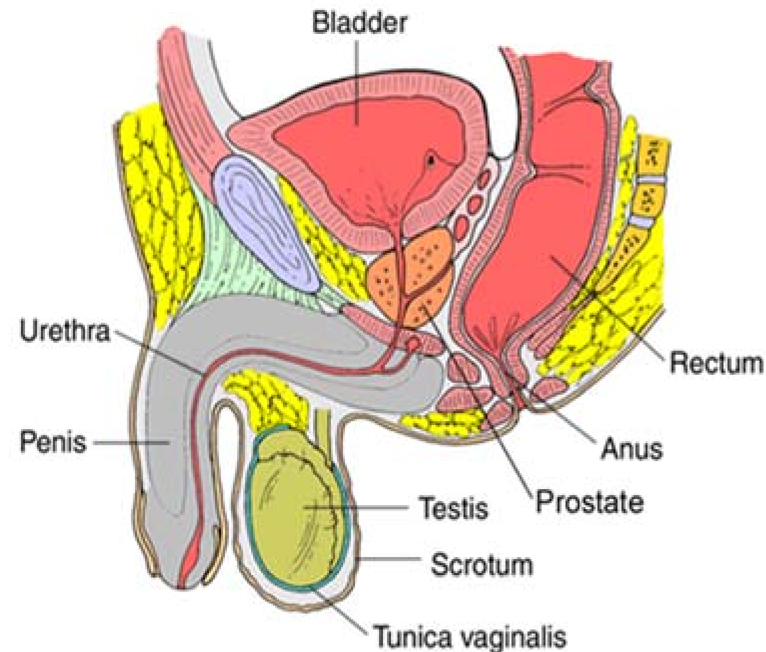
Surgical Treatments

- Open surgery
  - Radical prostatectomy

Laparoscopic surgery
  - traditional
  - daVinci robotic surgery



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Goals of Radical Prostatectomy

- Remove the prostate and cancer
- High cure rates for localized disease
- Preserve urinary function
- Preserve erectile function
- Analyze the prostate after surgery to assess risk of recurrence of cancer

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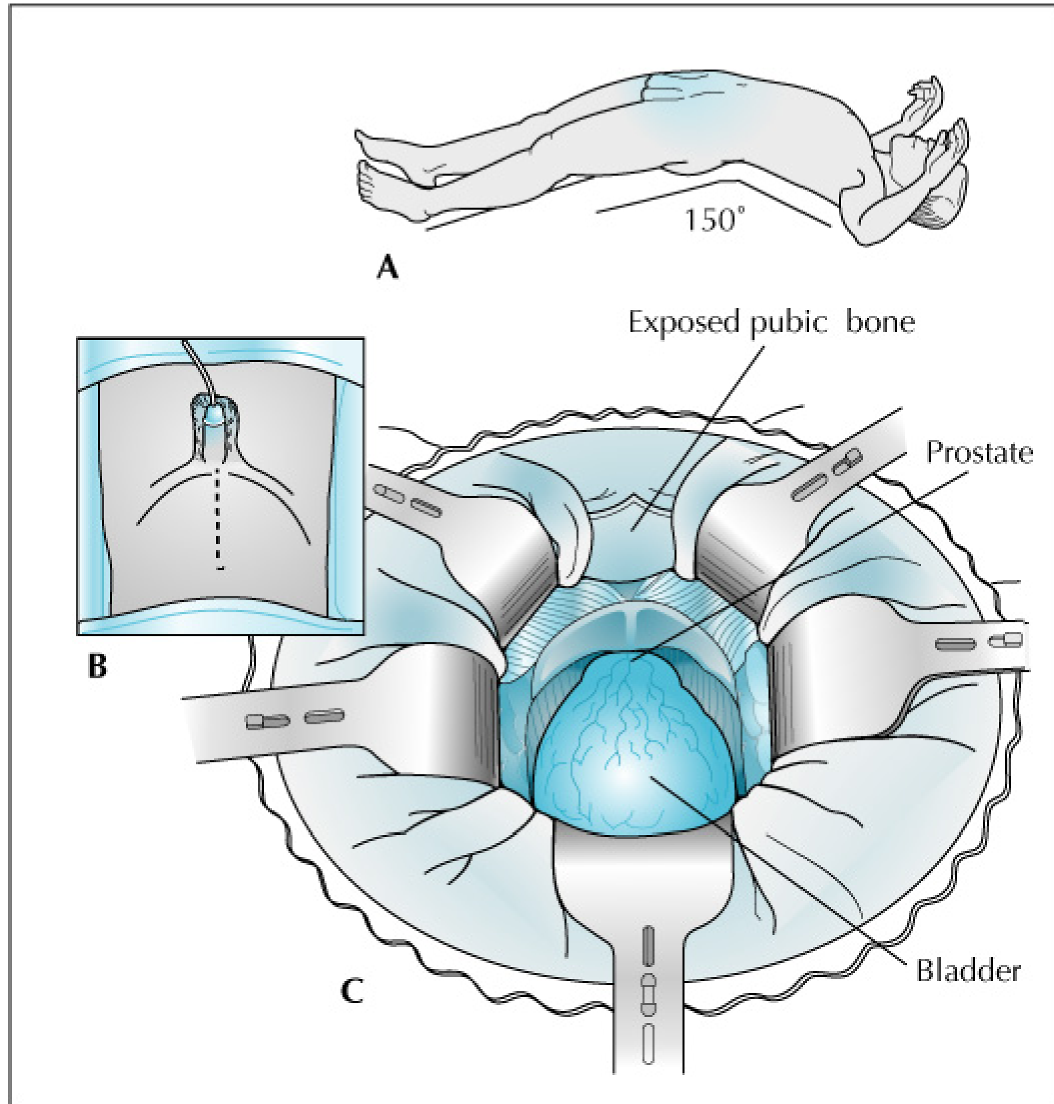

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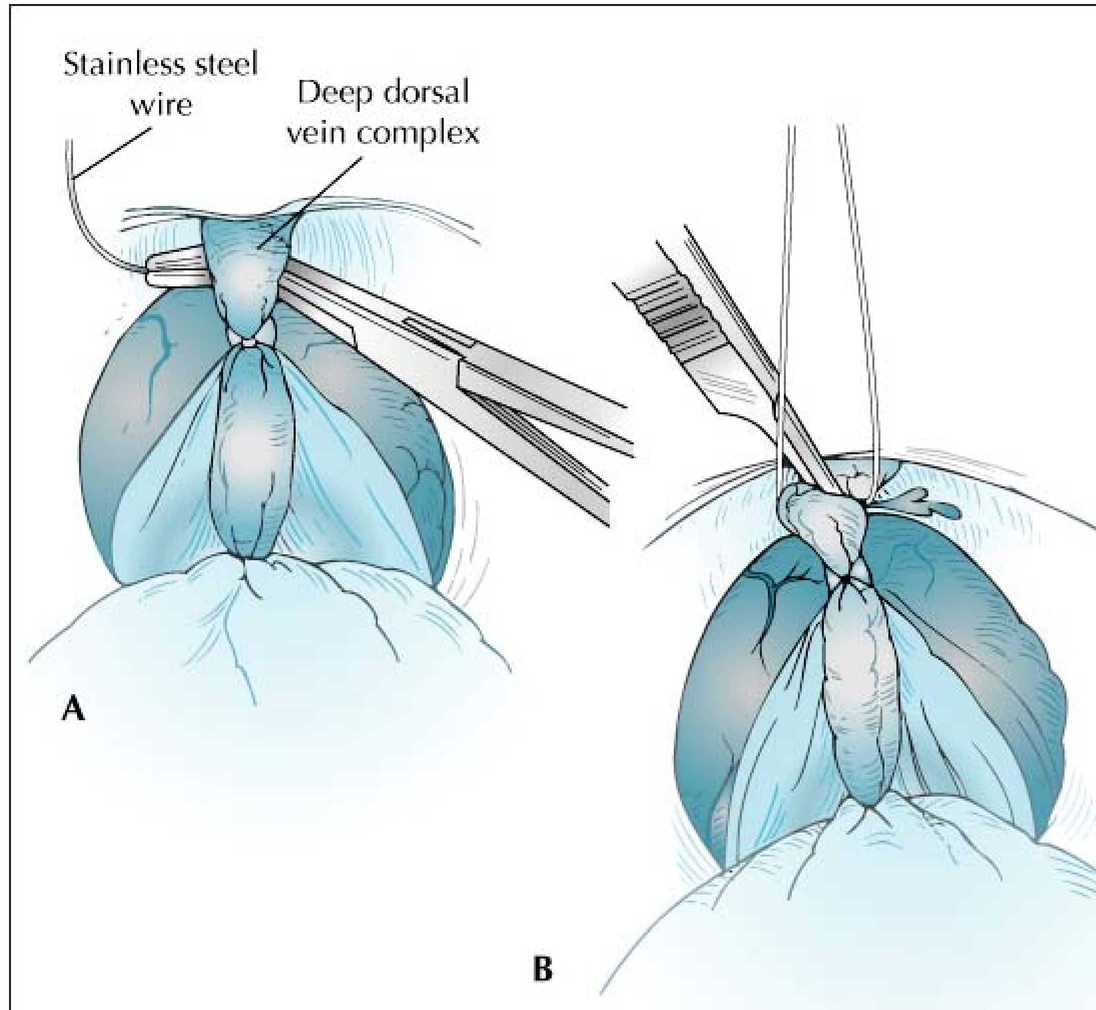

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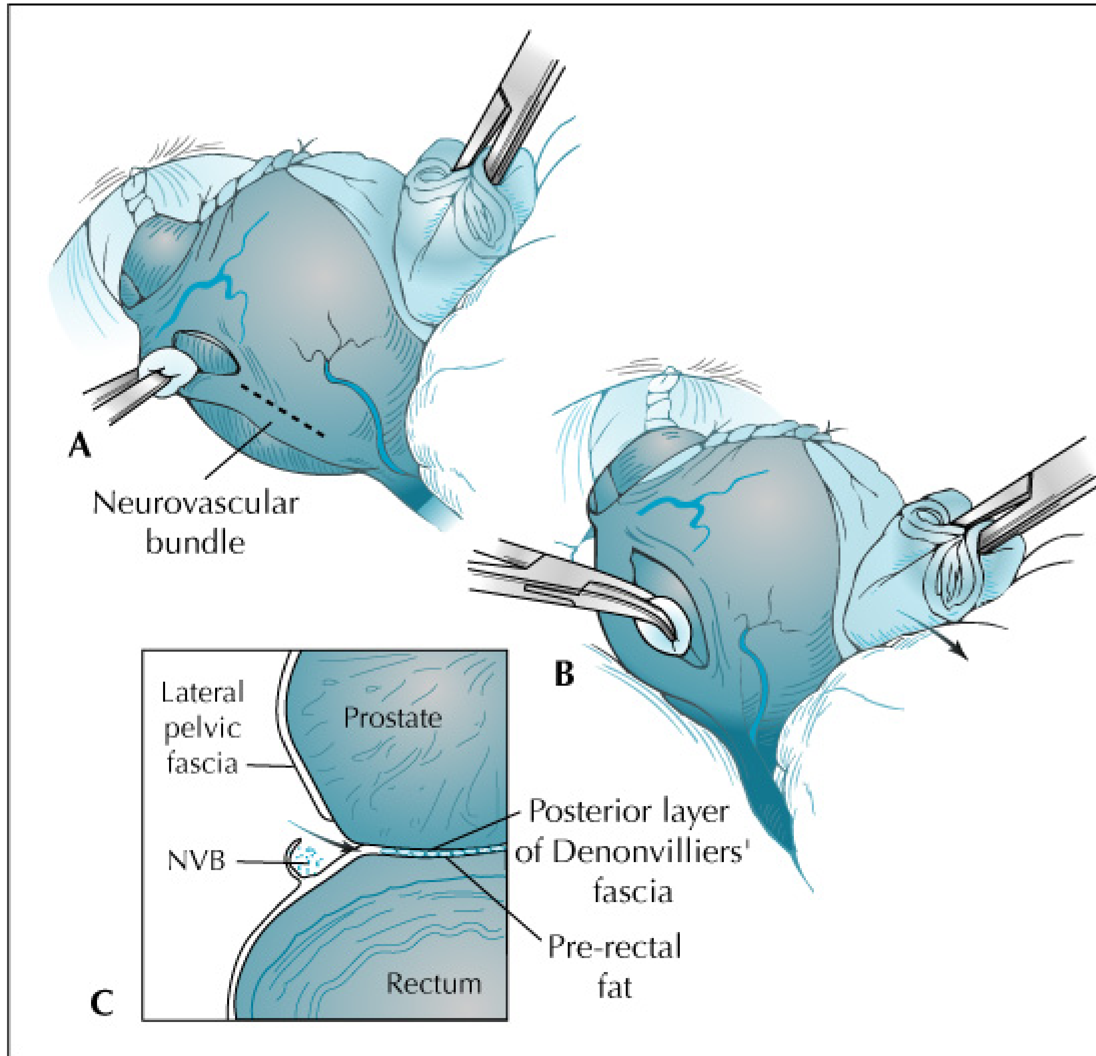

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Risks of Surgery

- **Tumor recurrence**
  - **Biochemical failure (PSA)**
  - **Actual disease recurrence (locally or distant)**
- Urinary Incontinence
- Erectile Dysfunction

- Bleeding, infections, DVT, PE, MI, CVA, organ injury, etc….

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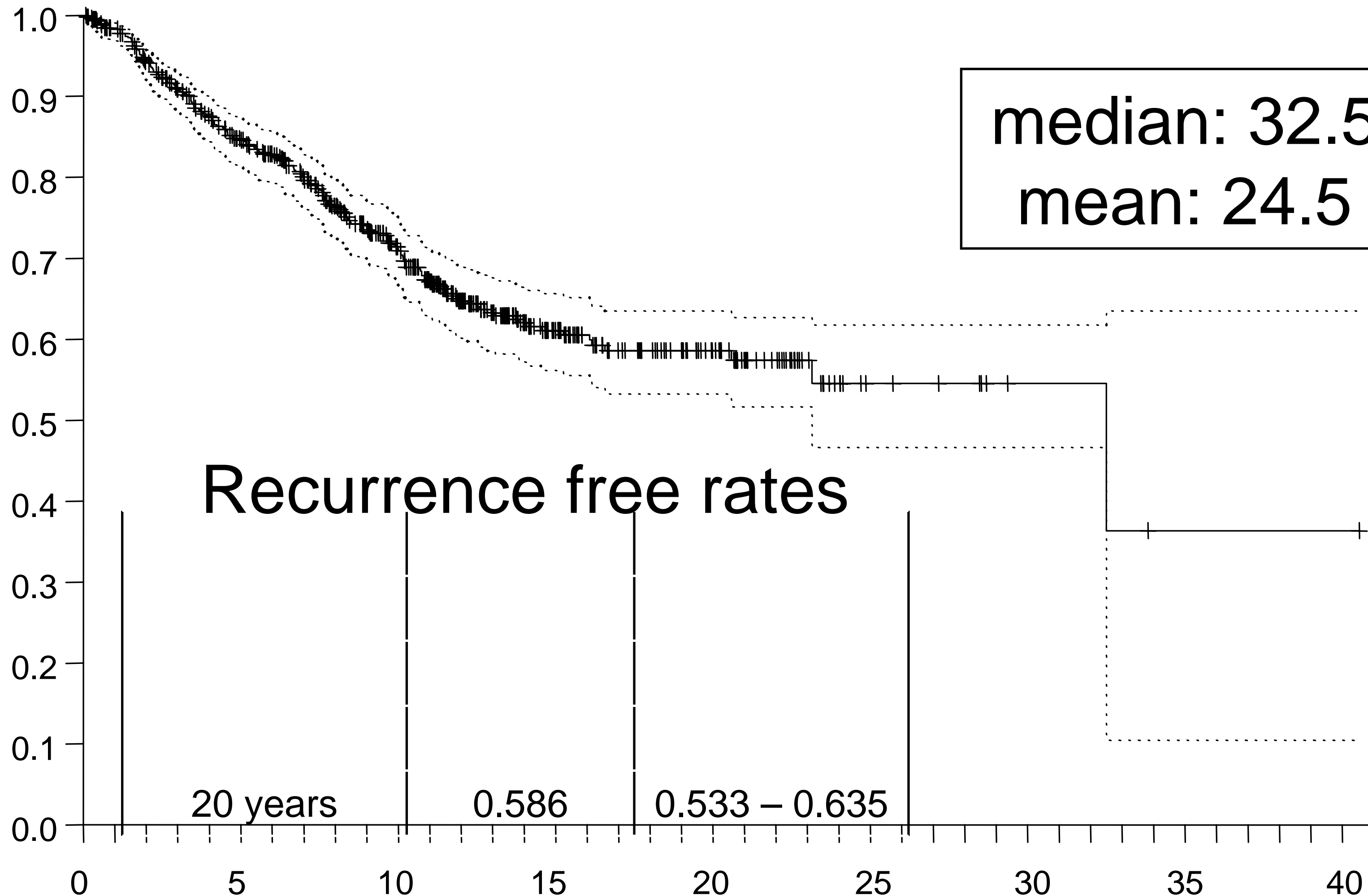
PSA-Recurrence After RP



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Biochemical Failure

"A rising PSA after surgery is not a death warrant."

Howard Scher, MD

JAMA: May 5, 1999

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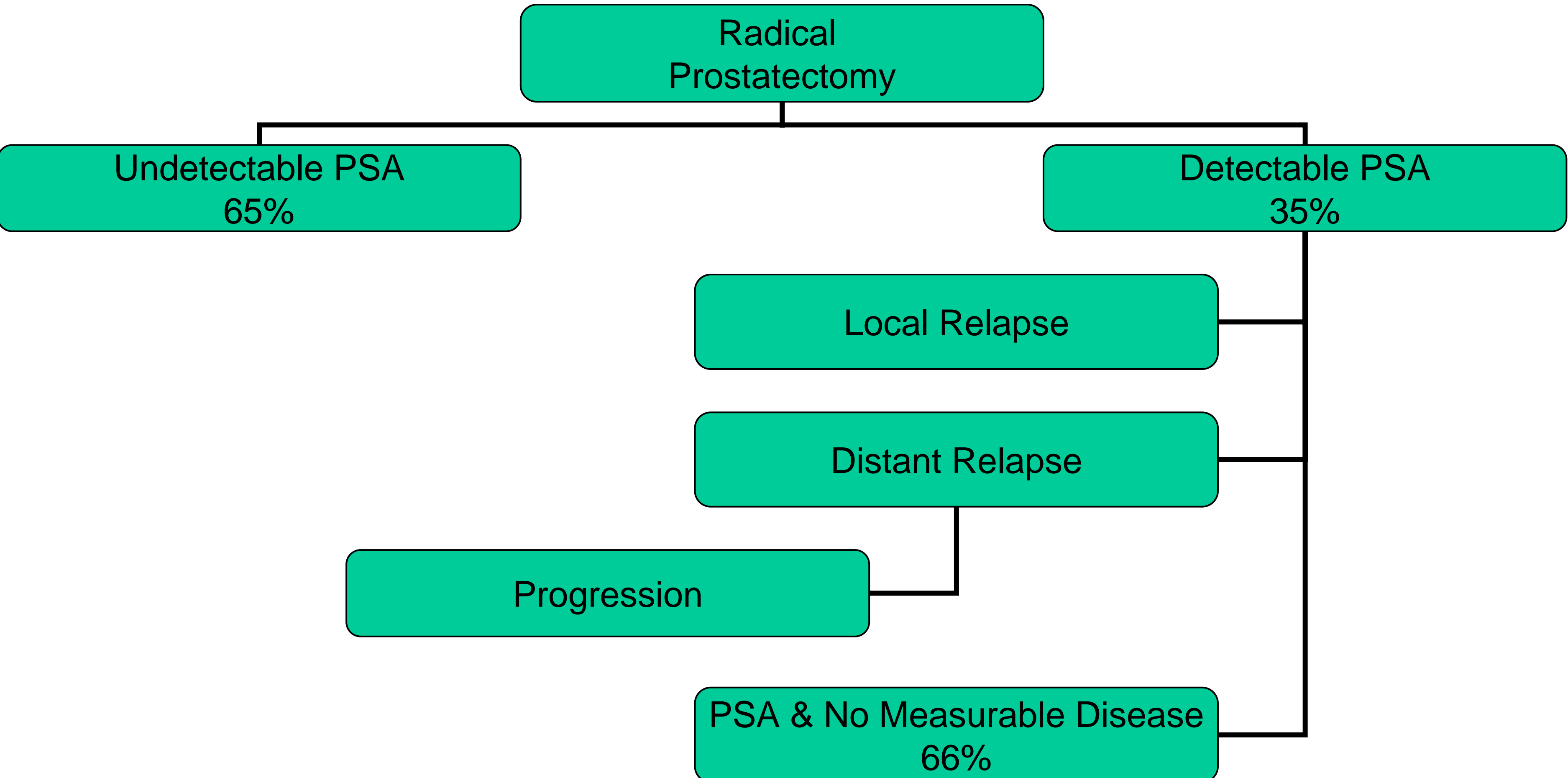
After Surgery



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Risks of Surgery

- Tumor recurrence
  - Biochemical failure (PSA)
  - Actual disease recurrence (locally or distant)
- **Urinary Incontinence**
- Erectile Dysfunction
- Bleeding, infections, DVT, PE, MI, CVA, organ injury, etc….

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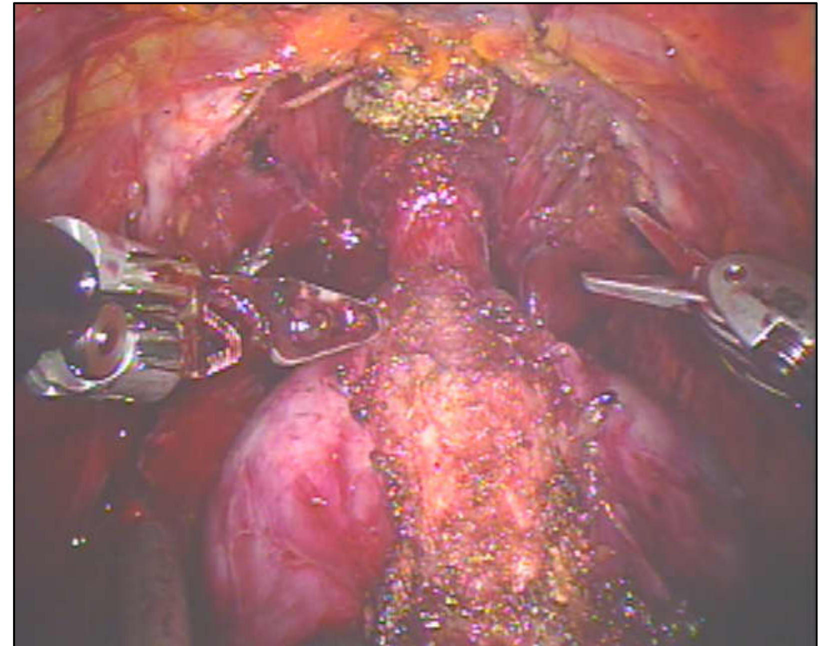
Urinary Continence

- Definition: Lack of significant leakage of urine during normal daily routine obviating the necessity of an absorbent pad
- Factors:
  - Preop: urinary function, age, medication
  - Sparing of bladder neck
  - Periurethral trauma
  - Watertight anastomosis
  - Early catheter removal
  - Pelvic floor exercises



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Urinary Continence

- After surgery → foley
- Foley removed at ~10 days
- Everyone incontinent initially
- 1 year after surgery:
  - 90% of pts voiding normally
  - 5% need 1 pad/day
  - 5% are incontinent
    - Predictors: pre-operative status, age

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Risks of Surgery

- Tumor recurrence
  - Biochemical failure (PSA)
  - Actual disease recurrence (locally or distant)
- Urinary Incontinence
- **Erectile Dysfunction**

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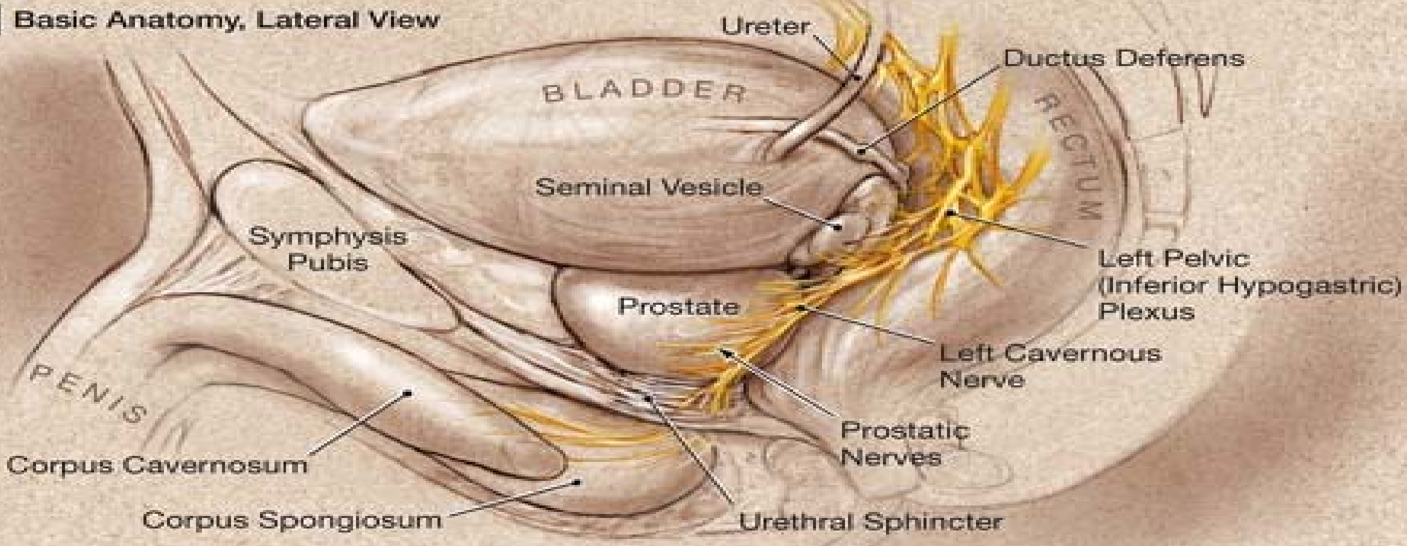

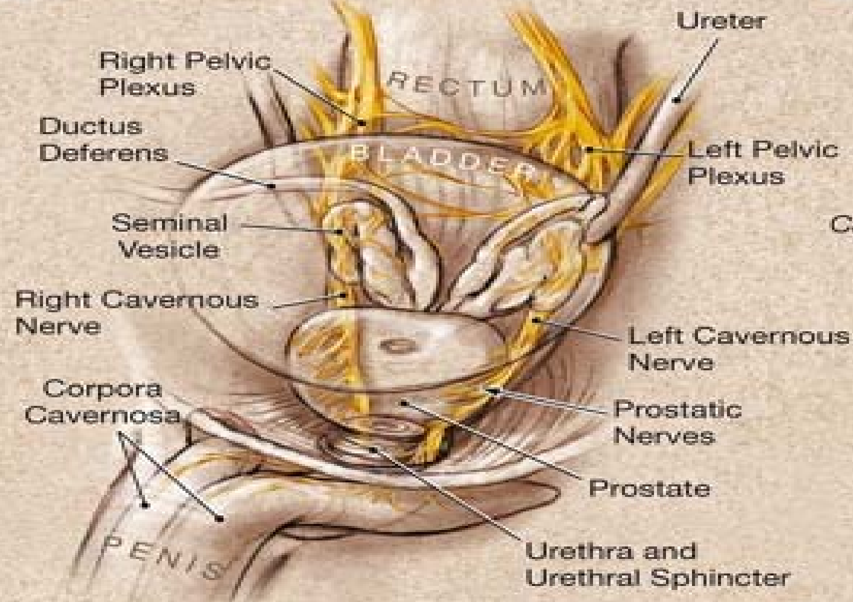

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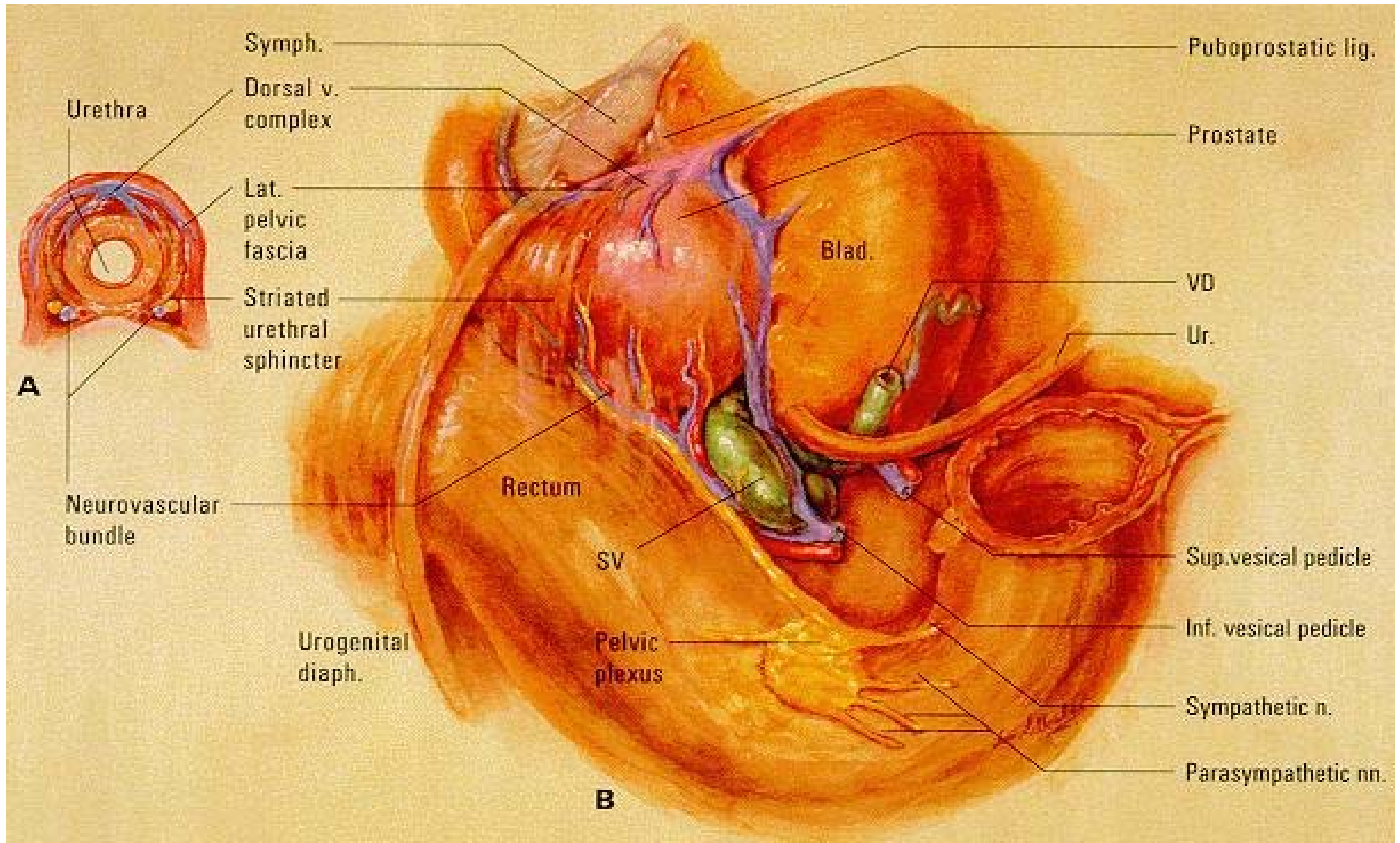

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Erectile Dysfunction

- Bilateral nerve sparing surgery
  - ~70 – 75% may have normal erections
- Unilateral nerve sparing surgery
  - ~30 – 40% may have normal erections
- Non-nerve sparing surgery
  - ~0 – 3% may have normal erections
- *all with/without use of PDE-5 inhibitors (i.e. viagra)

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Prostatectomy – Clinical Outcomes "The Big 3"

Cancer Control – Margins

Urinary Control – Continence

Sexual Function – Potency

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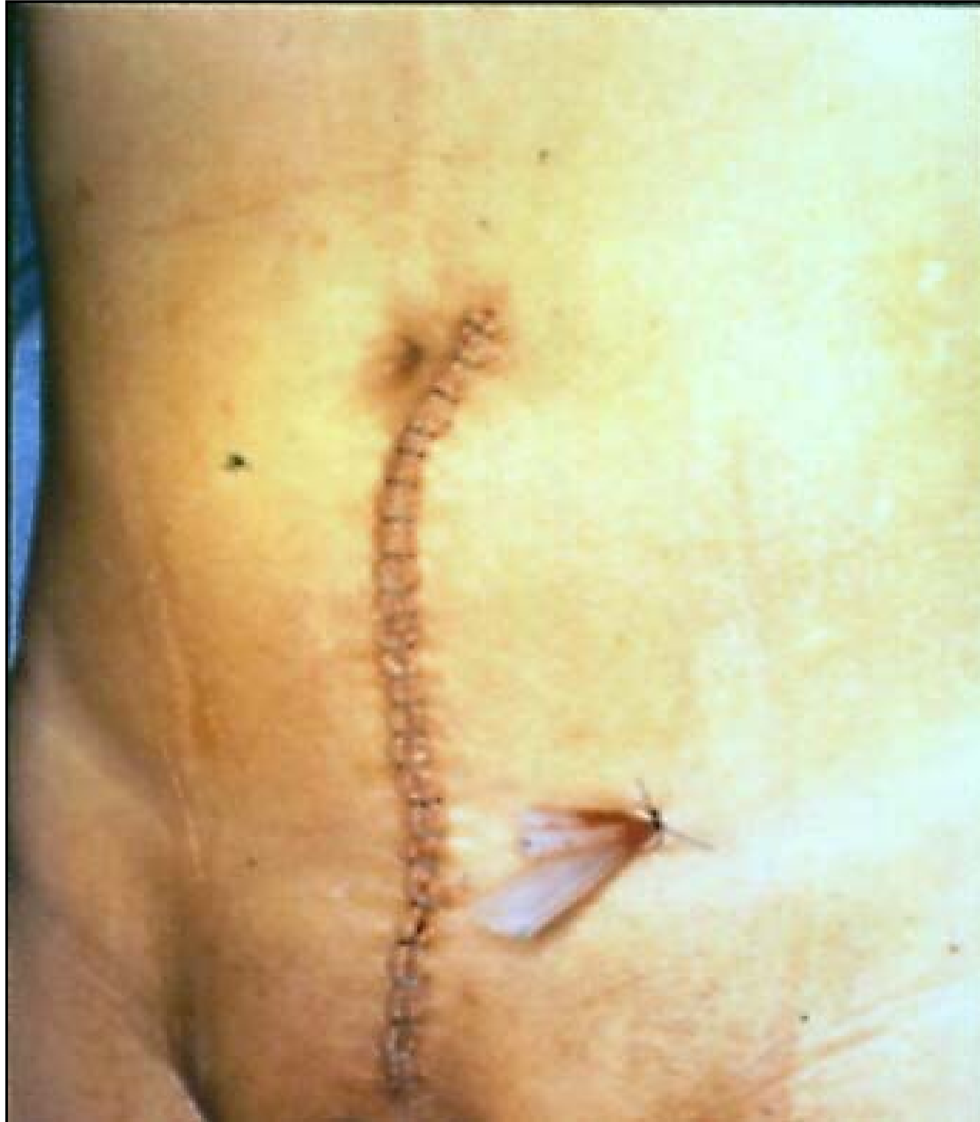
Traditional Prostatectomy



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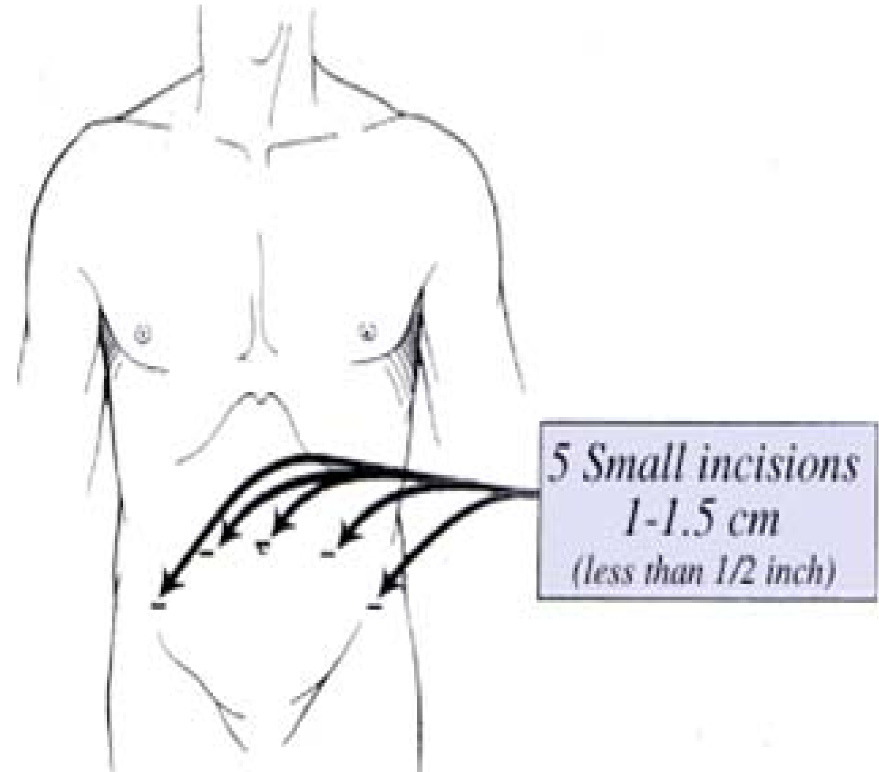
Laparoscopic Surgery

- Minimally invasive surgery
- Ability to operate through small keyhole incisions
- Camera and instruments fit through the keyhole incisions
- Better visualization than open surgery



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Conventional Laparoscopic Surgery Drawbacks

- 2-D flat image video
- Rigid instruments - chopsticks
- Instruments controlled at a distance - fulcrum effect
- Decreases your surgeon's precision, dexterity and control
- Higher surgeon fatigue
- Makes complex operations more difficult

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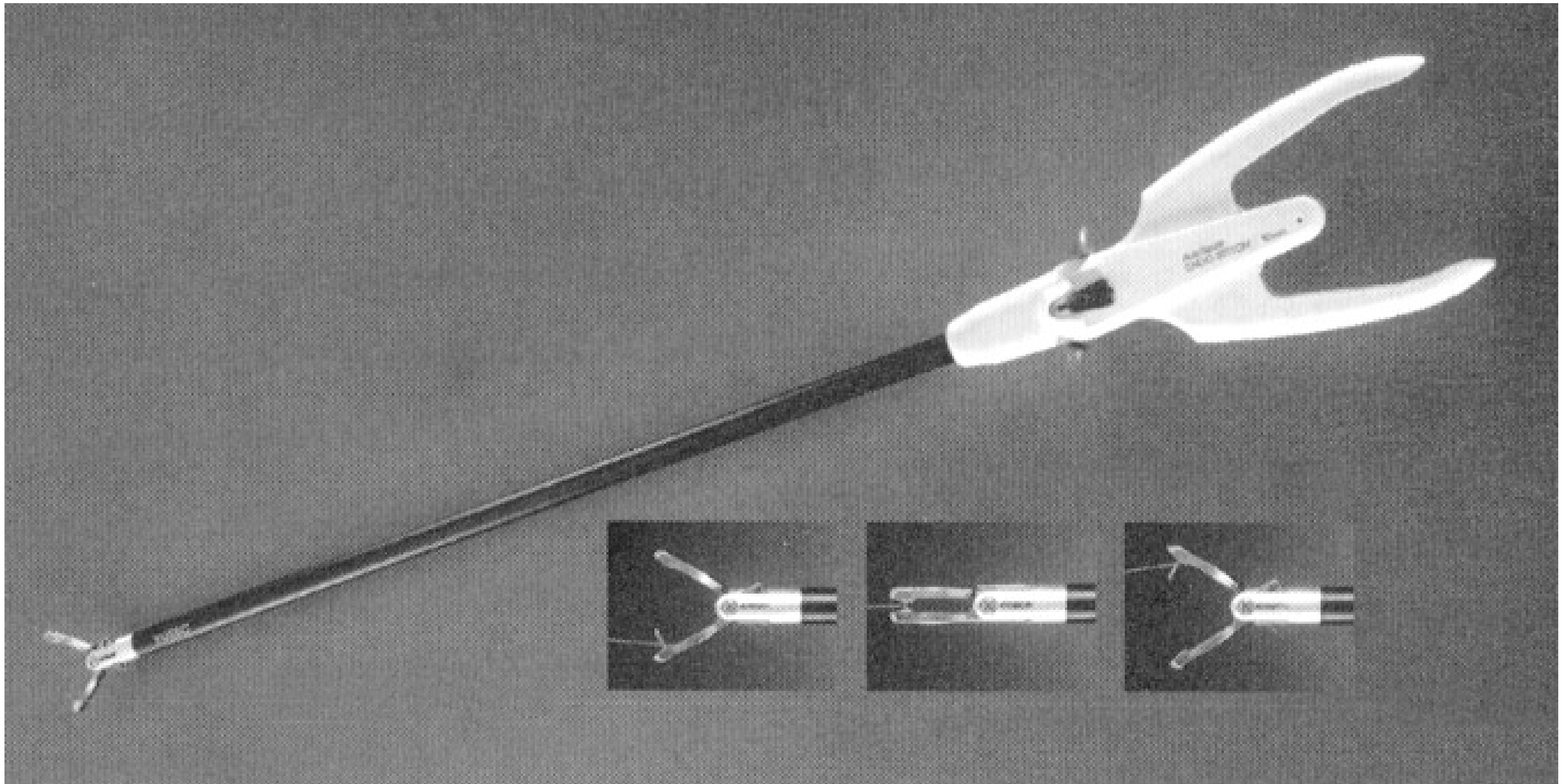
Endo Stitch Device



(U.S. Surgical)

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How can we overcome these drawbacks?

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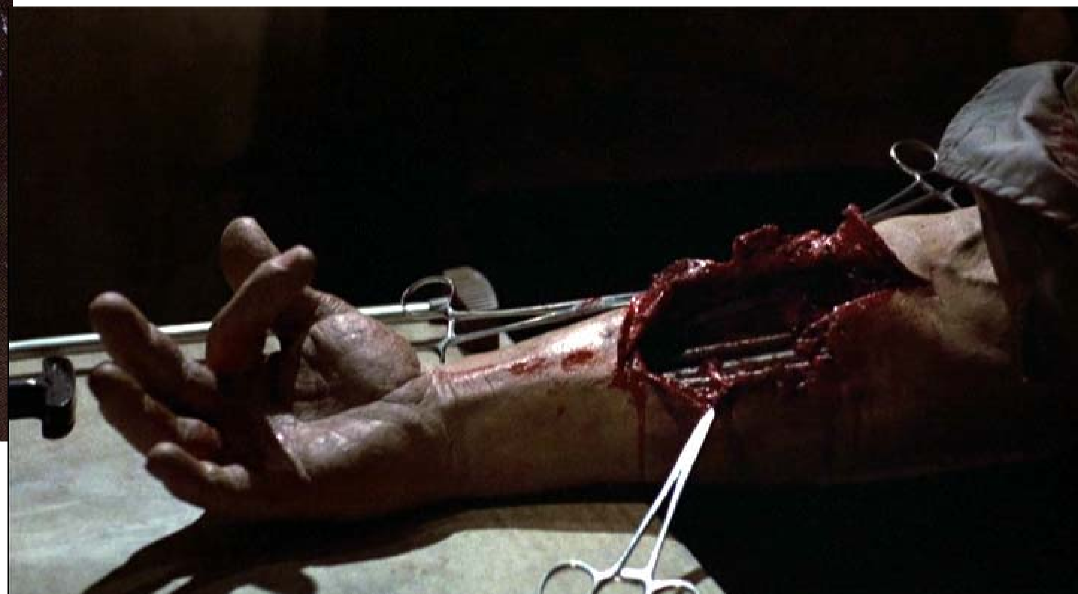

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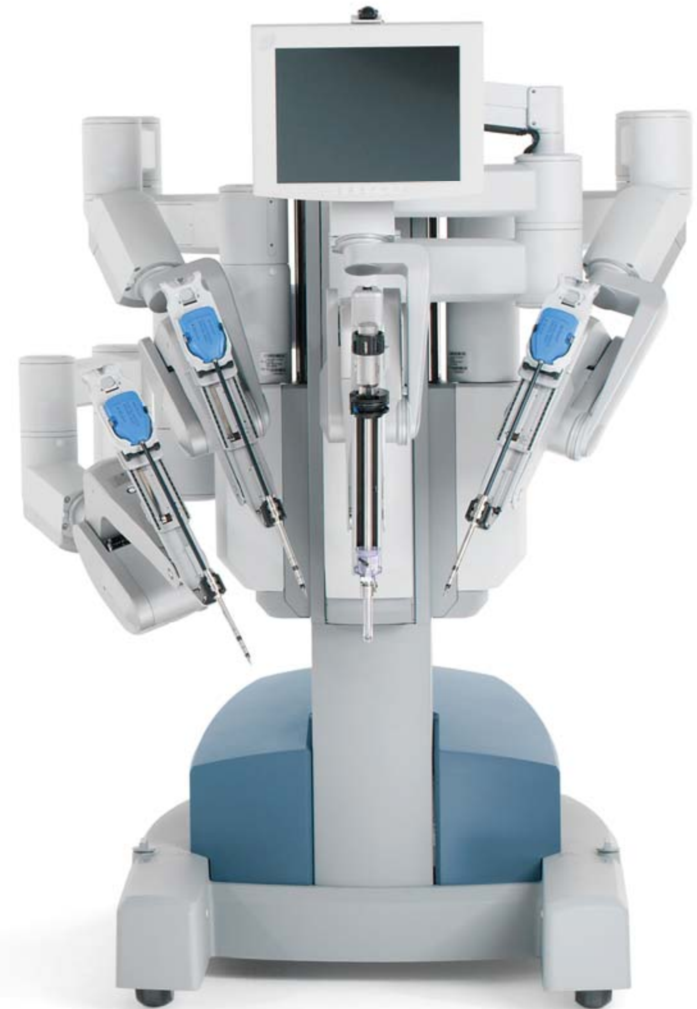
da Vinci® Surgical System



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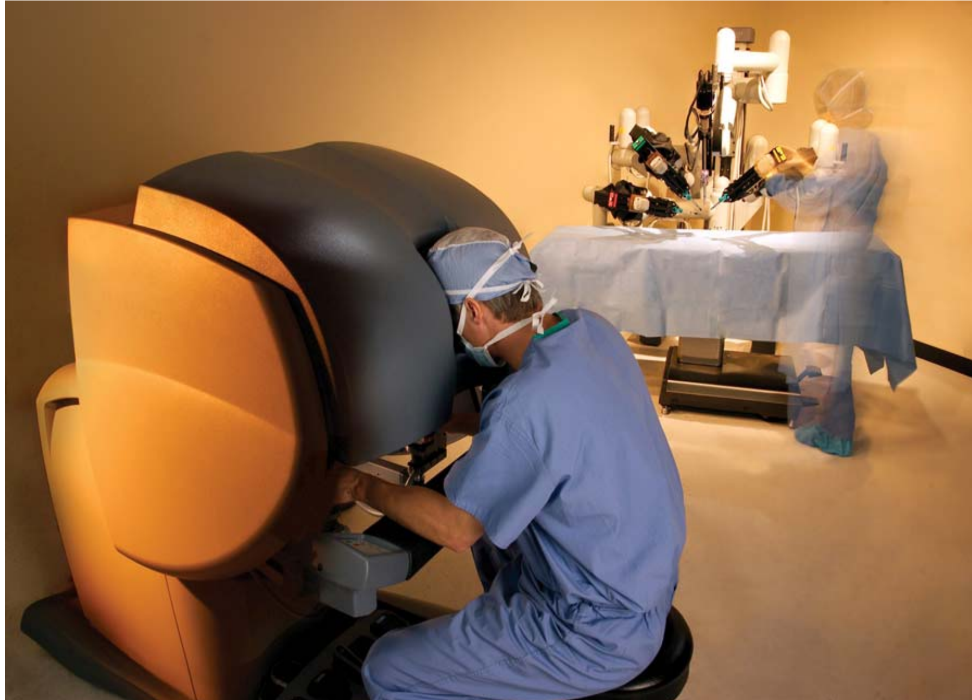
What is the *da Vinci*® Surgical System?



- A computer enhanced surgical system
- Master-slave system with surgeon in control
- Surgeon operates at the console
- Assistant surgeon is next to the patient

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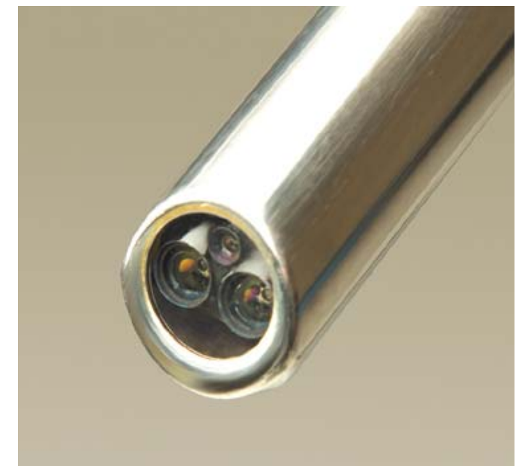
Superior Visualization

- Revolutionary 3-channel vision system
- High resolution 3-D image
- Panoramic view of the surgical field
- Surgeon is immersed in operative field
- ‘Open’ surgery orientation



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EndoWrist™ Instruments
Enhanced Dexterity, Precision & Control

- **4 robotic arms enable Solo Surgery™**
- **Fingertip control**
- **7º of freedom 90º of articulation**
- **Motion scaling and tremor reduction**

da Vinci **Surgical System**

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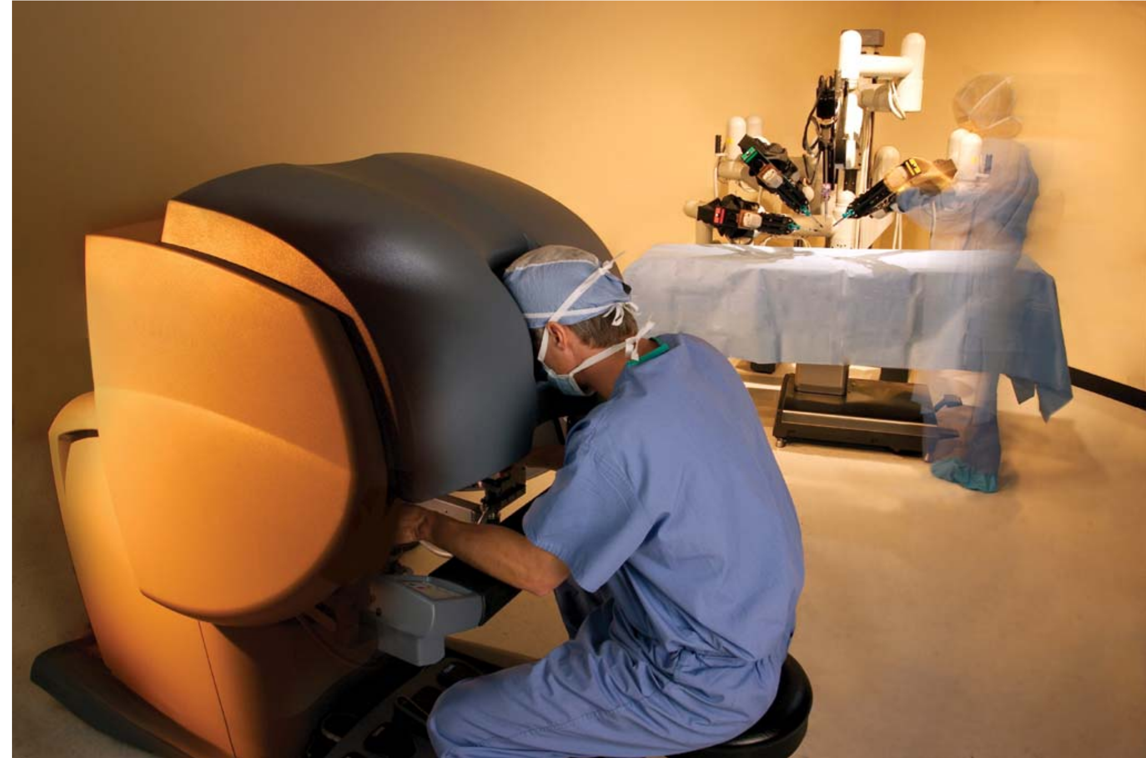
da Vinci® Surgical System

- Superior Visualization
- Enhanced Dexterity
- Greater Precision
- Ergonomic Comfort



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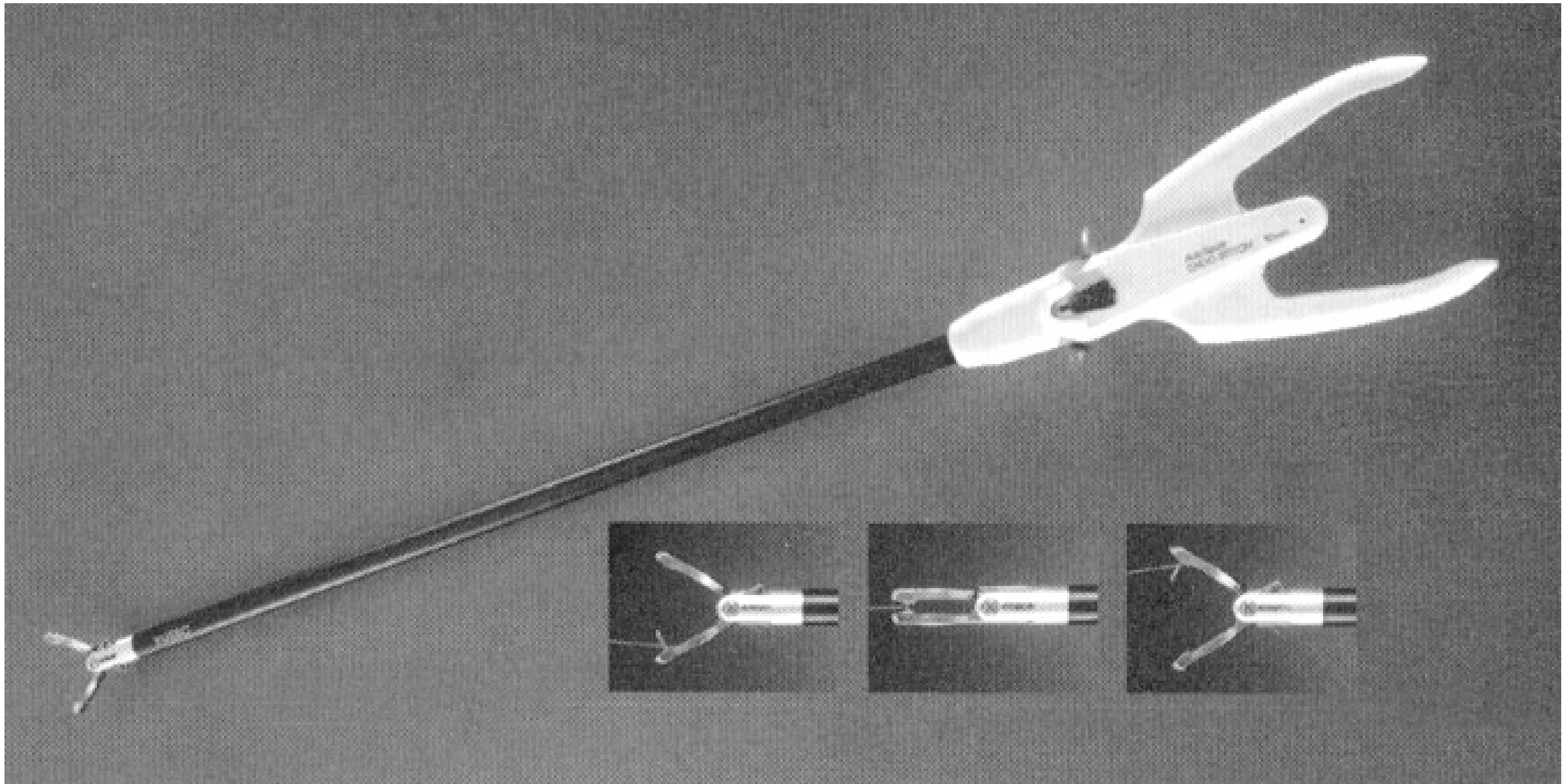
Endo Stitch Device



(U.S. Surgical)

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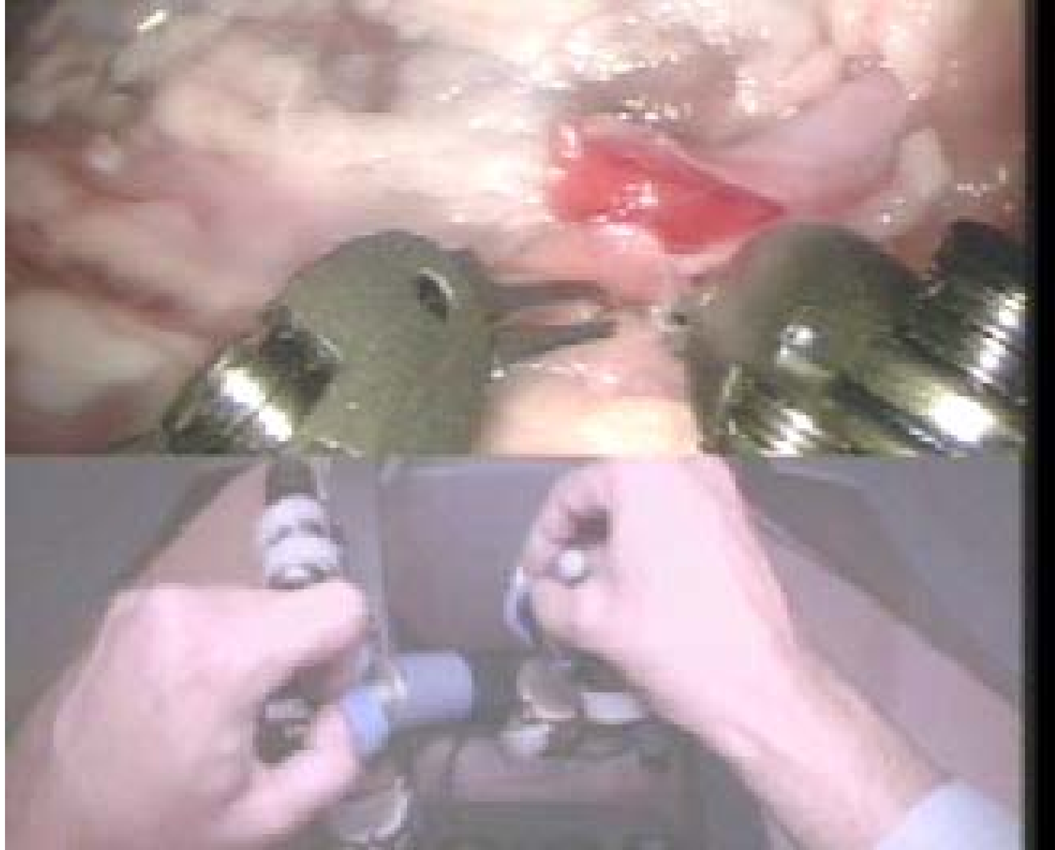

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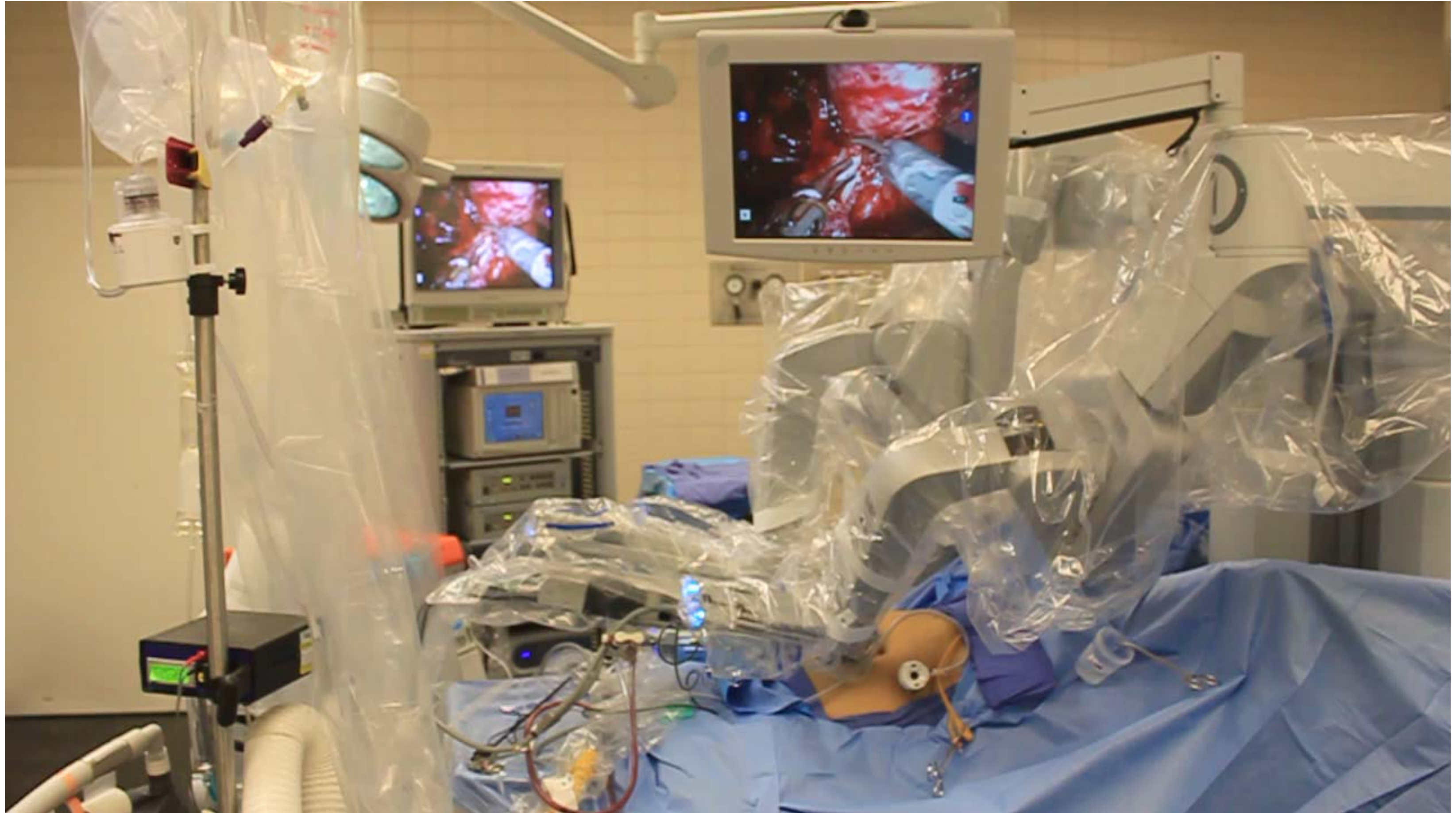

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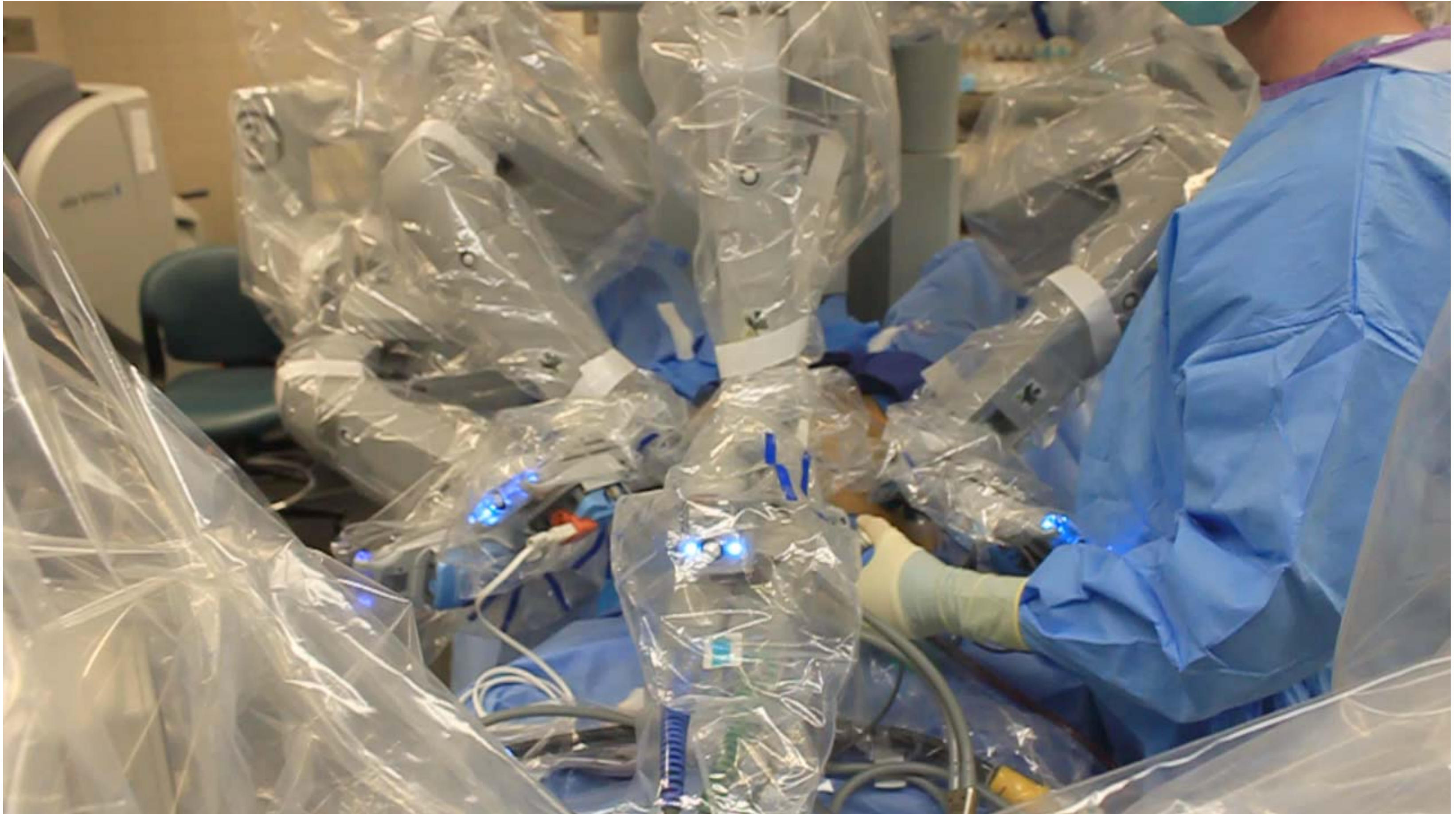

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"The Big 3"

1. Cancer Control – Margins
2. Urinary Control – Continence
3. Sexual Function – Potency

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da Vinci® Prostatectomy – Clinical Outcomes

1. Cancer Control - Margins

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Positive Margins (T2)

Radical Prostatectomy Series		% Positive margins
Guillonneau[1]	(Laparoscopic)	7.7%
Scardino[2]	(Open)	5.9%
Tewari[3]	(Robotic)	4.3%
Lee[4]	(Robotic)	6.0%
Locke[5]	(Robotic)	6.2%
Menon[6]	(Robotic)	6%
Ahlering[7]	(Robotic)	4.5%
Patel[8]	(Robotic)	5.7%

1. Touijer K, Kuroiwa K, Saranchuk JW, Hassen WA, Trabulsi EJ, Reuter VE, Guillonneau B. Quality improvement in laparoscopic radical prostatectomy for pT2 prostate cancer: impact of video documentation review on positive surgical margin. J Urol. 2005 Mar;173(3):765-8. p. 766 (Results) **2.** Scardino PT. Open Radical Retropubic Prostatectomy. Presented at the American Urological Association's *Carcinoma of the Prostate Course,* San Francisco, California, Sept. 30 – Oct. 1 2005 **3.** Tewari A, El-Hakim A, Leung RA. Robotic prostatectomy: a pooled analysis of published literature. Expert Rev Anticancer Ther. 2006 Jan;6(1):11-20. **4.** Lee DI. Margin Risk With Experience. Presented at UC Irivine's 2006 ART (Advanced Robotic Techniques) of Prostatectomy Symposium, January 5, 2006, Anaheim, California **5.** Locke DR, Klimberg IW, Sessions RP. Robotic Radical Prostatectomy With Continence And Potency Sparing Technique: An Analysis Of The First 250 Cases. Submitted To Journal Of Urology, Publication Date TBD. p. 4 Table 3. **6.** Menon M, Tewari A, Peabody JO, Shrivastava A, Kaul S, Bhandari A, Hemal AK. Vattikuti Institute prostatectomy, a technique of robotic radical prostatectomy for management of localized carcinoma of the prostate: experience of over 1100 cases. Urol Clin North Am. 2004 Nov;31(4):701-17. Review. **7.** Ahlering TE, Woo D, Eichel L, Lee DI, Edwards R, Skarecky DW. Robot-assisted versus open radical prostatectomy: a comparison of one surgeon's outcomes. Urology. 2004 May;63(5):819-22. p. 821 table III. **8.** Patel VR, Tully AS, Holmes R, Lindsay J. Robotic radical prostatectomy in the community setting--the learning curve and beyond: initial 200 cases. J Urol. 2005 Jul;174(1):269-72. p. 270 table 4.

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2. Urinary Control - Continence

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Urinary Continence Outcomes

Surgeon		3 mo	6 mo	12 mo
Walsh[1]	(Open)	54 %	80%	93%
Guillonneau	(Laparoscopic)	N/A	N/A	89.2 %[2]
Rassweiler[3]	(Laparoscopic)	N/A	74%	97%
Menon[4]	(Robotic)	N/A	96%	N/A
Locke[5]	(Robotic)	92.9%	94.9%	97.4%
Ahlering[6]	(Robotic)	75%	N/A%	95%
Patel[7]	(Robotic)	82%	89%	98%

1. Walsh PC. Patient-reported urinary continence and sexual function after anatomic radical prostatectomy. J Urol. 2000 Jul;164(1):242. p. 59 table 1. **2.** Vallancien G, Guillonneau B, Cathelineau X, Baumert H, Doublet JD. [Localized prostatic cancer: treatment with laparoscopic radical prostatectomy: study with 841 cases] Bull Acad Natl Med. 2002;186(1):117-23; discussion 123-4. French. **3.** Rassweiler J, Sentker L, Seemann O, Hatzinger M, Rumpelt HJ. Laparoscopic radical prostatectomy with the Heilbronn technique: an analysis of the first 180 cases. J Urol. 2001 Dec;166(6):2101-8. **4.** Menon M, Tewari A; Vattikuti Institute Prostatectomy Team. Robotic radical prostatectomy and the Vattikuti Urology Institute technique: an interim analysis of results and technical points. Urology. 2003 Apr;61(4 Suppl 1):15-20. p.15 (abstract) **5.** Locke, DR, Klimberg IW and Sessions RP. Robotic Radical Prostatectomy With Continence And Potency Sparing Technique: An Analysis Of The First 250 Cases. Submitted To Journal Of Urology, Publication Date TBD. p. 5 table 4. **6.** T Ahlering. Continence: The UC Irvine Experience. Presented at UC Irivine's 2006 ART (Advanced Robotic Techniques) of Prostatectomy Symposium, January 5, 2006, Anaheim, California **7.** Patel VR, Tully AS, Holmes R, Lindsay J. Robotic radical prostatectomy in the community setting--the learning curve and beyond: initial 200 cases. J Urol. 2005 Jul;174(1):269-72. p. 270 table 3.

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3. Sexual Function - Potency

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Sexual Potency Outcomes

Best Potency Outcomes	Walsh (2004)[1] N=25	UCI (2005)[2] N=27
Pre-op IIEF-5 >21	All	All
Average Age	X 50.1	55.7
Follow-up	12 mos.	12 mos.
Coitus	71 %	74 %
BNS	100%	14/18 (78%)
UNS	NA	6/9 (67%)
Post Radical Prostatectomy Average IIEF-5 Potent men score	15.7	19.3

1. Parsons JK, Marschke P, Maples P, Walsh PC. Effect of methylprednisolone on return of sexual function after nerve-sparing radical retropubic prostatectomy. Urology. 2004 Nov;64(5):987-90.
2. Ahlering T. The UC Irvine Experience: Potency Preservation. Presented at UC Irivine's 2006 ART (Advanced Robotic Techniques) of Prostatectomy Symposium, January 5, 2006, Anaheim, Calif.

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Patient Benefits

Robotic Prostatectomy Patient

1. Better Cancer Control Outcomes
2. Faster Return to Urinary Continence
3. Improved Outcomes for Sexual Potency

- **Shorter hospital stay**
- **Less post operative pain**
- **Less risk of infection**
- **Less blood loss and transfusions**
- **Less scarring & improved cosmesis**
- **Faster recovery and return to normal** daily activities

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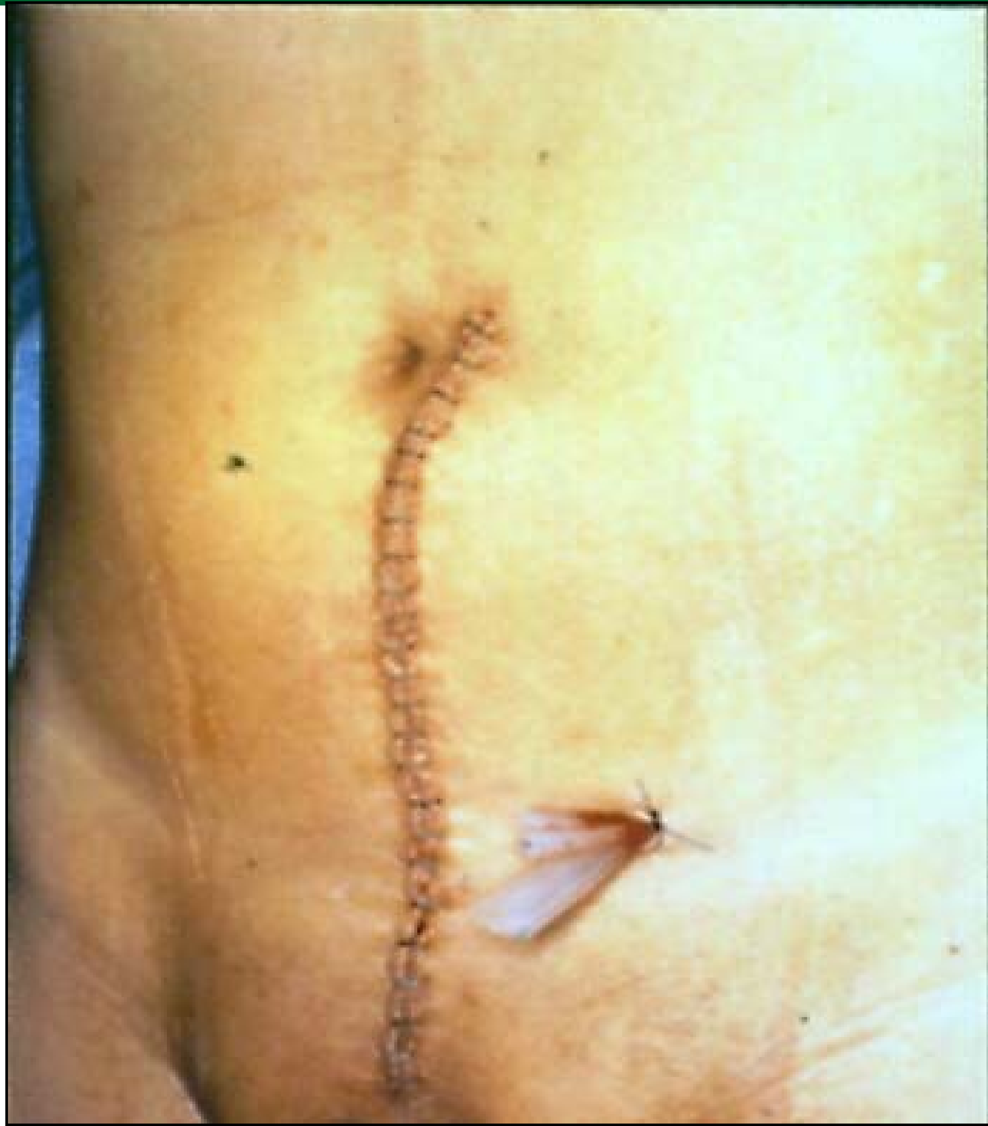

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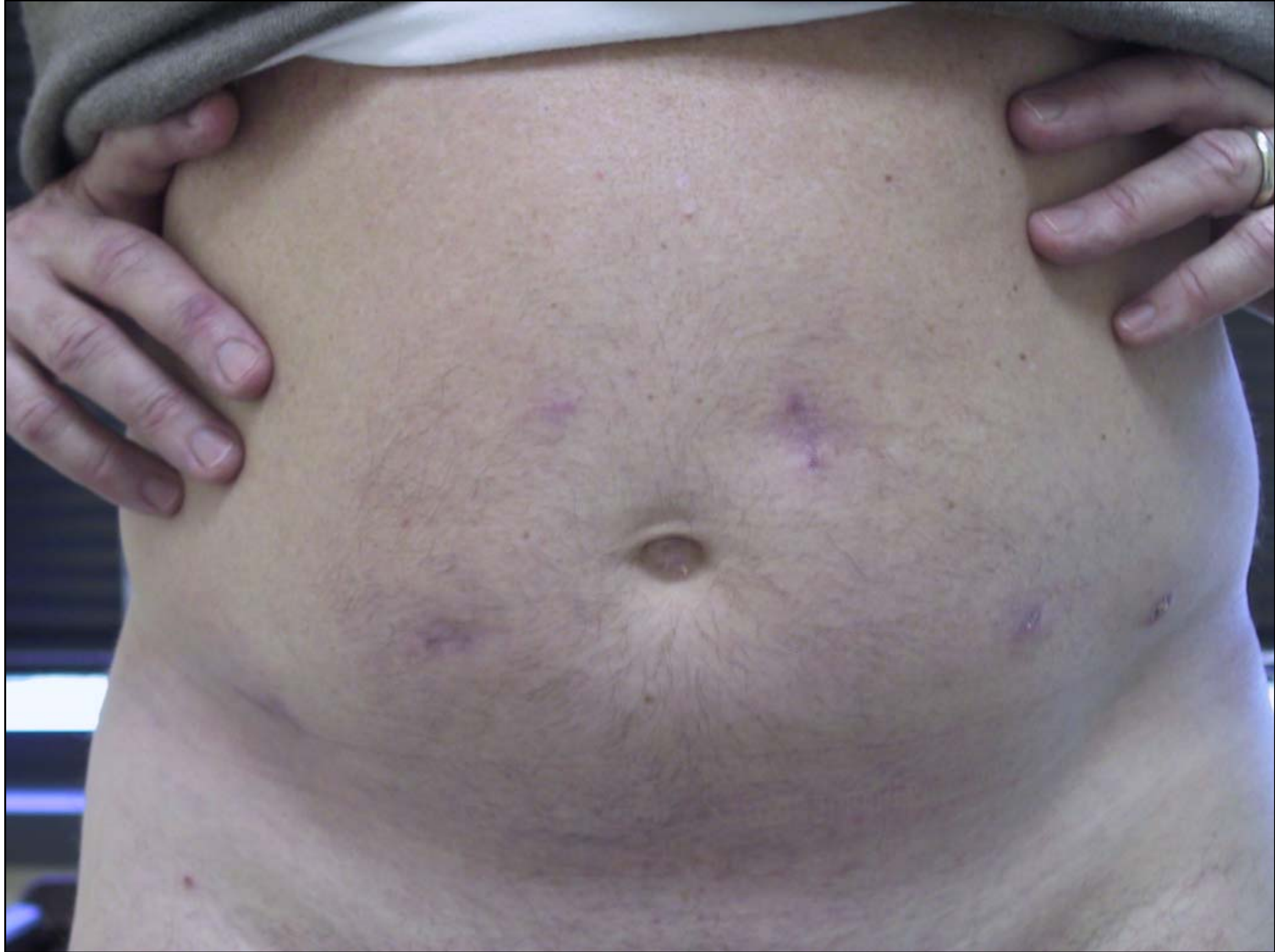
Post- OP



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Treatment Options

– Hormone Therapy

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Androgen Suppression – Hormones

- Indications:
  - Patients with widespread metastatic CAP
  - May be used in conjunction with XRT in pts with high-risk disease
  - Also used in patients with positive lymph nodes after surgical resection

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Metastatic Prostate Cancer

- Male hormones (testosterone, androgens) are critical to growth of prostate cancer
- Hormonal therapy is 1st line therapy
- 60-70% patients will normalize PSA with hormonal therapy
- 30-50% of measurable tumor masses will decrease by half or more
- 60% patients will experience improvement in symptoms (bone pain, urinary obstruction)
- Hormonal Therapy is effective for an average of 2 years

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Treatment Options

- Chemotherapy

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Cancer Treatment: Chemotherapy

- Drugs used to kill cancer cells
- No standard chemotherapy for prostate cancer
- Docetaxel (Taxotere) and prednisone help men with advanced prostate cancer live longer
- Other medications may help control symptoms

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Conclusions

- CAP is the most common cancer diagnosed
- 1/6 adult males will be diagnosed
- Treatment options vary
- Surgery & Radiation offer equivalent long term outcomes
- daVinci Robotic surgery is a highly advanced surgery that offers equal/better surgical & oncological outcomes for pts

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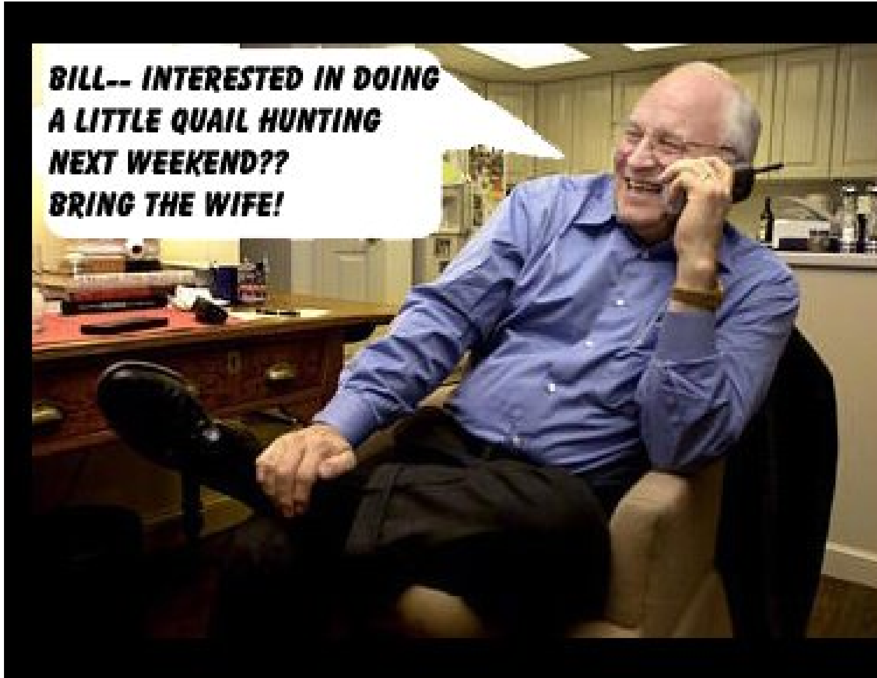

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