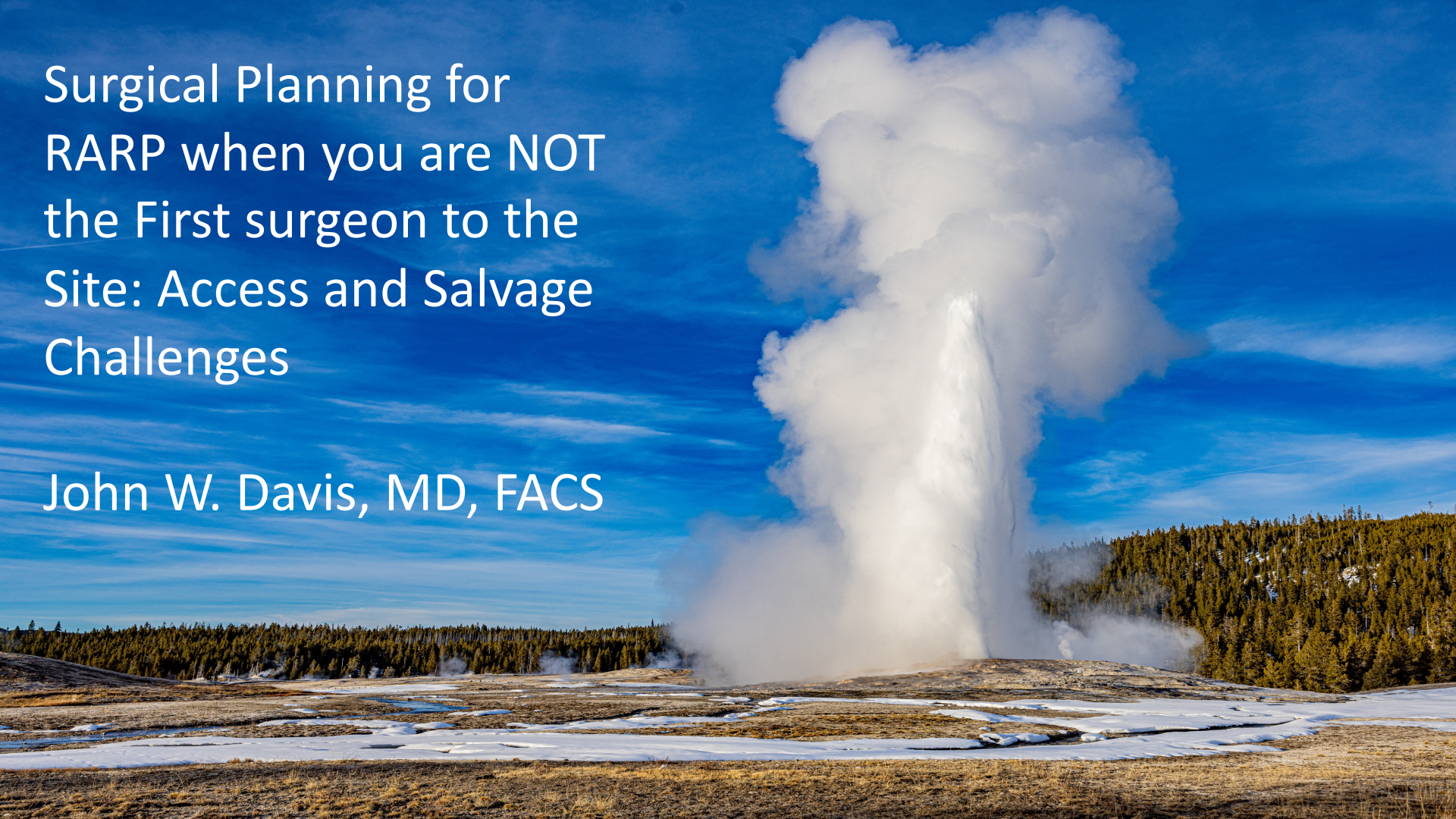
Surgical Planning for RARP when you are NOT the First surgeon to the Site: Access and Salvage Challenges

John W. Davis, MD, FACS



The Underappreciated Medical School Presentation

- Optimized Title
- HPI
- ROS—Uro relevant
- P Med Hx
- P Surg Hx
- Fam Hx
- Soc Hx
- Phys Exam
- Vitals
- Labs
- Imaging Hx
- Assess/Plan

HPI

- PSA screening history seems obvious, but…
  - TURP diagnosed
  - PSA screening on its own, or indicated from LUTS, or visiting a Low-T center
  - PSA—TRUS-12
  - PSA—MRI—Fusion/TRUS 12
  - PSA only Hx
  - Secondary biomarkers
  - H/o AS
  - Referral reasons—2nd opinion only, treatment selected, no clue
  - Any problems encountered thus far…example TRUS Bx sepsis; MRI claustrophobia

Past Med

- Diabetic issues:
  - Everyone gets HgA1c prior to a surgery
  - T2DM—if HgA1c—operate and postop sliding scale
  - T2DM with elevated HgA1c or any T1DM—likely preop endo
- Cardiac history—need for preop Poem, updated stress testing
  - Stents and rules surrounding—How was the biopsy handled?
- Anticoag Hx—embolic Hx, CVA, etc.
- Aggregate Co-Morbidity—consult an index if needed, i.e. 10 year survivorship guideline
- Relevant to RT: inflammatory bowel disease, last colonoscopy; RT History
- Relevant to imaging—retained metal, implants, pacemakers, etc.
- Lots of potential surprises here, new issues needing consults
- Medication review—including supplements
- Verify allergies/antibiotic/contrast issues

Past Surg Hx—Can we get access?

- Abdominal/Groin vs others
- H/o surgical/anesthetic complications
- Match scars to history

- Now lets divert to some surgical skills talk…

RARP: Relative vs Absolute Contraindications

Challenges—What are they and are they solvable?

1. The patient as a whole—size/dimensions
2. Getting ports/instruments to the target
3. The space around the gland
4. The gland itself
5. The disease within the gland (or not within)

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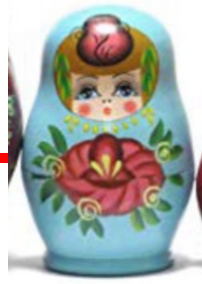
The patient as a whole

- BMI < 40 generally safe
- BMI 40-45—caution—perhaps the scale harsher for shorter patients
- BMI > 45-50—start with weight reduction, bariatric surgery (never seen that work), alternative treatment plans or observation
- Seek expertise on patient positioning, times < 5 hours
  - Avoid DVT, compartment syndrome
  - Anecdotes—patients turn blue in Trendelenburg

Getting ports/instruments to the target

"To Veress or Not to Veress"

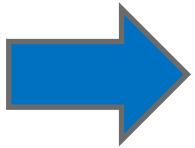


- History of
  - Lap chole
  - Lap appy w/o perf
  - Most pure lap procedures
  - Lap hernia
  - Open umbilical hernia

Try Veress
Insufflation—entry pressure ≤3 mmHg

To Veress or Not to Veress

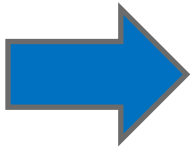
- History of
  - Lap procedure with midline extraction (i.e. nephrectomy, colectomy)
  - Complex umbo hernia repair
  - Insufflation attempts w/o low pressure



- Change to open access to have a look.
  - Purse string and vasoline gauze to re-establish seal
- Limited adhesions—small open/lyse, re-seal

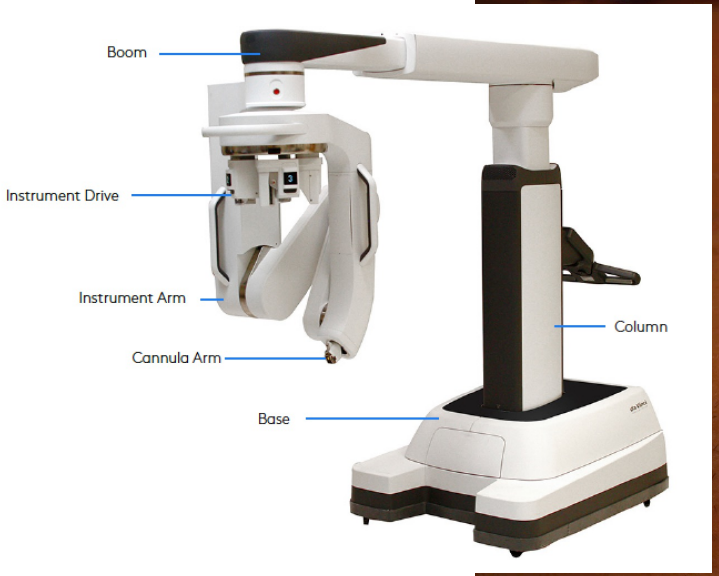
To Veress or Not to Veress

- History of
  - Perf bowel/appy
  - Complex ventral hernia with mesh
  - Colostomy/take down
  - History of known adhesions or aborted transperitoneal surgery



- Plan on solutions to hostile abdomen:
  - Trans with lysis of adhesions
  - Extraperitoneal
  - Transperineal
  - Transvesical

Single Port Solution



daVinci Access Port with SP

Si/Xi Robot

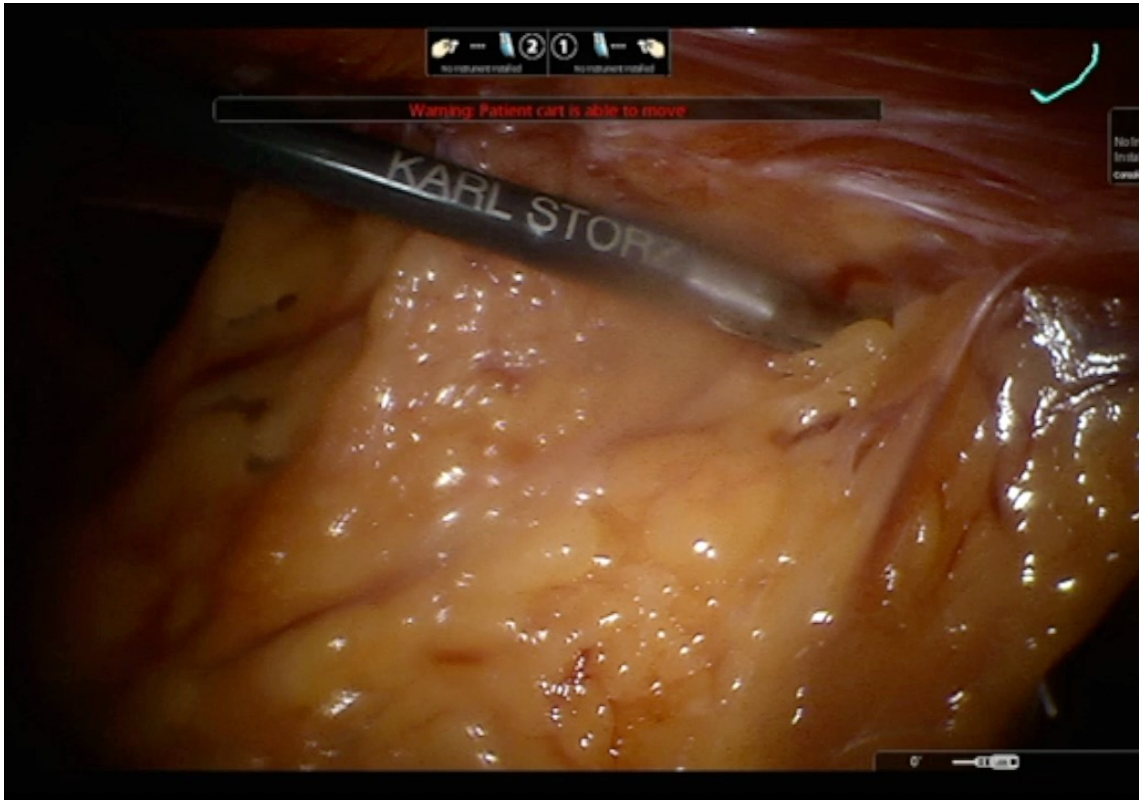
- Lap lysis of adhesions until clear
  - Take vessels seriously, i.e. bipolar, ligasure, clips
  - Port hop camera
- Learn extraperitoneal multiport

SP Robot

- Extraperitoneal—easy to learn compared to multi—use assist port early, then learn drop suction
- Transperitoneal—rare
- Transvesical--emerging

Initial Access: Adhesions

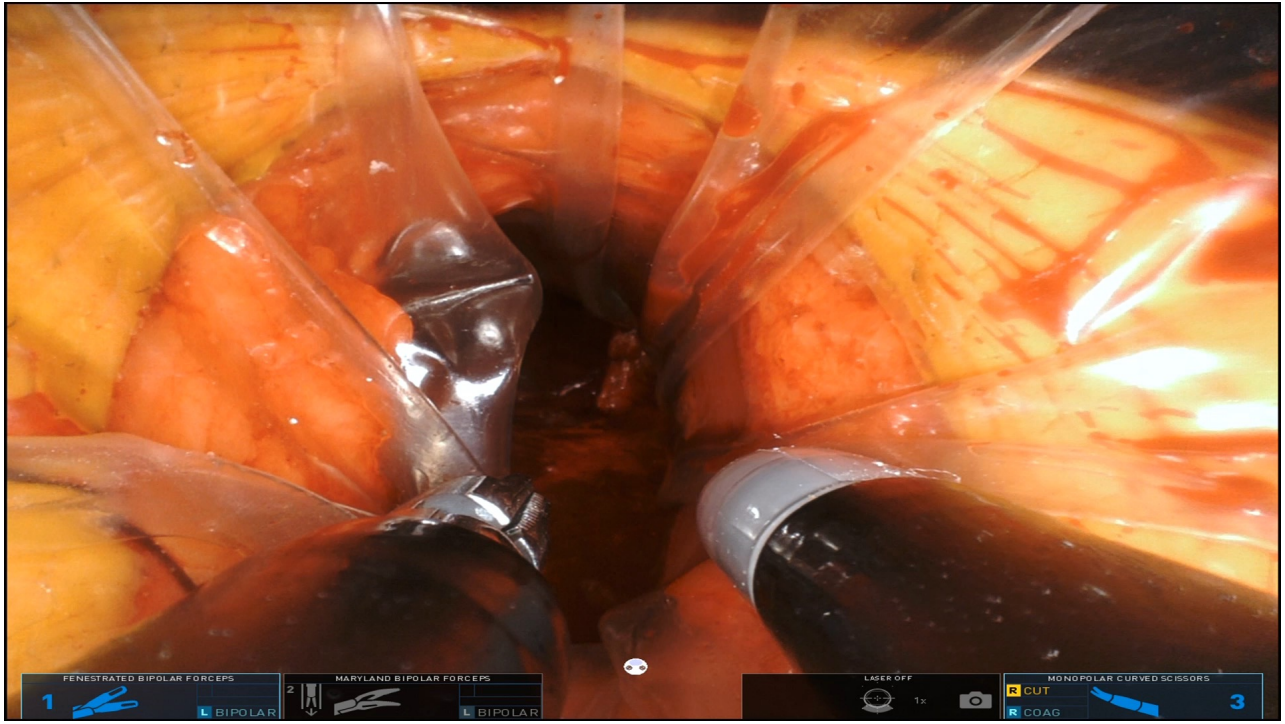
- History of prior surgery
  - Which is worse—appy, chole, Nissen, bowel resection, hernia/mesh
  - Technique of resecting adhesions



Solutions:
- camera hop
- consider ligasure
- extraperitoneal
- mini-lap

Favorable IR: Option

- Low volume GS 3+4
- SP robot
- Extraperitoneal—finger dissected space—"floating" gel port
- 40 mm robot port + 5mm assist



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RARP Planning: Key Selections

Excluding patient eligible for active surveillance

- Risk of positive lymph nodes
  - Acceptance of ePLND as non therapeutic
  - Briganti nomogram with >8-10% threshold
  - Some judgement around patient co-morbidity and if PSMA Pet negative
- Risk of EPE
  - Mix of MRI and biopsy findings
  - Incremental nerve sparing concepts
- Tumor location
  - Anterior, posterior-lateral, other
- Presence of extensive prior surgery
- Prostate size, h/o TURP, median lobe
- Special situations—prior hernia mesh, concominant hernia repair, IPP prosthetic reservoir, kidney transplant
- Patient size—extremes of petit vs morbidly obese

Pro/Con: Anterior/Transperitoneal

Pro

- Anterior tumor margins
- Larger space for eplnd
- Ideal view of bladder neck/trigone
- Feasible for “hood” technique
- More NS orientation
- Optimized surgical assist

Con

- More intracavitary dissection
- Large bleeding space potential
- Potentially slower continence return
- Prior surgery/adhesions block access

Anterior/Transperitoneal

- Typical selection features
  - Need anterior margins
  - Need eplnd access
  - h/o turp
  - Complex looking anatomy
  - Most high risk or risk of epe

Pro/Con: Extraperitoneal Single Port

Pro

- Reliable access even with hostile abdomen
- Smaller dissection space/urachus/ligaments preserved
- Familiar anatomic view and trigone view
- Minimal abdominal air with true midline single access
- Reduced t'berg need—possibly less stressful with high BMI or cardiac risk

Con

- Slower average motions
- Clipping is slow/limited to 5mm
  - More bipolar dependent
- Reduced assistance
- PLND challenging plus lymphocele risk
- Cost/access
- Drop suction is plus/minus

Extraperitoneal Single Port

- Typical selection features
  - Hostile abdomen risk—avoid bowel
  - GG2 type of case—plan to omit/minimize PLND
  - Very slender body habitus
  - Morbid obese—need to reduce T'berg (keep them in lithotomy for perineal pressure)
  - Sometimes—pure elective case for RARP without nodes
  - Can accommodate anterior disease/h/o TURP

Pro/Con: Transperitoneal Retzius Sparing

Pro

- Early continence is impressive—especially older patients
- Less pelvic manipulation
- Less bleed space
- Ideal for sparing bladder neck and anterior planes
- With experience can accomplish large glands/median lobes
- Non-committal approach—i.e. can be converted to anterior with same port placement/setup
- EPLND spaces can be the same

Con

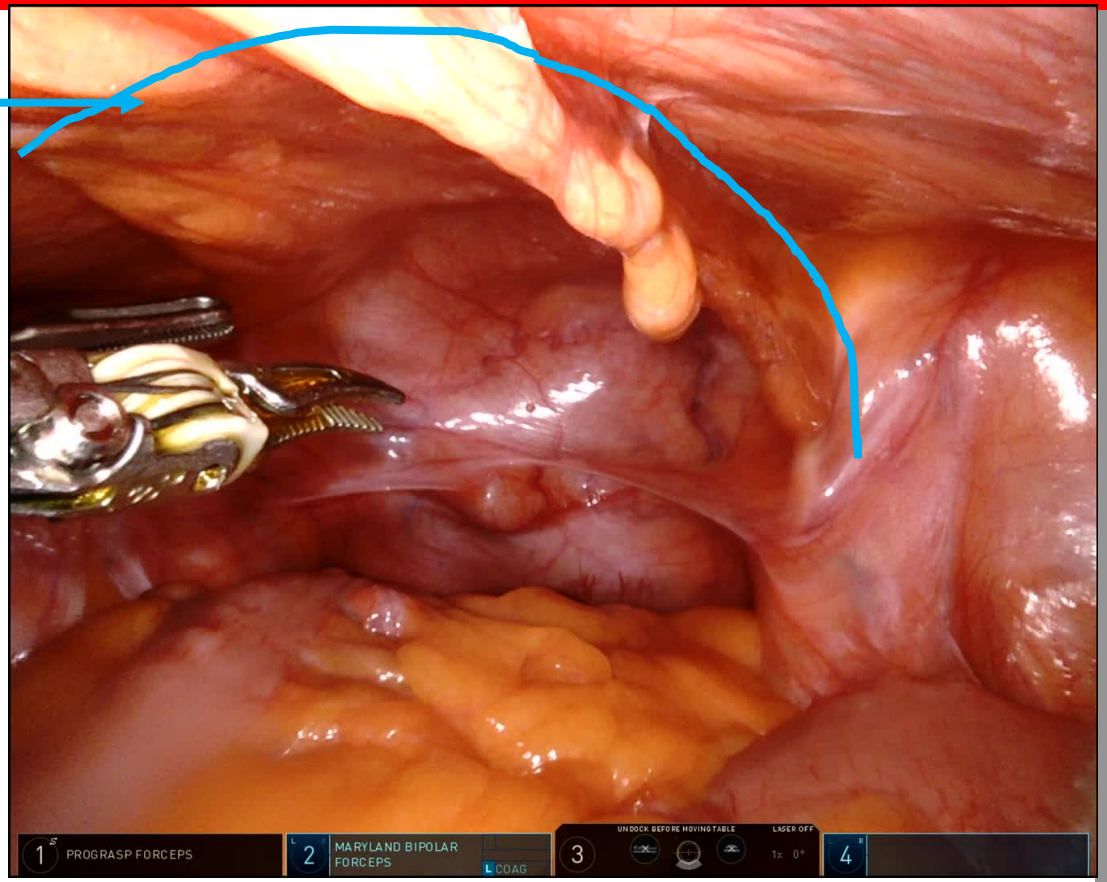
- Learning curve; possibly reduced trainee experience
- Mostly slower
- Cannot see trigone—avoid TURP hx
- Nerve sparing planes feasible but more skill to land in correct plane
- Assistance access reduced—more synchroseal/bipolar methods
- Bowel and pelvic space can be limiting

Transperitoneal Retzius Sparing

- Typical selection features
  - Minimal bowel adhesion risk
  - No anterior/bladder neck disease
  - Older patient with risk of slower continence return
  - ***Ideal way to avoid hernia/significant mesh use, transplant kidney, IPP reservoir***
  - Avoid with TURP history; large size or median lobe ok if spacing is good
  - Feasible with salvage case situation—full gland or focal therapy
  - EPLND is fine with separate peritoneal incisions
  - “accidental” Retzius sparing—not planned but spacing posterior is large and/or excess mesh/hernia encountered

Multiple Routes to the Prostate

- Anterior/drop urachus
- Anterior/leave urachus
- Anterior Tunnel
- Transvesical
- Retzius Sparing
- Extraperitoneal



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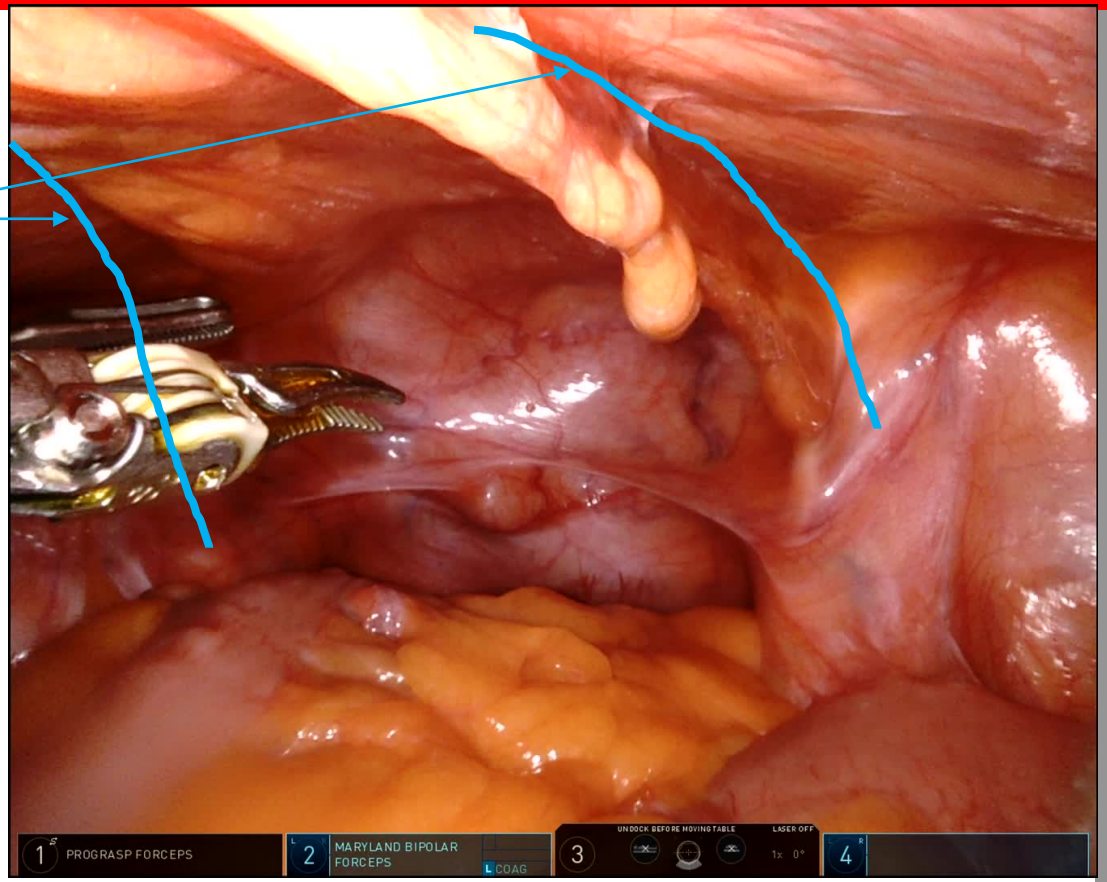

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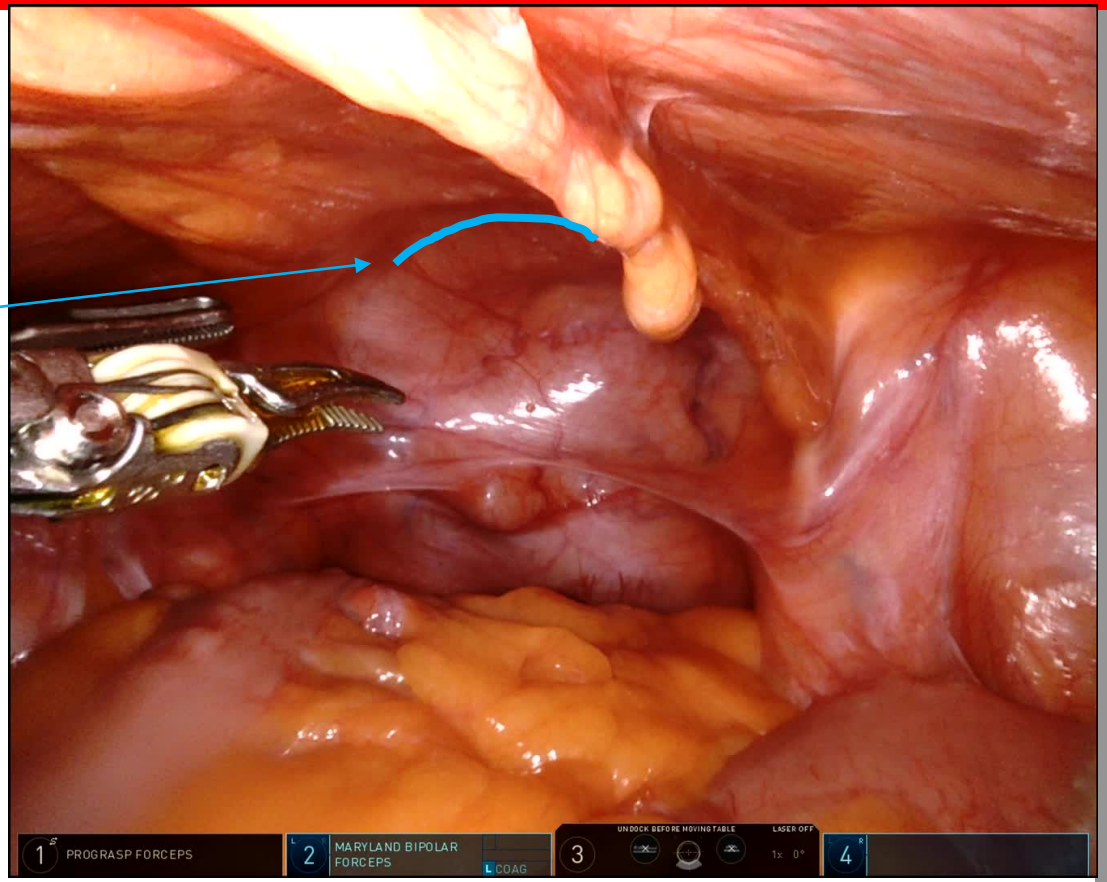

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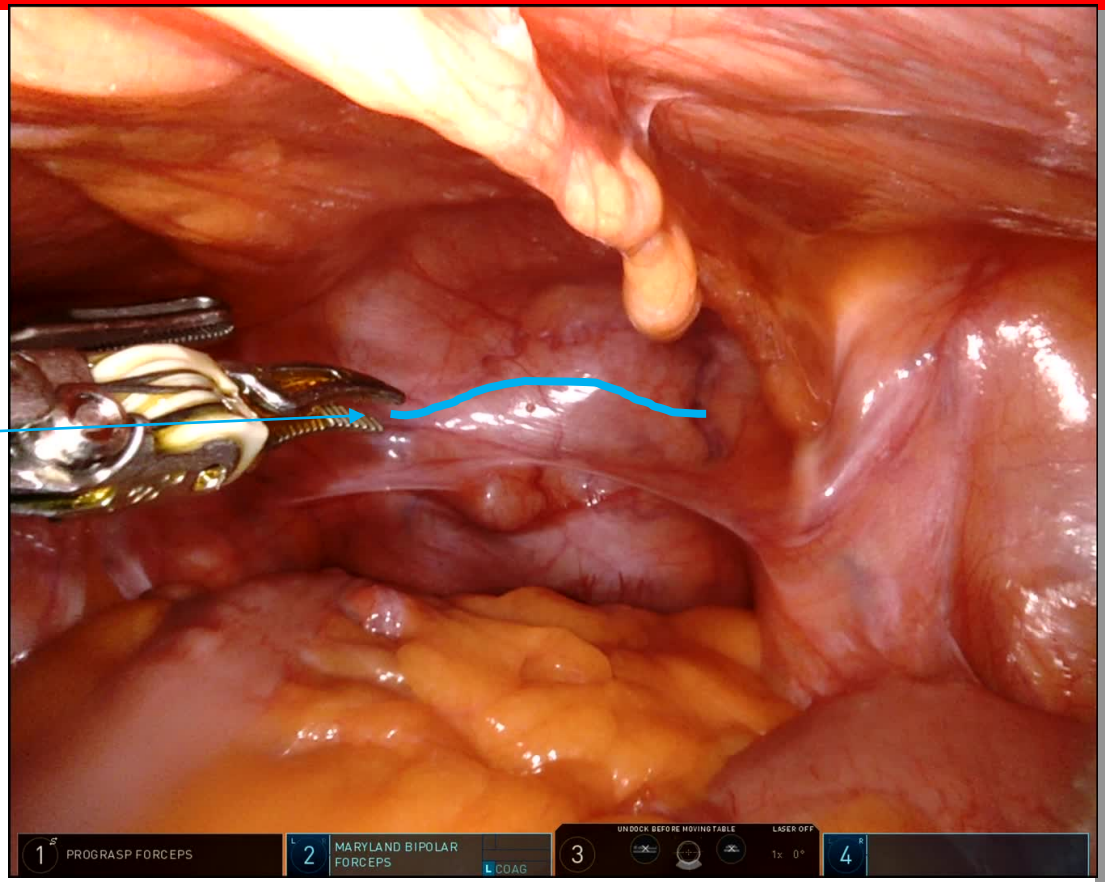

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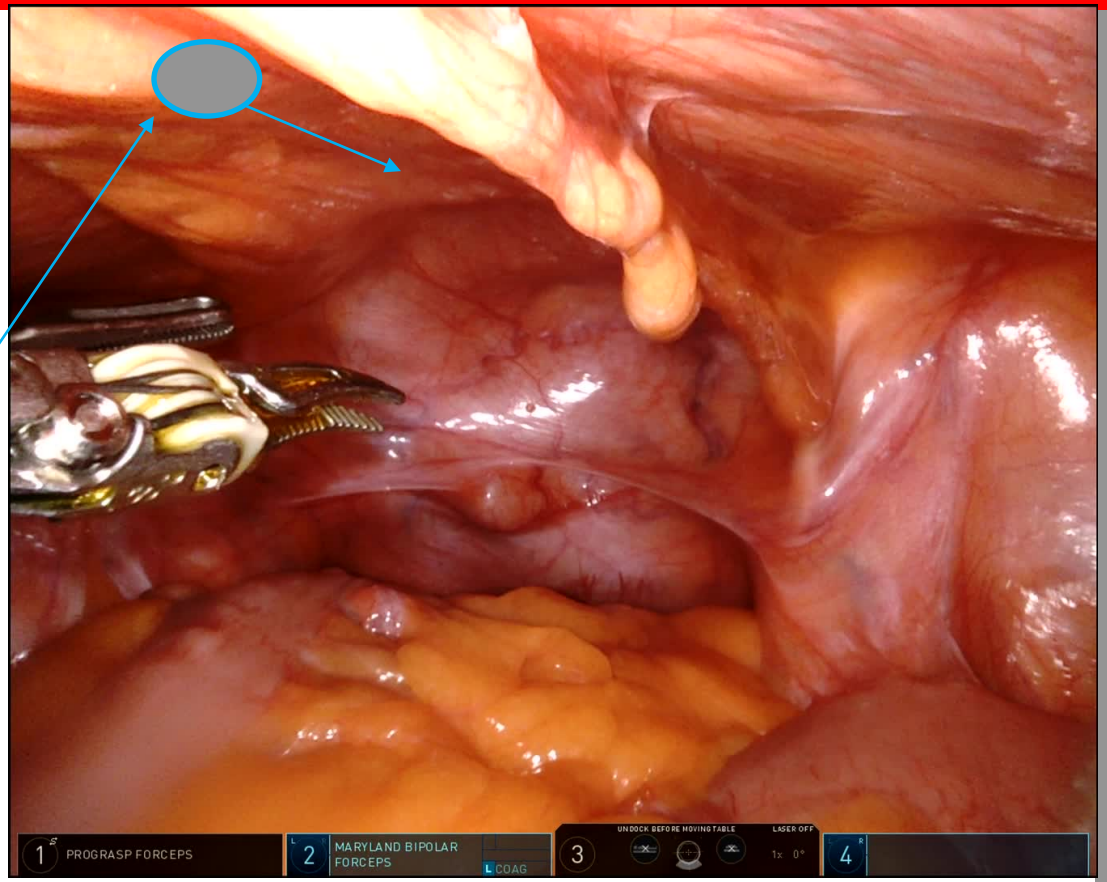

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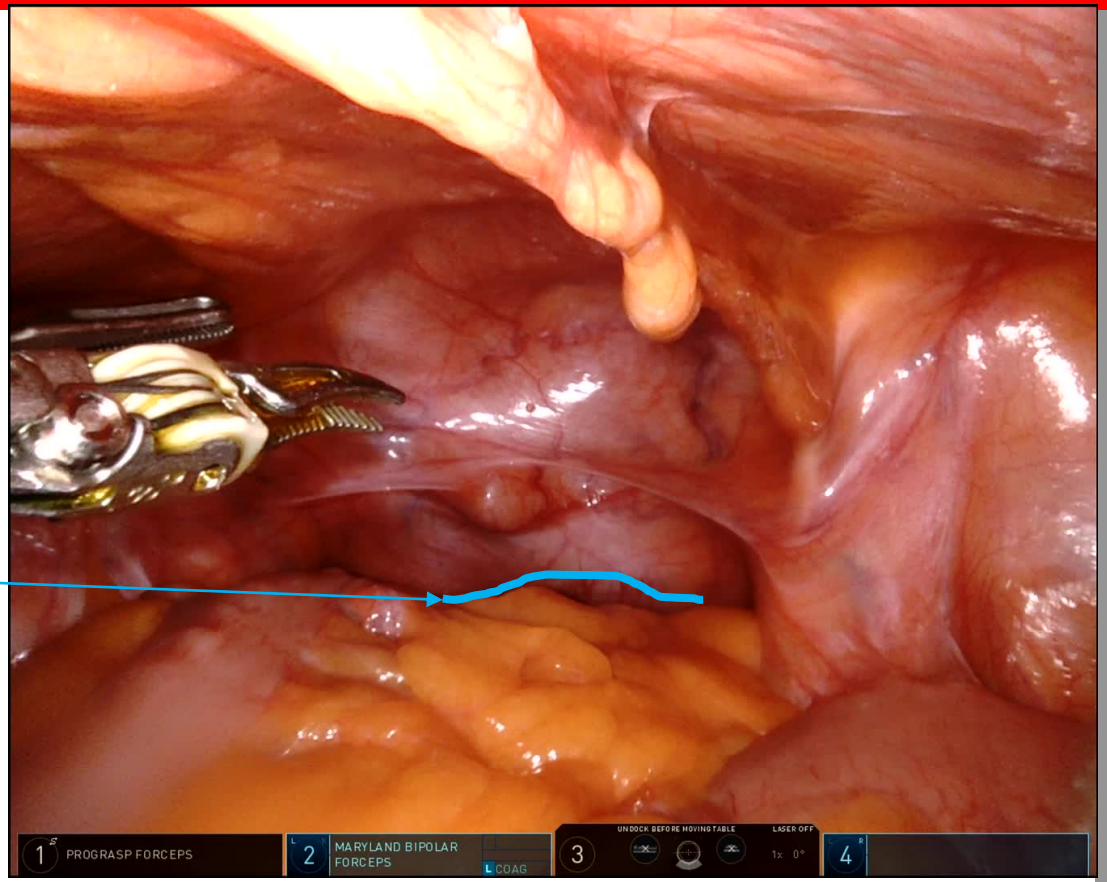


Hostile Abdomen—Is it a thing?

2 of 150 Pubmed articles on topic

Hostile Abdomen Index for Laparoscopic Surgery - Preoperative Score Criteria
(*Goldfarb, et al 2014*)

1. No prior surgery, no abdominal hernia, and no skin disease/infection

2. One prior laparotomy or hernia in region of intended surgery

3. Two prior laparotomies, extremely large or small patient, acute abdominal wall infection, coagulation defect, portal hypertension, history of abdominal radiation, or history of intestinal Crohn's disease

4. More than two laparotomies, history of abdominal abscess or diffuse peritonitis, large abdominal solid mass, large mesh in the area of intended surgery, bowel obstruction and extreme distention, failed prior laparoscopy from adhesions, ascites, previous radiation in intended surgical region, severe active Crohn's disease, hemodynamic instability, severe COPD, late pregnancy, or acute abdominal wall infection in port region

Ferguson et al J Endo 2023

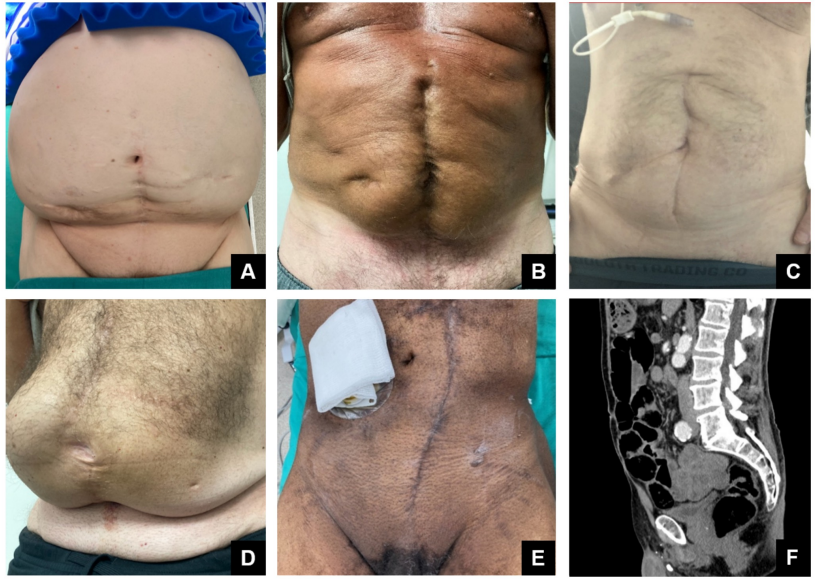
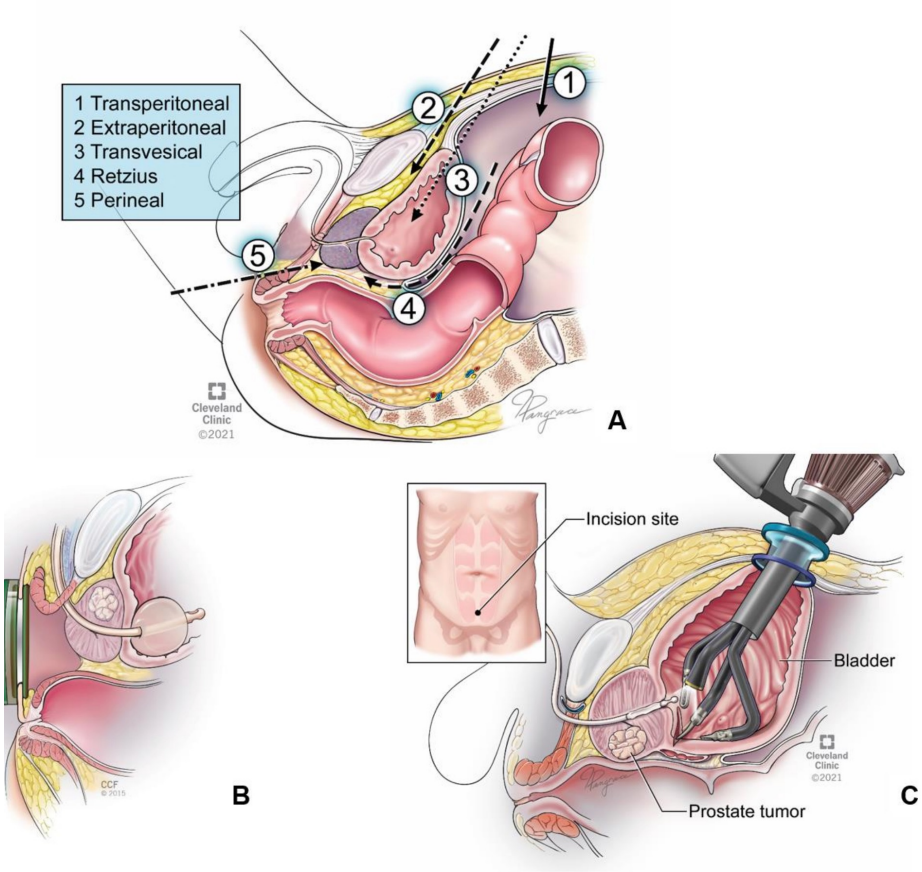
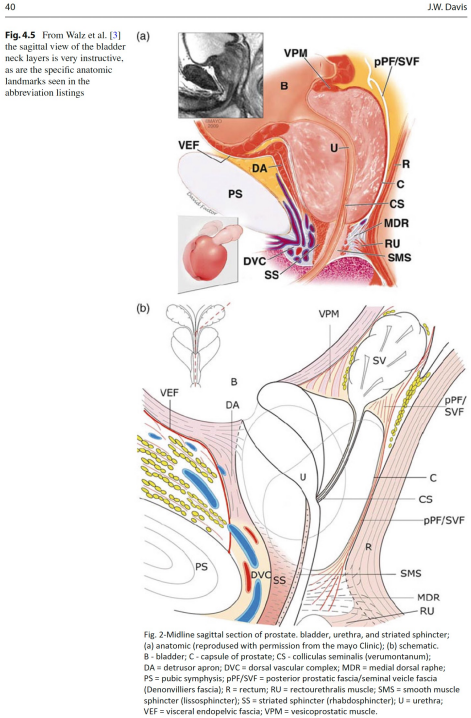


Figure 3. Examples of typical incision sites for patients with a hostile abdomen, including dense abdominal scars and prior stoma sites (A-C), large ventral abdominal wall hernia (D), and active ileostomy site (E). The sagittal CT shown (F) demonstrates close association of the small bowel to the anterior abdominal wall for the patient in image C.



2. Various approaches are possible for prostate access when performing robotic SP robotic radical prostatectomy (A). Access and port placement are shown for the rineal (B) and transvesical (C) approaches.

The Gland Itself



Large gland
Median lobe
Prior TURP
Salvage procedure
Close ureters
Pubic arch interference
Accessory arteries
Extended lymph node dissection
Anastomotic tension/leak
Locally advanced disease

Mostly Solvable!

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Instructional Courses

Conclusions: RARP Technique

- Anterior approach is the standard worldwide—need to expand beyond this varies by experience, case volumes, departmental needs
- Retzius sparing approach feasible: trade-offs with learning curve, positive margins, continence, trainee experience
  - Distinct advantages when anterior space compromised
  - Unknown experiences beyond highly skilled surgeons publishing results
- Single Port feasible
  - Excellent toolbox option for hostile abdomen and other indications
  - Likely not practical to replace Xi

The Rest of the New Patient w/u

- Fam Hx—Genetic screening guidance, infrastructure
- Social Hx—smoking, Etoh cessation
- Phys Exam—BMI, ? Does DRE matter
- Labs—HgA1c, Hep C, PSA trends
- Imaging—MRI/PET dominant

How Events Occur



High Reliability Organizations (HROs)

"operate under very trying conditions all the time ***and yet manage*** to have fewer than their fair share of accidents."

Managing the Unexpected (Weick & Sutcliffe)

Risk is a function of ***probability*** and ***consequence***.
By decreasing the probability of an accident,
HROs recast a high-risk enterprise as merely a
high-consequence enterprise.

HROs operate as to make systems ultra-safe.

Final Thoughts

- Clinic presentations—Follow a template
  - More reliable across rotating teams
  - Better attention to detail
  - Faster
  - More accurate treatment planning
  - Patient confidence in our systems
  - Consistent with high reliability organizations
  - Effective across specialties and internal colleagues
- Getting to the OR at MDACC—planning for your future OR
  - Solving the hostile abdomen and extreme indications
  - Following a similar approach to learning extreme indications/contraindications to non-surgical plans