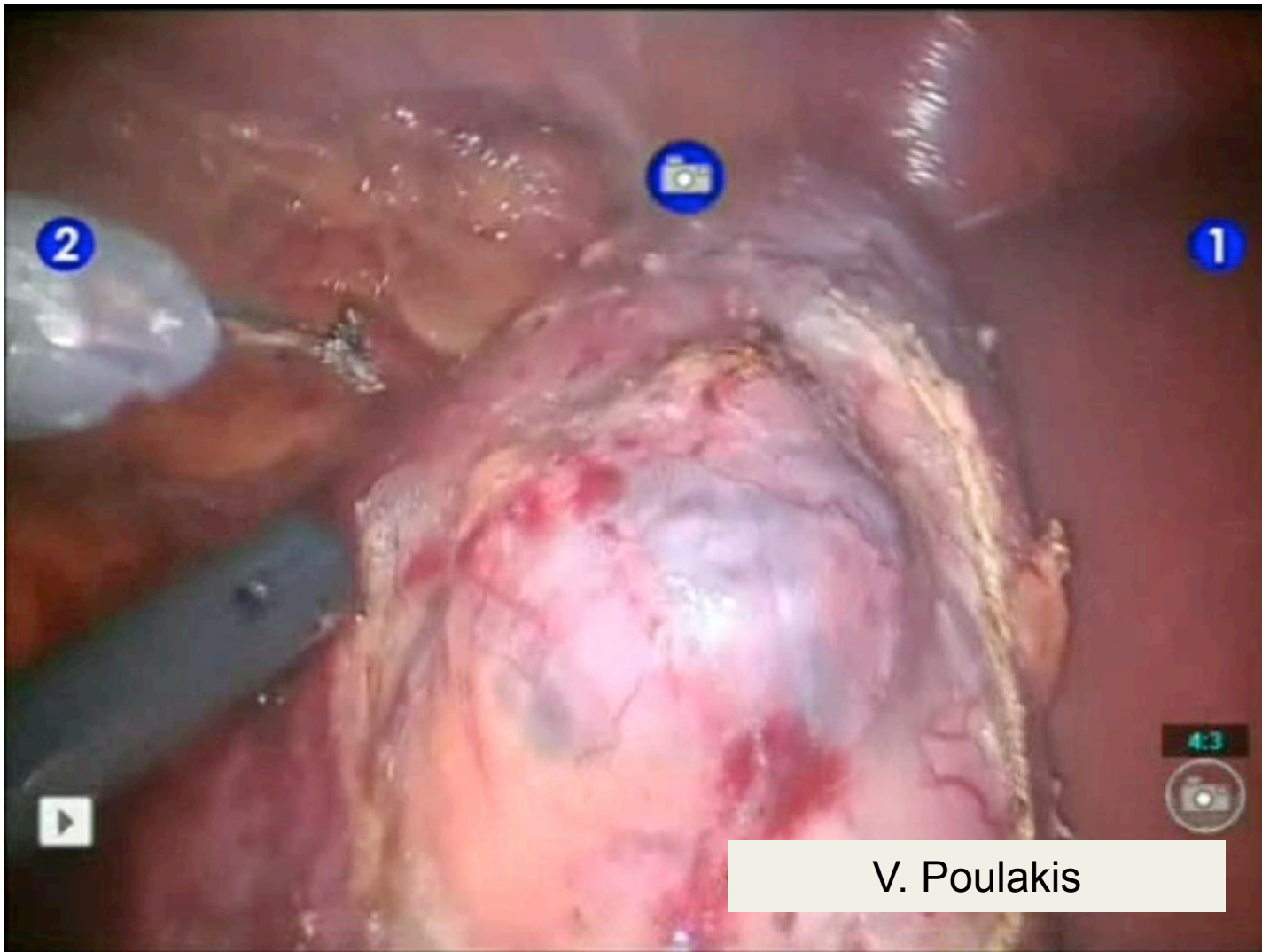
- Access extra/transperitoneal
- Transfusion 2%
- Mean OR time 151 (101-367) min
- Complications 7%
- Second operation 2%
- Conversions 0%
- Death 0%
- Positive surgical margins 9%
- Hospital stay 96% in ≤ 3 days
- Early continence 62% (1 month)
- Catheter removal 97% in ≤ 8 days

Robotic partial nephrectomy multicenter retrospective study preliminary results

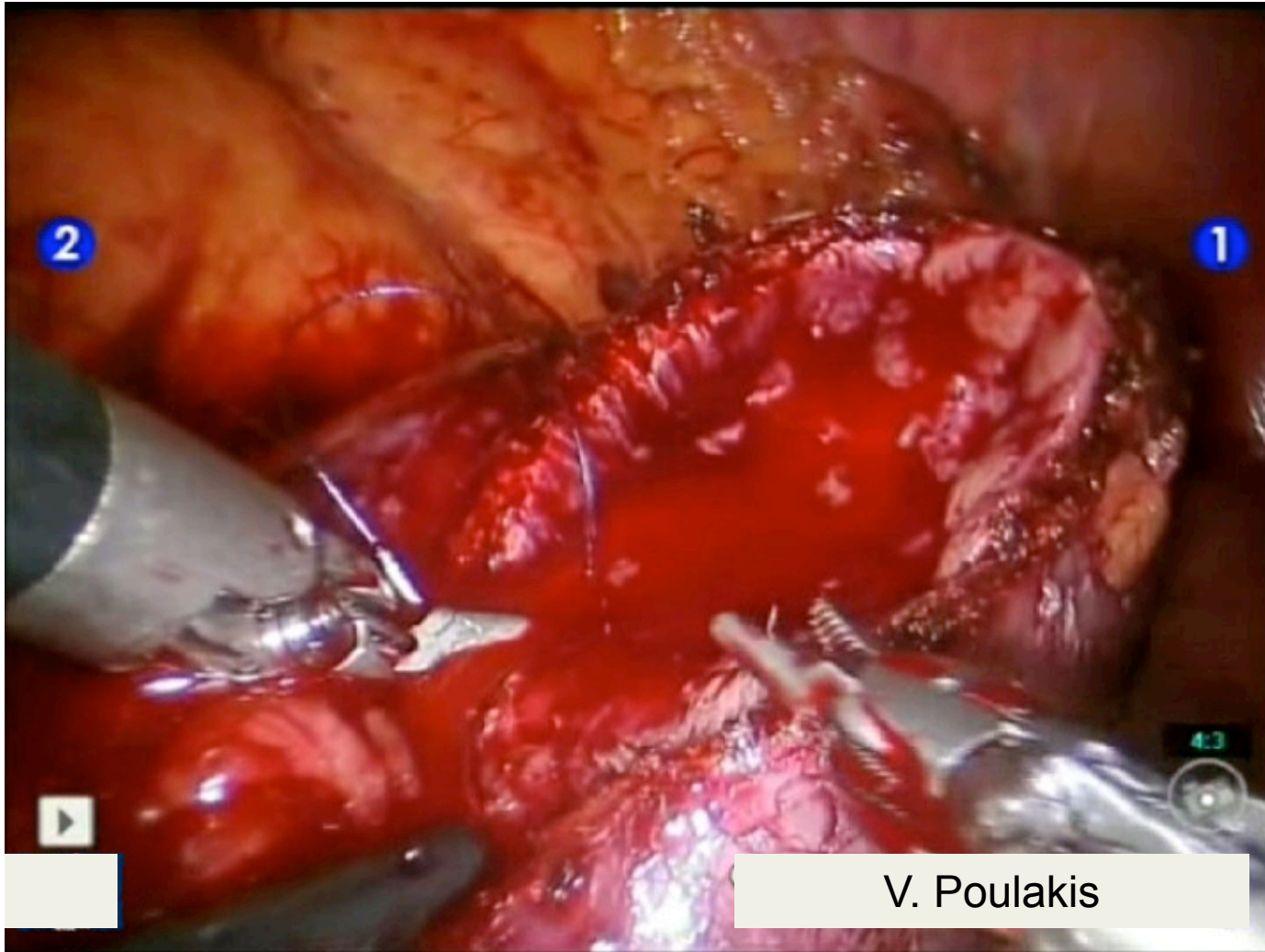
- 183 patients, 191 tumors
- Mean tumor size: 3 cm (range 1 - 7 cm)
- Mean or time: 210 min (86 - 370 min)
- Mean console time: 141 min (45 - 253 min)
- Mean estimated blood loss: 131 ml (10 – 900 ml)
- Mean warm ischemia time: 21 min (0 – 51 min)
- Mean hospital stay 3.7 days (1 – 15 days)
- 5 positive margins
- Complications 9.8%
- No tumor recurrence after 1 year

Personal contact with
Alex Mottrie

Robotic partial nephrectomy - tumor excision -



Robotic partial nephrectomy - renorrhaphy -



Wrong marketing promotion!

The *da Vinci*[®] Surgical System provides surgeons with an alternative to both traditional open surgery and conventional laparoscopy, putting a surgeon's hands at the controls of a state-of-the-art robotic platform. The *da Vinci* System enables surgeons to perform even the most complex and delicate procedures through very small incisions with unmatched precision.

For the patient, benefits may include:

- ▶ Significantly less pain
- ▶ Less blood loss
- ▶ Less scarring
- ▶ Shorter recovery time
- ▶ A faster return to normal daily activities
- ▶ And in many cases, better clinical outcomes

This is the same for both laparoscopic and robotic as minimal invasive procedures

The real advantages of robotic urology

Improved accuracy of
manipulation

Better and precise visualization

Less bleeding



Better cancer control

Improved functional
results (i.e. continence
and potency)

Balancing Dis/Advantages

Disadvantages

Advantages

Longer installation time (30 min)
Longer operative time (30 min)

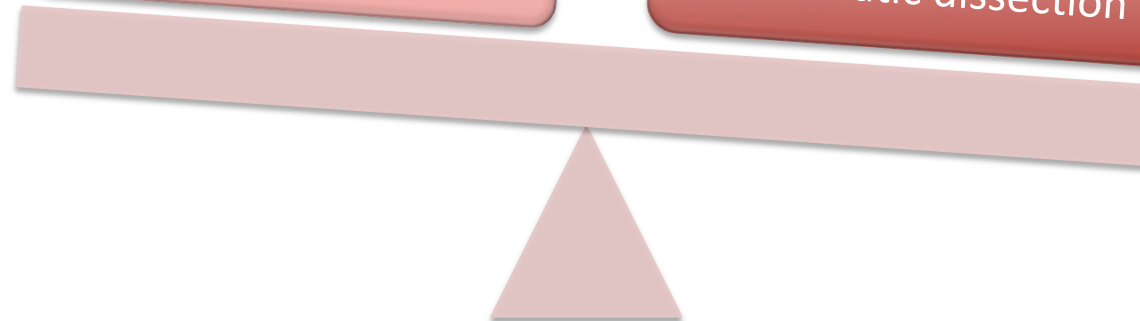
Assistant using clips.
No tactile feed-back

Full motion of instruments
(Endowrist®)

(Better) Magnification View 10x
Optimal light
3 D View

4rd arm – constant exposition and
stable traction
Comfort

Higher level of
atraumatic dissection



Robotic Urology

- personal perception -

Robotic surgery is the translation of traditional surgery in a minimal invasive fashion, but with :

- better vision
- more meticulous handling
- miniaturisation of instruments

Result :

- surgeon relaxed & comfortable > better job
- fine instruments with articulations at their tips
 - > less tissue damage & more precision
 - > better oncological & functional outcome
- of course ... learning curve, but acceptable

Open surgery vs Robotic

To perform a Nerve Sparing Radical Prostatectomy

Recommandations for nerve-sparing surgery (open surgery)

Magnification glasses
2.5 – 3.5 x

Optimal light

3 Dimensional View
(Human eyes)

Full motion of hands

... With the Robot

Magnification View 10x

Optimal light

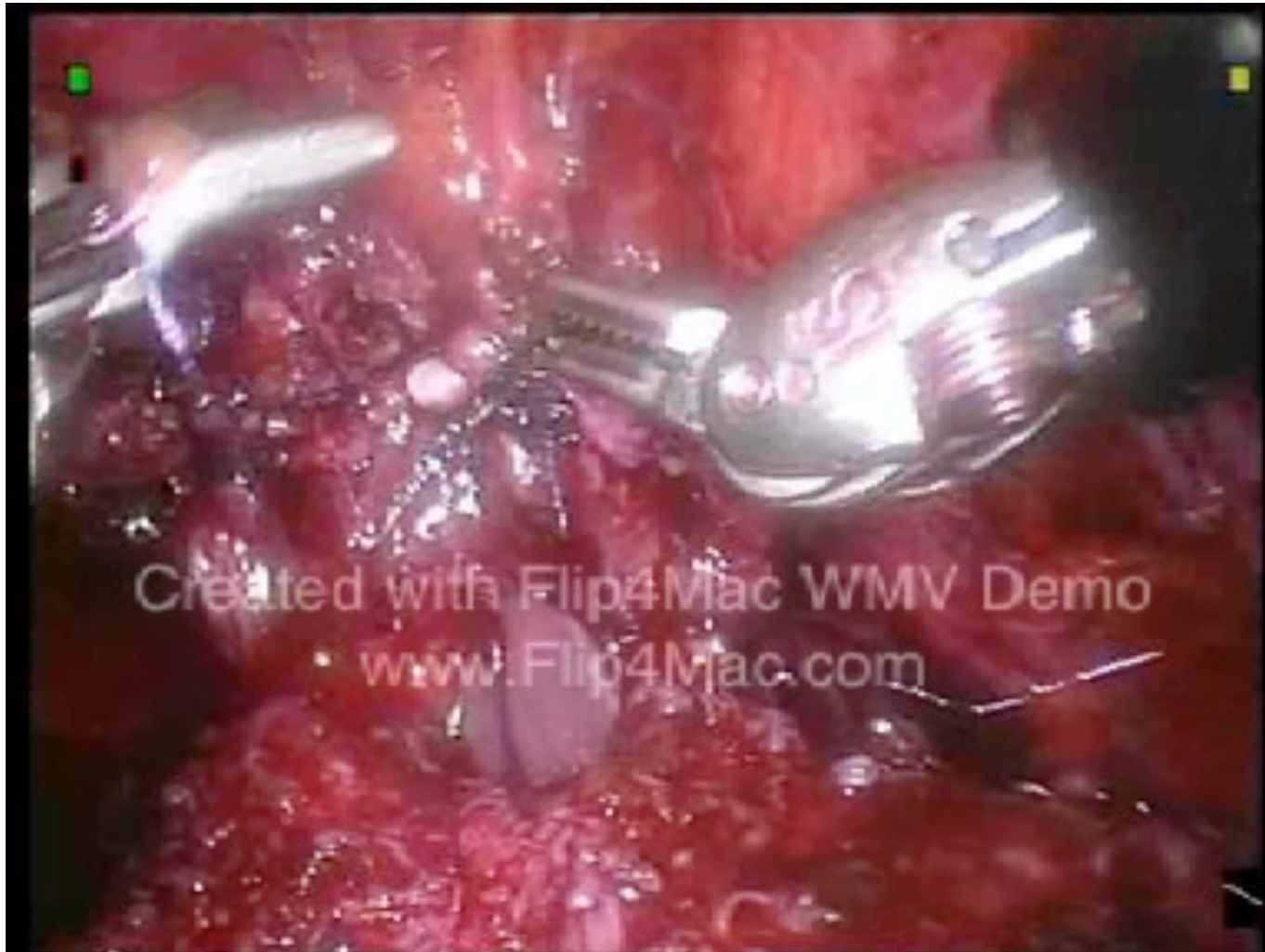
3 Dimensional View

Full motion of instruments
(Endowrist®)

Graefen M et al; Eur Urol 49: 38-48 (2006)

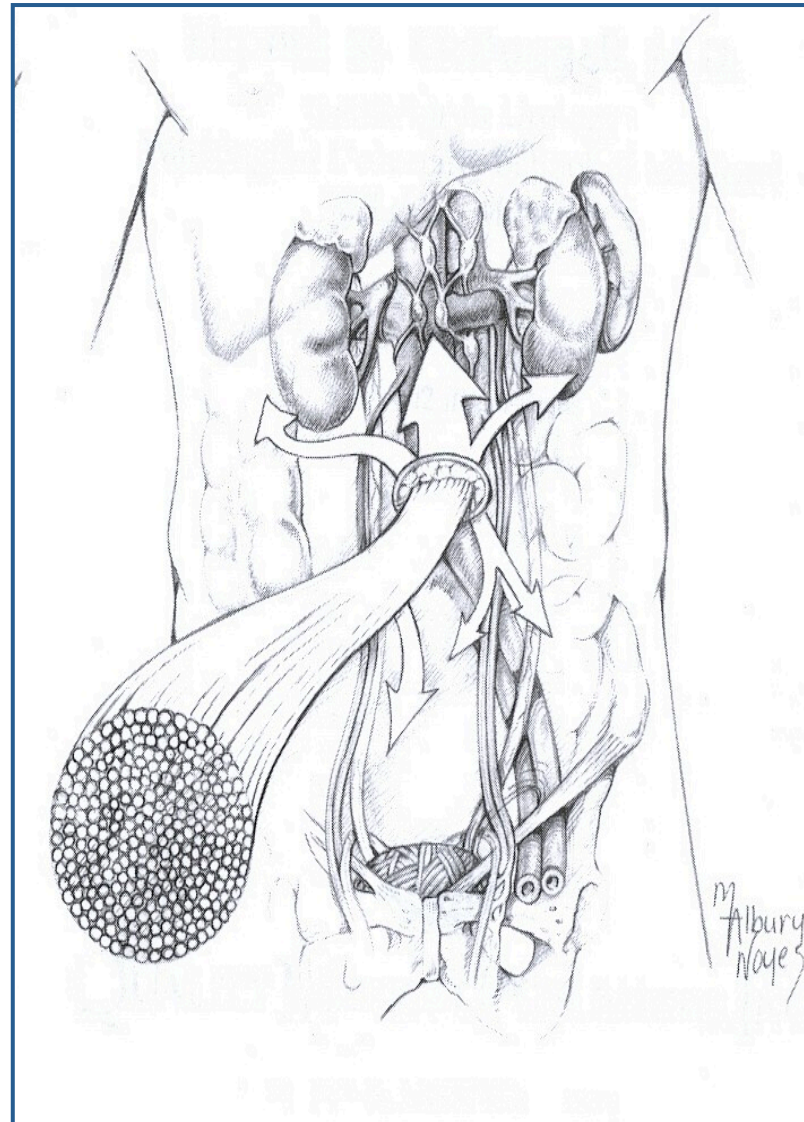
Montorsi F et al; Eur Urol 48: 938-945 (2005)

Vesico-Urethral Anastomosis



Robotic Urology in the future

- Single port robotic operation -



Robotic Urology for advance procedure - personal perception -

Apparently less demanding

Long term results of several different centers confirm promising results

Technically complex procedure

- tumor resection: no tactile, only visual control
- Hemostasis and closure of defect >> industry
-> instrumentarium ???
- Expertise will play an important role in outcome

• Remind ...

Robotic Urology

- personal perception -

In the future,
with the increase of robotic expertise
in urology,
more and more advanced operations
will be performed robotically

- Because ...

Conclusions

Why move to the Robot?

Robotic Assisted laparoscopic Urology is:

Safe

Reproducible

Oncologic results comparable to OP and LP

Conclusions

It is justified to move from Laparoscopy to Robotic because it:

Allows a higher quality of Surgical Dissection

Permits a comfortable working position

Reduces the Learning Curve

Gives Better Functional Results?

To be evaluated...