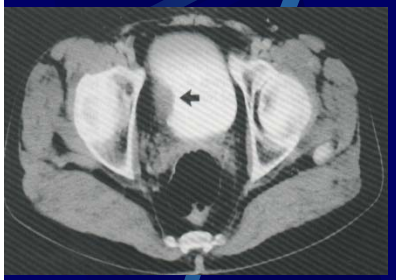
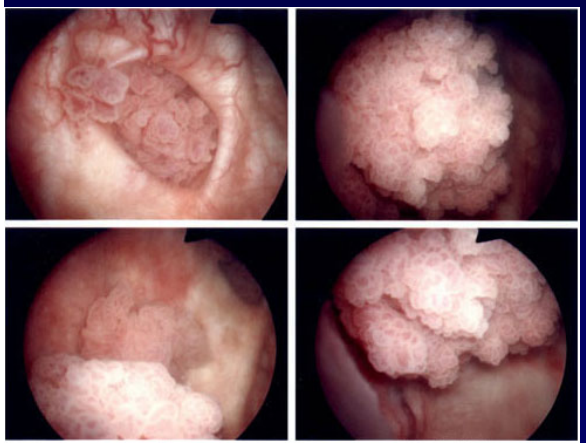
Bladder Cancer:

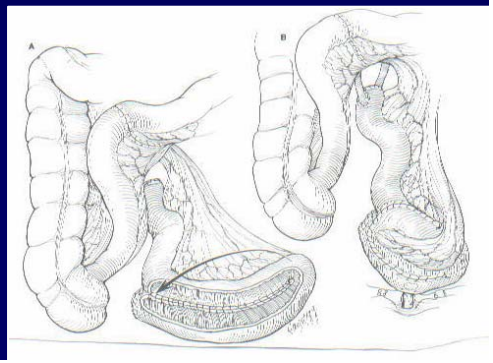


Overview, diagnosis and treatment with a focus on outpatient clinical issues

William F. Santis, M.D.
Concord Hospital Center for Urologic Care

September 28, 2013





Goals:

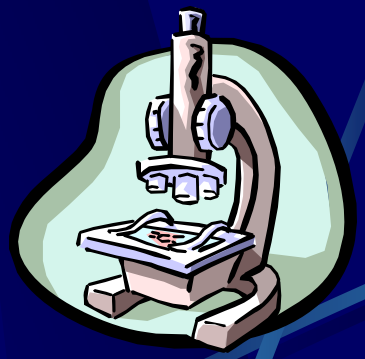
- Overview of bladder cancer
- Treatment options for various stages of bladder cancer
- Surgical options for patients requiring cystectomy and urinary diversion including post operative care
- Keep you awake

Ask me questions throughout this talk!

Audience composition?

Epidemiology:

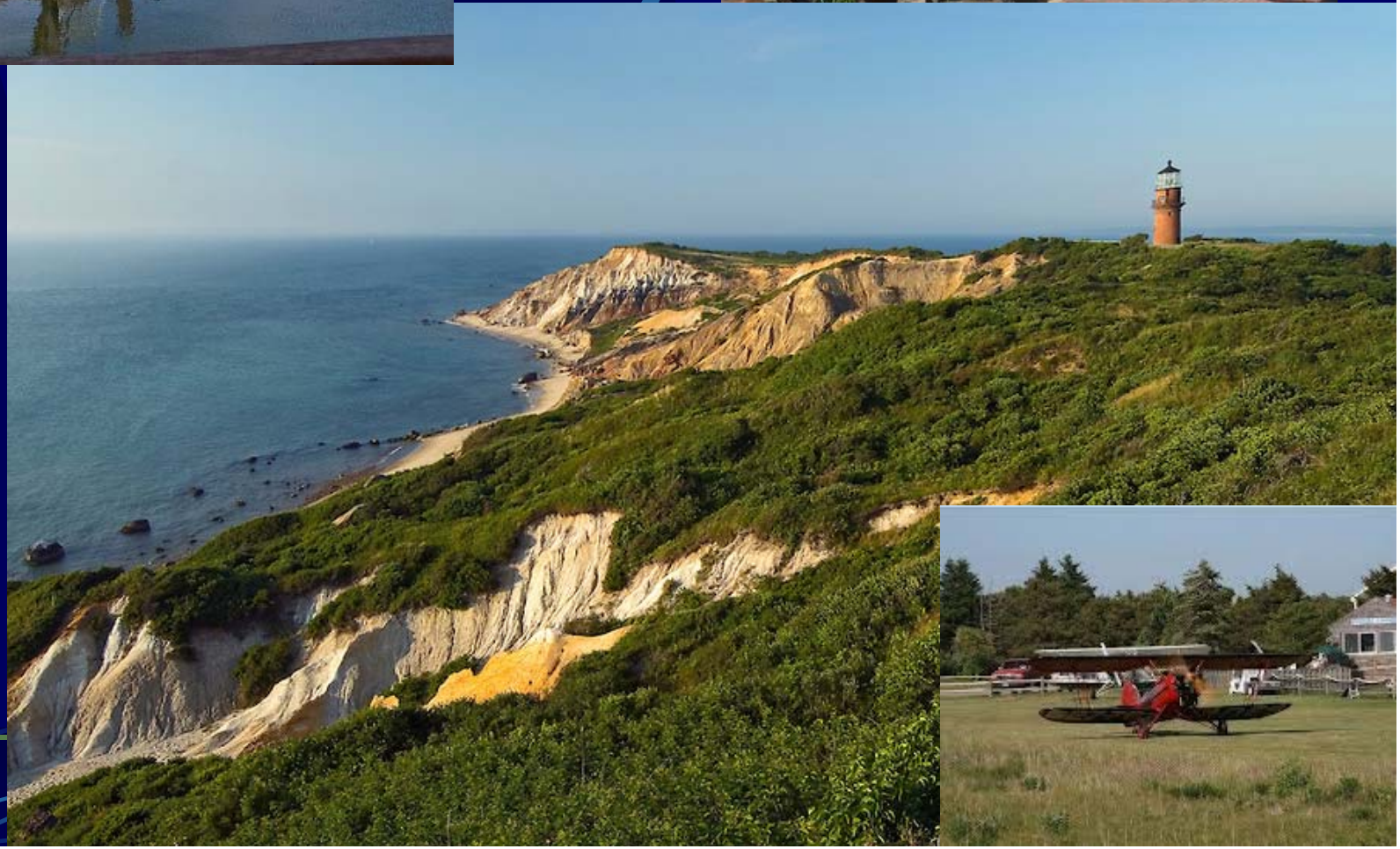
- 72,570 new cases of bladder cancer in the U.S.A. each year
- 15,210 deaths each year in U.S.A.
- 2.7x more common in men
  - Smoking related
- 4th most common cancer in men
  - Lung, prostate and colorectal
  - 8th most common cancer in women



Pathology:

- Transition cell carcinoma (>90%)
- Squamous cell carcinoma (1%)
- Adenocarcinoma (2%)
- Urachal carcinoma
- Metastatic adenocarcinoma
  - From rectum, prostate, endometrium, breast and ovary

Name the location?



Etiology: Cigarette Smoking

- Lung → blood → urine → bladder
- Specific agent unclear (nitrosamines, 2-naphthaline) implicated
- At least 50-52% CaBladder smoking related
- Increased risk >4 times
  - Related to duration/amount smoking, and degree of inhalation

Smoking and chemical exposure history important in evaluation of hematuria patient

Etiology:

- Occupational exposures: 25-30% cases
  - Aniline dyes (to color clothing), benzidine, xenylamine and many others
- Higher risk in auto workers, painters, drivers, machine workers, dry cleaners, paper and clothing workers
- ? Color hair> each 6 wks
- Chlorinated H2O increases risk 1.2-1.4 fold (byproduct Trihalomethanes as cause)
- Consumption of Chinese herbs that contain aristolochic acid or prescription of aristolochic

Etiology:

- Cyclophosphomide
- Phenacetin, Thiazolidinediones, ?HPV,
- Chronic cystitis: Squamous cell carcinoma
  - Longstanding bladder calculi
  - Schistosoma haemotobium
  - Indwelling catheters
    - 2-10% SCI pts with indwelling catheter

Any patient with LE>10 yrs who has a chronic catheter…..ask why?

54 yo man with 4d gross/painless hematuria

No flank pain/some difficulty completely emptying/no fever.

PMH: COPD, HTN, Nephrolithiasis, ED

PSH: Appy, Chole, RIH

Meds: HCTZ, Albuterol NKDA

SH: 0-2 EtOH/d, 40 pack yrs, mechanic in machine shop

What do you want to look for in the office?

What will trigger an admission?

54 yo man with 4d gross/painless hematuria

- Retention
  - Need for cath?
  - Need for CBI
- Infection
- Anemia
- Colic/Pain control
- Hematuria w/u with cysto/cytol/CT

Signs/Symptoms:

- Painless hematuria
  - 85% of patients
- Flank pain
  - Ureteral obstruction
- Lower extremity edema
- Weight loss, abdominal or bone pain
  - Signs of advanced disease

Diagnosis:

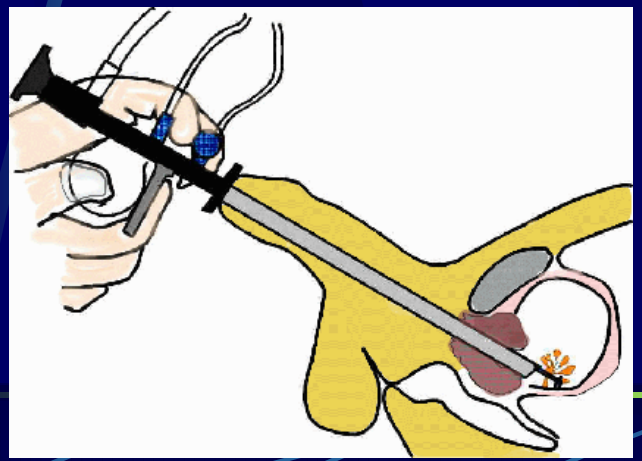
Hematuria Evaluation

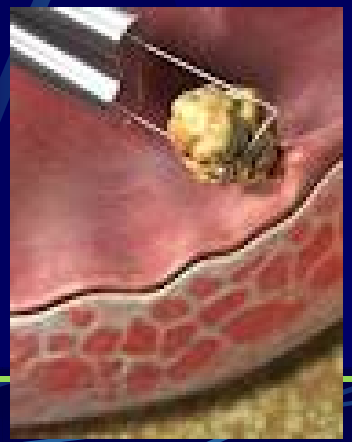
- Flexible or rigid cystoscopy
- Urine cytology
- Upper urinary tract studies
  - Hematuria CT best study
  - IVP
  - Ultrasound not adequate

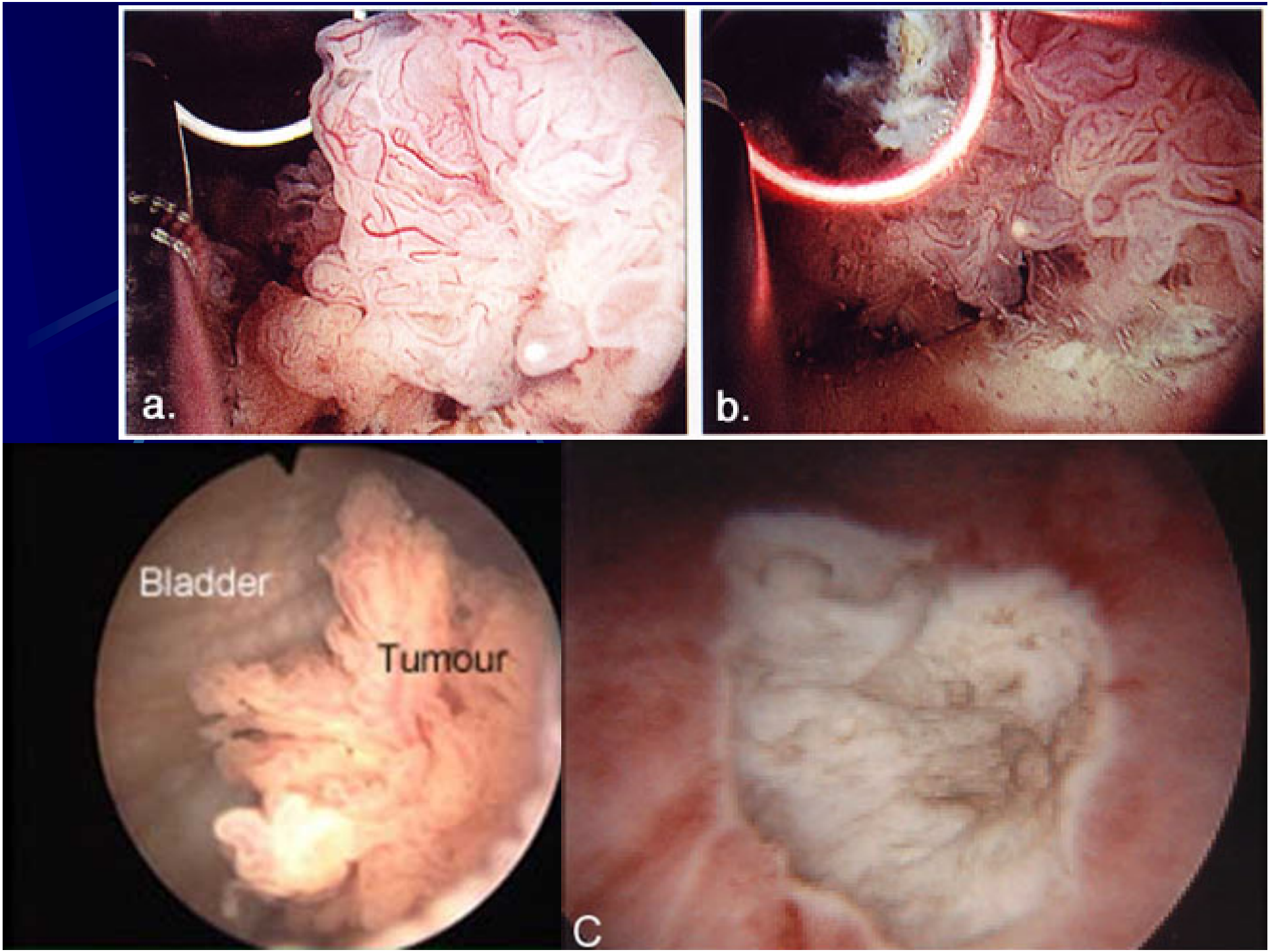
Name the Red Sox Player?

Staging:

- Resection of bladder tumor
  - Determine depth of invasion and grade
  - Can be curative in superficial disease
  - Random biopsies to rule out CIS
  - Muscle must be included
  - Consideration of single dose Mitomycin
- CT Scan
- Chest imaging
- Bone scan
  - Usually not necessary if alkaline phosphatase is wnl



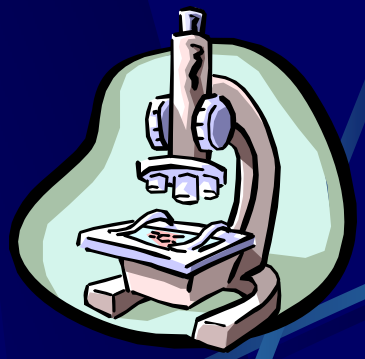


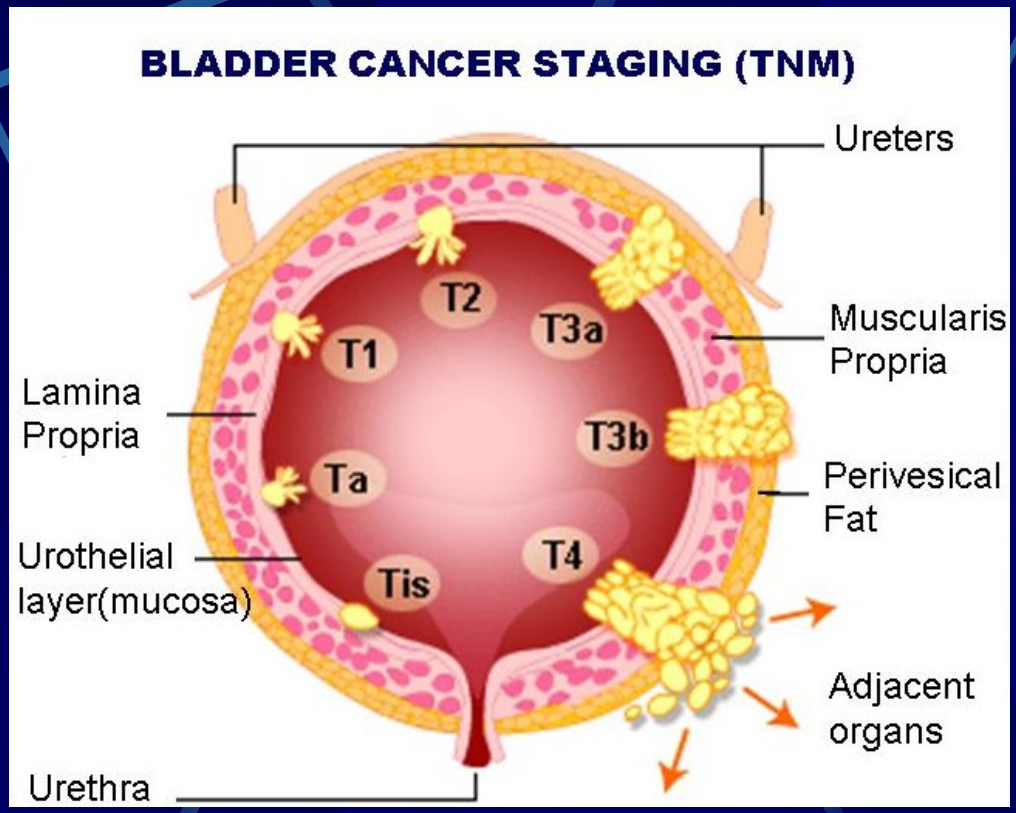

a.
b.
Bladder
Tumour
C

Post TURBT complications:

- Infection
- Clot retention
- Perforation
- TUR syndrome
- LUTS
- Ureteral obstruction

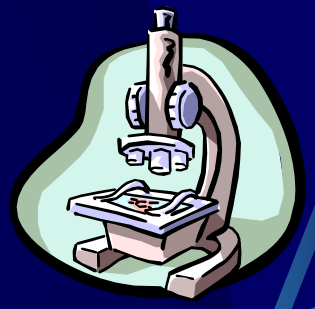
Pathology: Stage





Tis=CIS

- Ta: Non-invasive
- T1: Lamina propria invasion
- T2a: Muscle invasion/superficial
- T2b: Muscle invasion/deep
- T3a: Perivesical fat invasion
- T4: invasion continuous organs



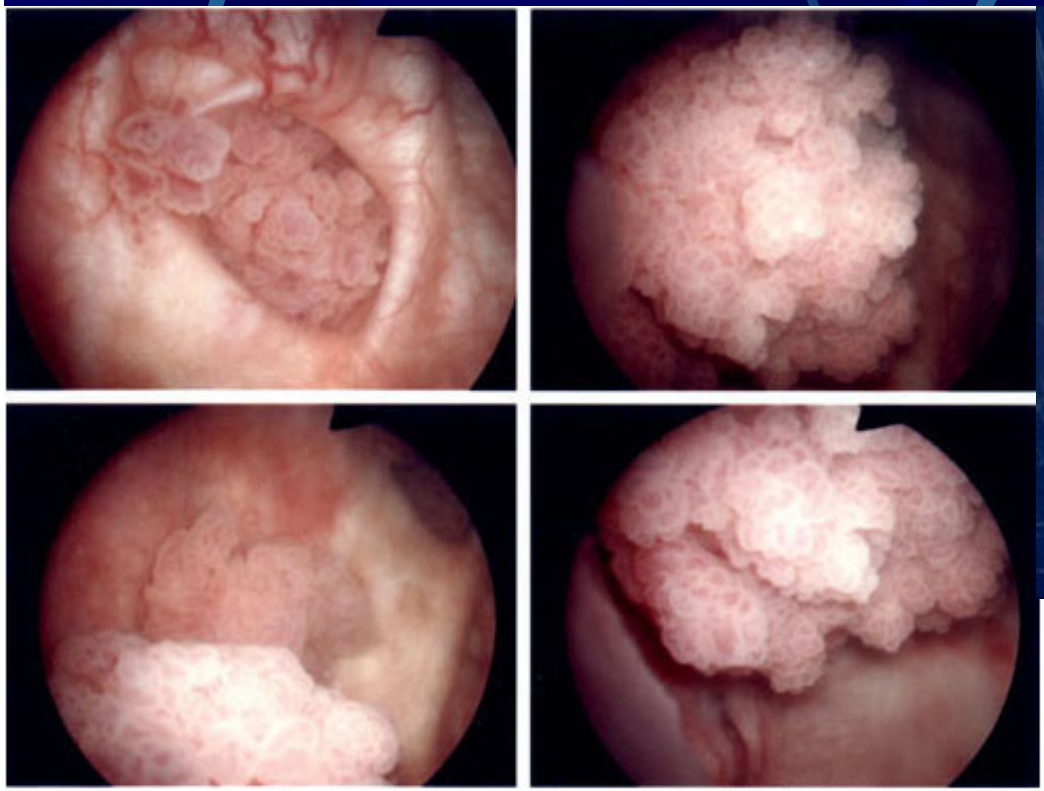
Pathology: Grade

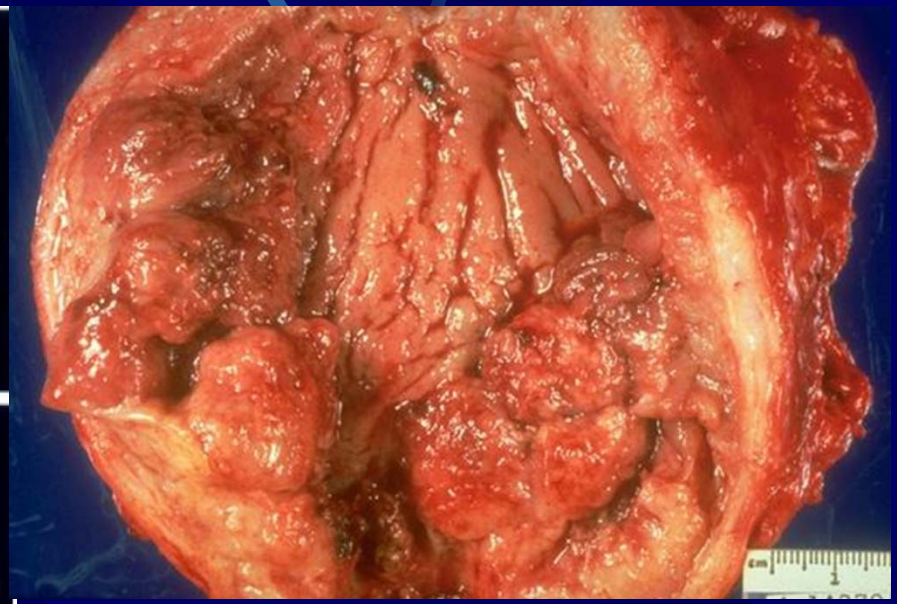
- Low grade: usually papillary
- High grade:
  - Papillary or solid
  - 50% muscle invasive
  - Evil
  - Often associated with CIS

Stage is where it is, grade is the cellular aggressiveness

Superficial v. Invasive Bladder Cancer:

Massive difference in behavior and treatment

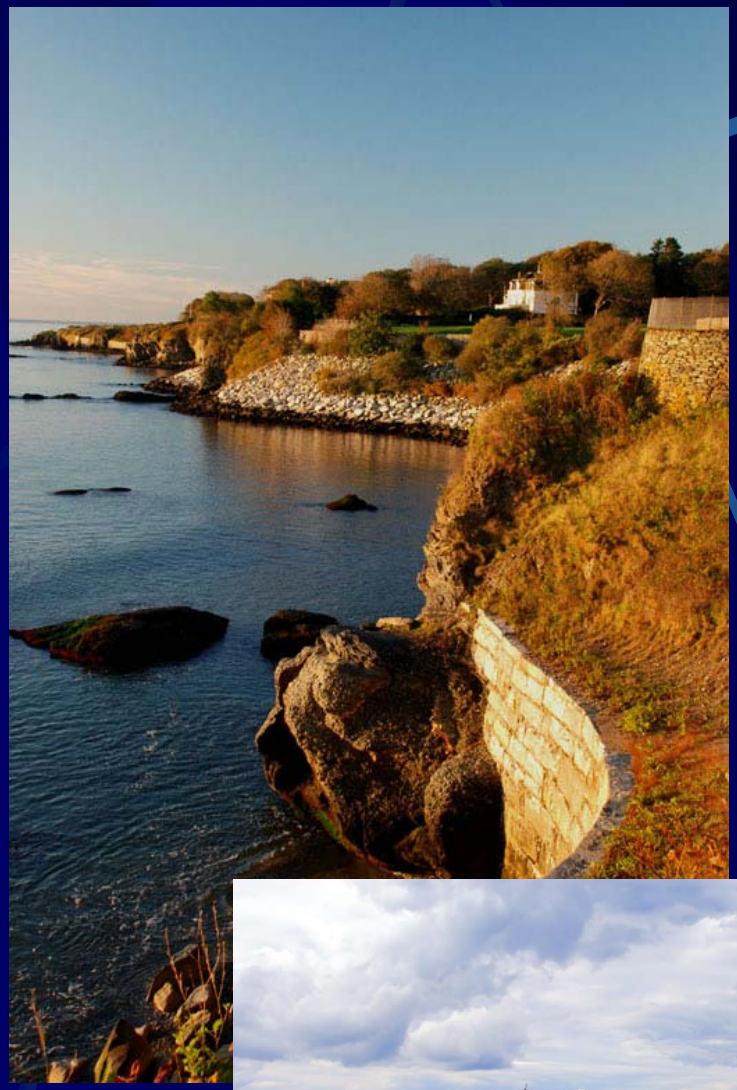




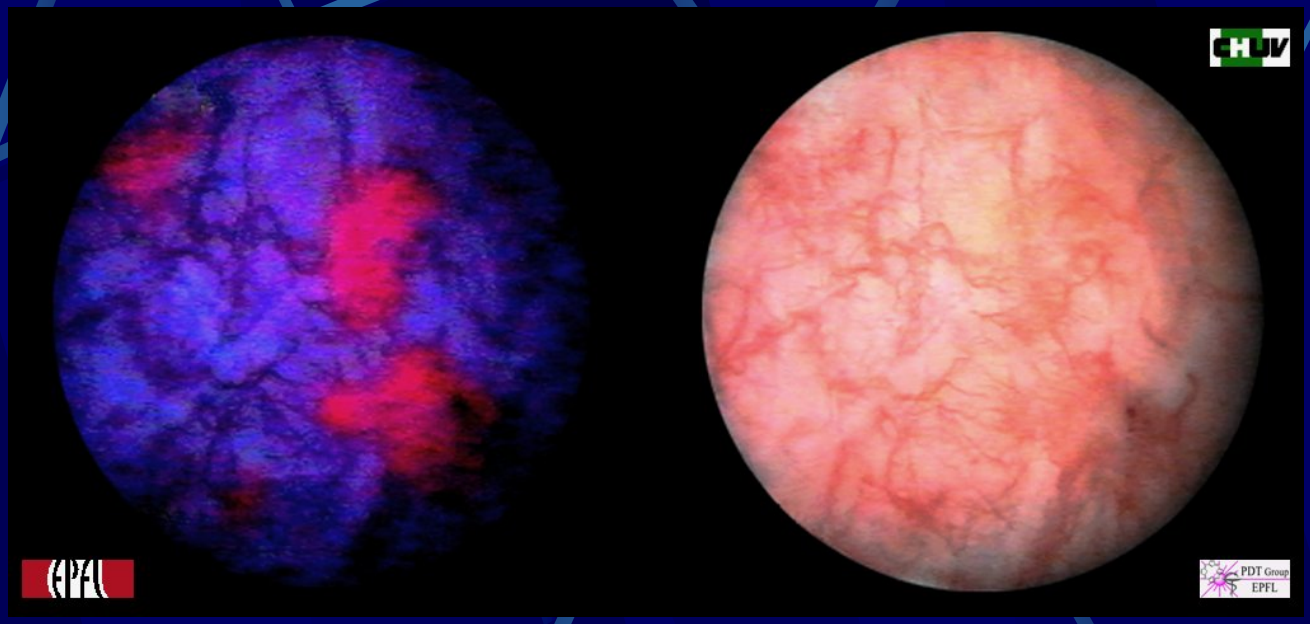
Patients die from invasive disease that becomes metastatic

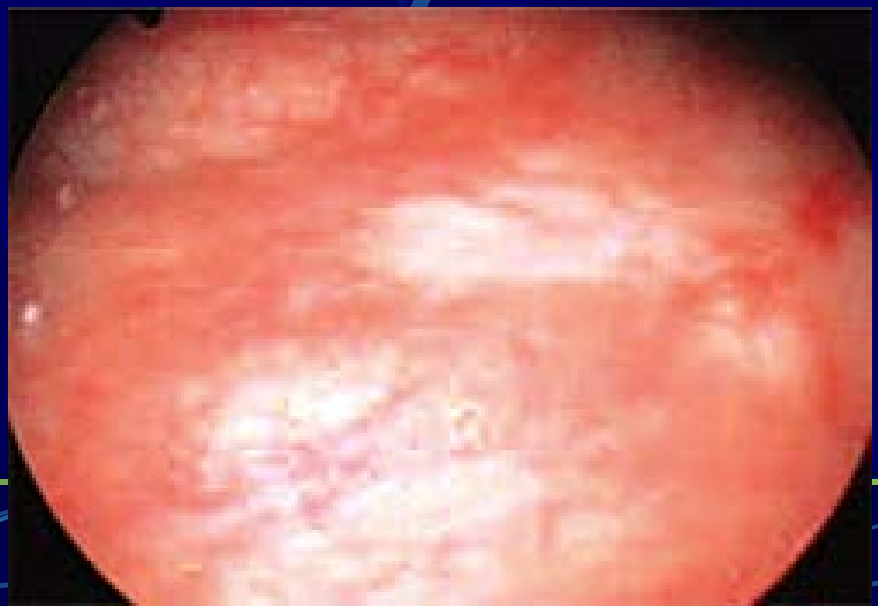
Natural history:

- 70% are low grade superficial tumors
  - Greater than 25% will recur
  - Usually from other sites in bladder (field defect)
- 10-15% pts with superficial disease develop invasive disease
- 30% pts present with muscle invasive disease
  - 50% of these pts already have distant mets



CIS





Treatment: Cis

- Intravesical therapy: immuno or chemotherapy
- Baccillus Calmette-Guerin (BCG)
  - Attenuated mycobacterium bovis
  - Stimulates immune response
  - Can be used in conjunction with alpha interferon
  - Consider SWOG maintenance regiment
- Mitomycin, adriamycin, thiotepa

Dysuria, frequency, infection, BCG systemic absorbtion…

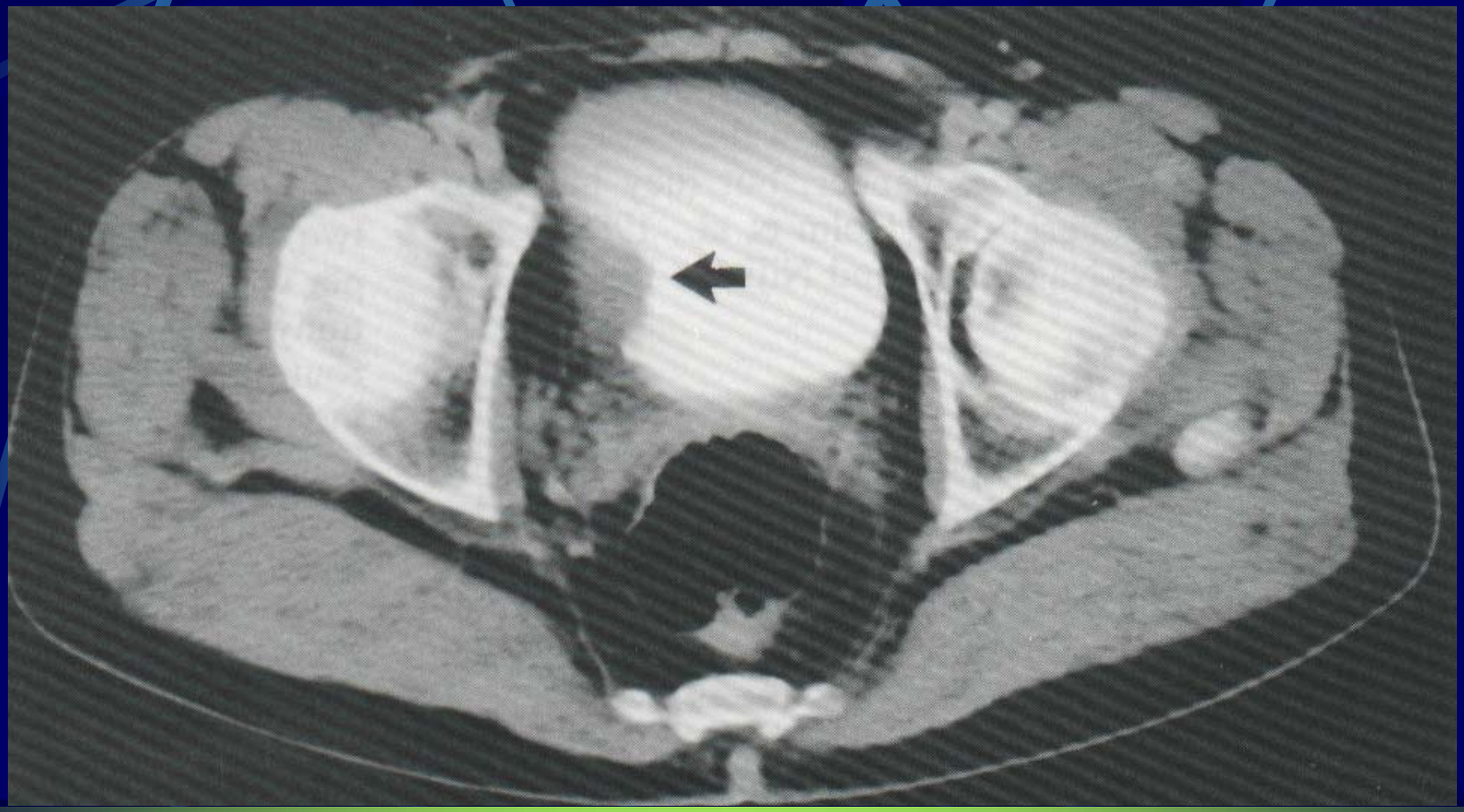
Treatment: Ta/T1

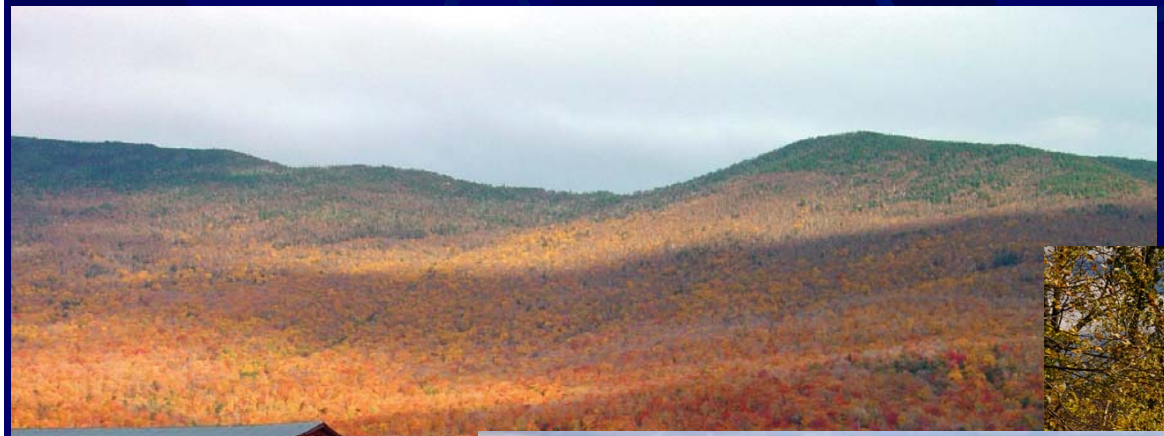
- TURBT
- 10-15% will require more aggressive tx
- High rate of recurrent lesions
- Intravesical BCG will decrease frequency of recurrence
  - Consider SWOG 3yr maintenance
- Follow up cystoscopy, cytology and IVP
  - Surveillance for recurrent bladder tumors
  - 2-5% will develop upper tract tumors

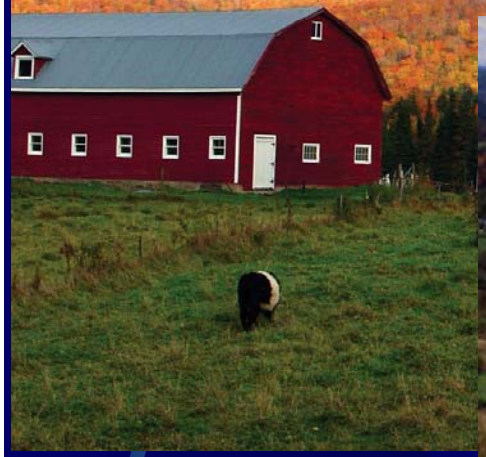
Treatment Grade 3/T1:

- Grade 3/T1 may have as high as 46% chance of developing muscle invasion
- Reasonable to consider cystectomy especially if CIS present
- Reresection to assure no understaging
- If TURBT/BCG
  - Follow up critical
  - Maintenance BCG

CT: Muscle invasive CaBladder







Treatment: Muscle invasive disease

- Standard treatment: Radical cystectomy with urinary diversion
  - Consider neoadjuvant chemotherapy
- Distal ureteral margin frozen section
- +/- urethrectomy
- Men: cystoprostatectomy with LND
- Women: anterior pelvic exenteration
  - Removal of uterus, fallopian tubes, ovaries, and anterior wall of vagina

Invasive disease

- Time from resection to cystectomy will impact survival curves (RN navigator)
- Preop cardiology and pulmonary evaluation
- Teaching regarding options for diversion
- Enterostomal therapist visit
- Staging and oncology consultation regarding possible neoadjuvant chemo

Radical cystectomy: Complications

- 25-30% complication rate
- Wound infections (10%)
- Intestinal obstruction
- Hemorrhage
- Cardiopulmonary complications
- Rectal injury
- 1-2% mortality

You guys see all of this!

Radical Cystectomy: Open v. Robotic

- Robotic assisted laparoscopic surgery will have less blood loss, smaller incisions and less negative influence on bowel function
- Prostatectomy experience has allowed us to perform cystectomies robotically
- Diversion can be done lap or open
- Difficult if multiple prior surgery

Urinary Diversion:

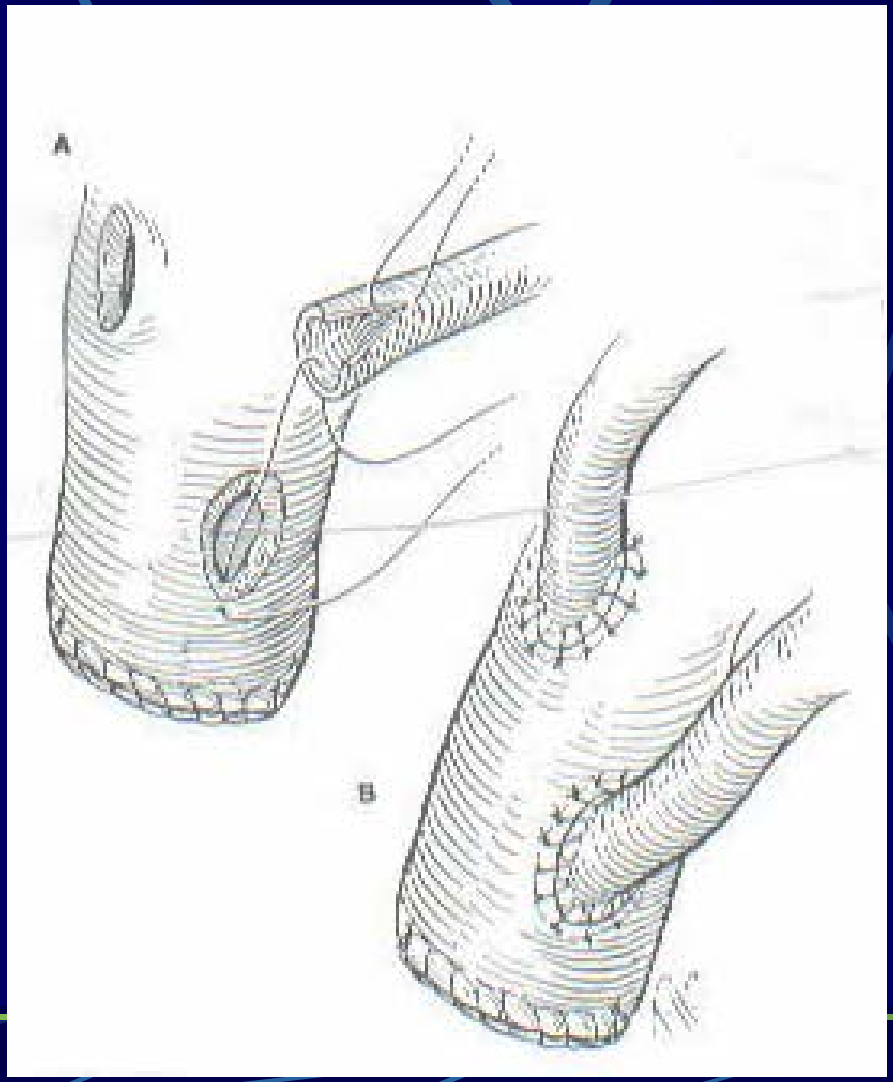
- Bladder removed/need divert urine
- Use of intestinal segments results in metabolic abnormalities
- Use of intestinal segment with stoma
  - Most successful
- Diversion to the urethra
- Continent cutaneous urinary diversion

Urinary Diversion: Ileal conduit

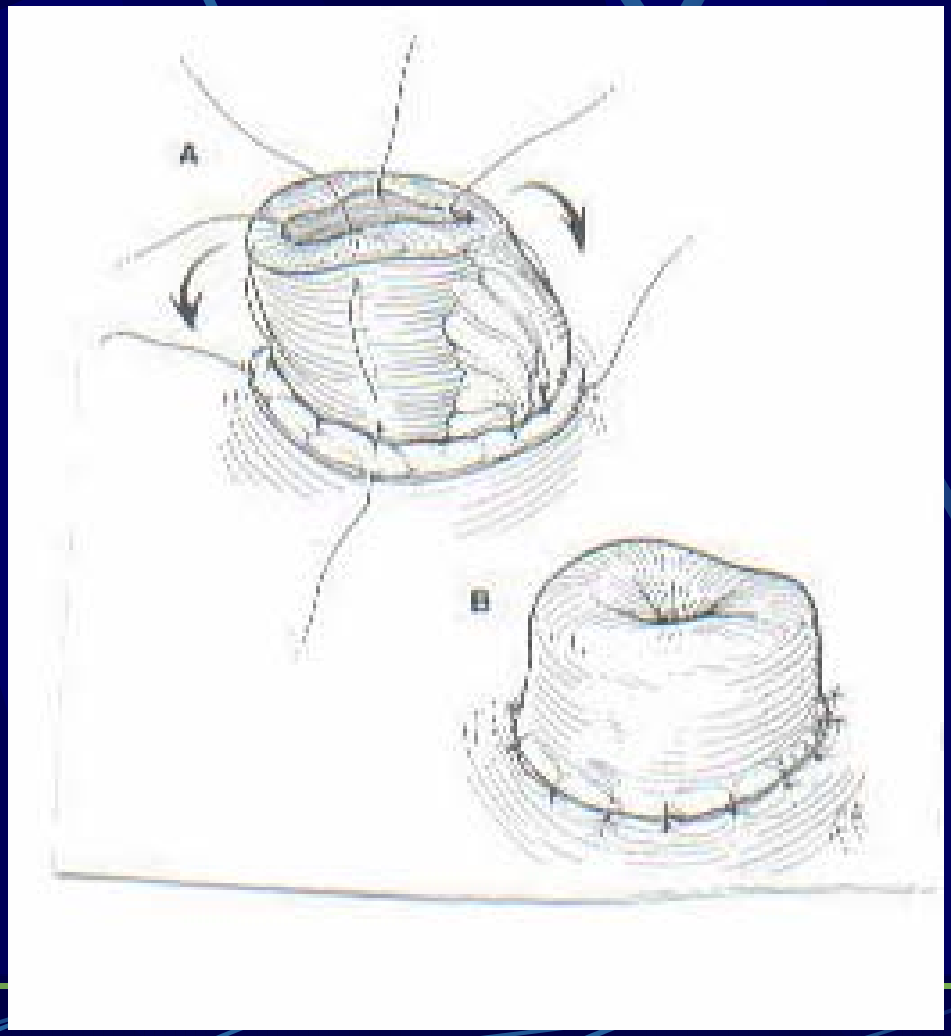
- Most common form of urinary diversion
- Isolated ileal segment to right lower quadrant stoma
- Ureteroileal anastamosis
- Complications:
  - Ureterointestinal stenosis
  - Bowel obstruction/anastamotic leakage

Post op: Diversion stents out of stoma and 2 JP drains

Ileal Conduit:
Ureteroileal anastamosis



Ileal conduit: Stoma



Urinary Diversion: ileal conduit

+	-
• Rapid • Low complication rate • Good stoma • Low reoperation rate	• Urostomy/Bag • Self image

Name this athlete?

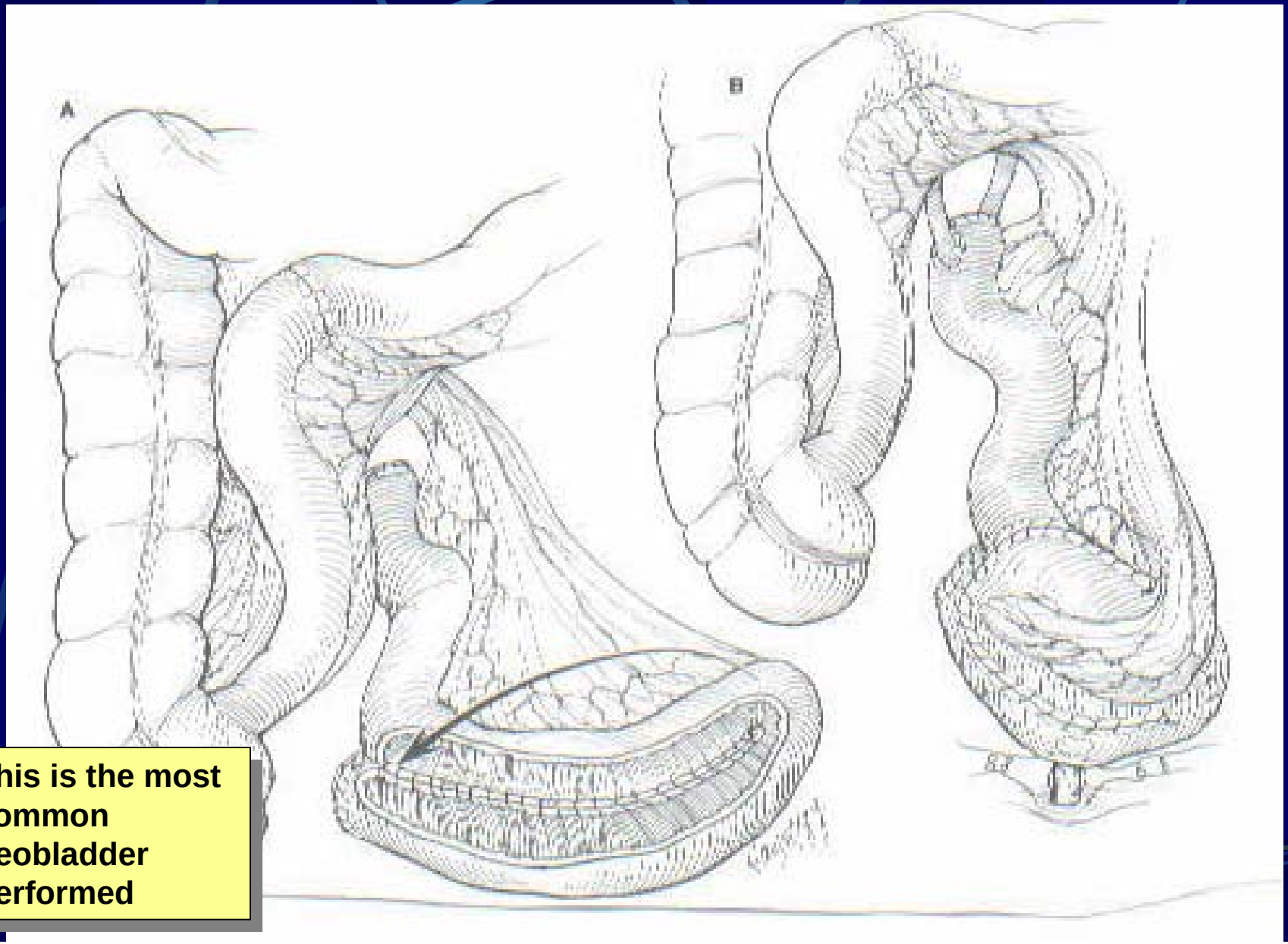
Urinary Diversion: Non-ileal conduits

- In selected cases other segments of bowel must be used
  - Transverse colon
  - Sigmoid colon
  - Jejunal conduit
  - Ileocecal conduit

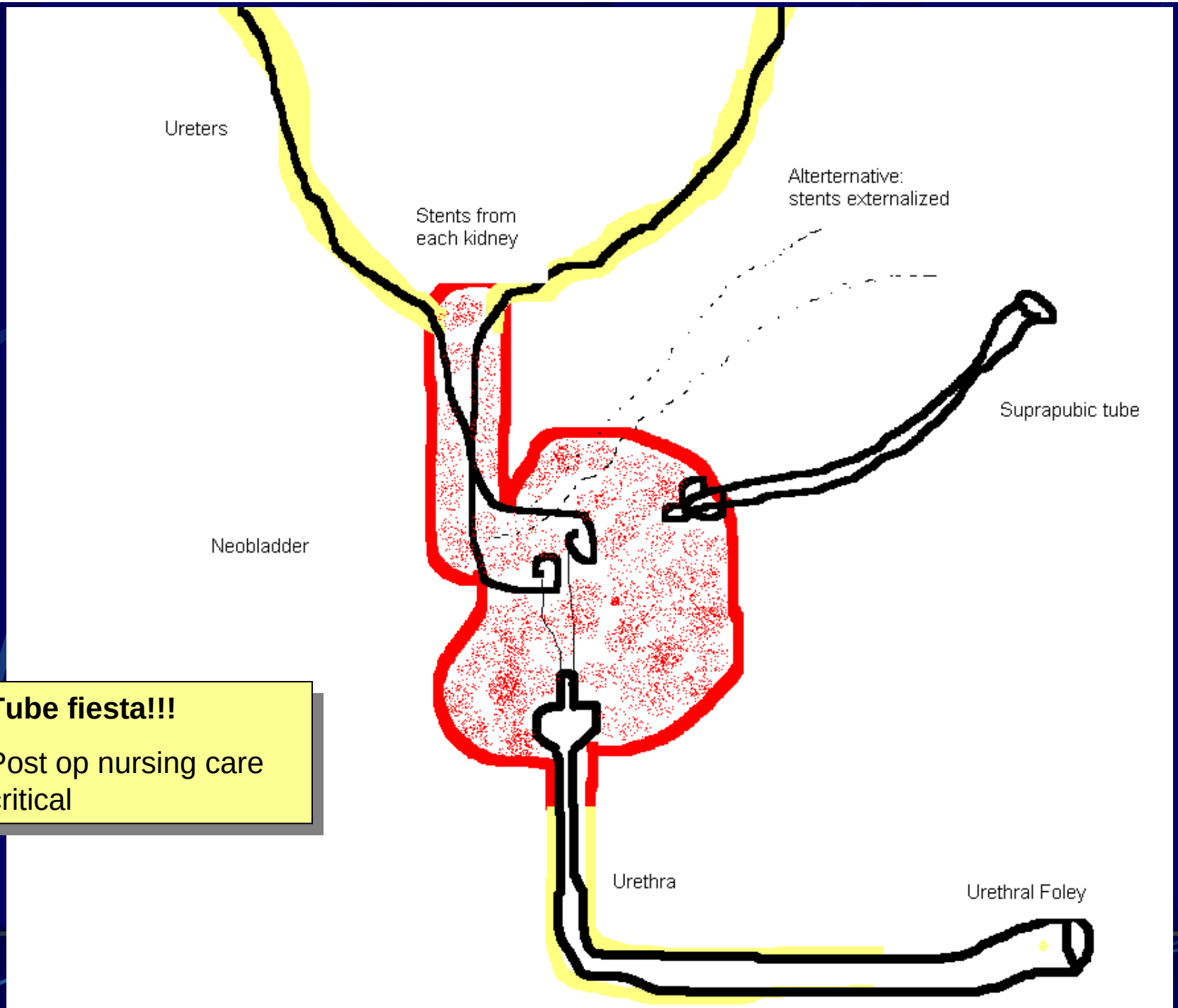
Urinary diversion to the urethra: Neobladders

- No evidence of disease at bladder neck or urethra (no CIS?)
- Young, motivated patient
- Pt informed of increased complication rate. 5% chance of urethral recurrence
- Retention: Pt must be willing to self catheterize as needed
- Nocturnal enuresis (25% or more)

Studer neobladder:



This is the most common neobladder performed



Tube fiesta!!!

Post op nursing care critical

Post operative care

- Regular irrigation of neobladder to assure no mucous accumulating and drainage of urine
  - This is through and through with outflow open
- All tubes must remain secure
- Failure of above could result in
  - Prolonged neobladder urine leak
  - Loss of tube across anastamosis or stent requiring re-exploration

Never hesitate to call surgeon. We would rather have a question answered than have a mistake made

Post discharge care

- Patient usually discharged with SP tube/urethral catheter and stents internal
- Pt on self irrigation regiment
- SP tube removed while urethral foley still in in place
- Urethral catheter removed after cystogram shows no leak
- Pt taugh CIC and irrigation
- Pt weans CIC over time if residual wnl
- Neobladder enlargens over first post op year

Neobladder: Sample of complications that present to the office

- Retention
- Neobladder perforation
- Infection
- Ureteral obstruction
- Bowel obstruction
- Urine leak
- Bowel leak
- Incontinence

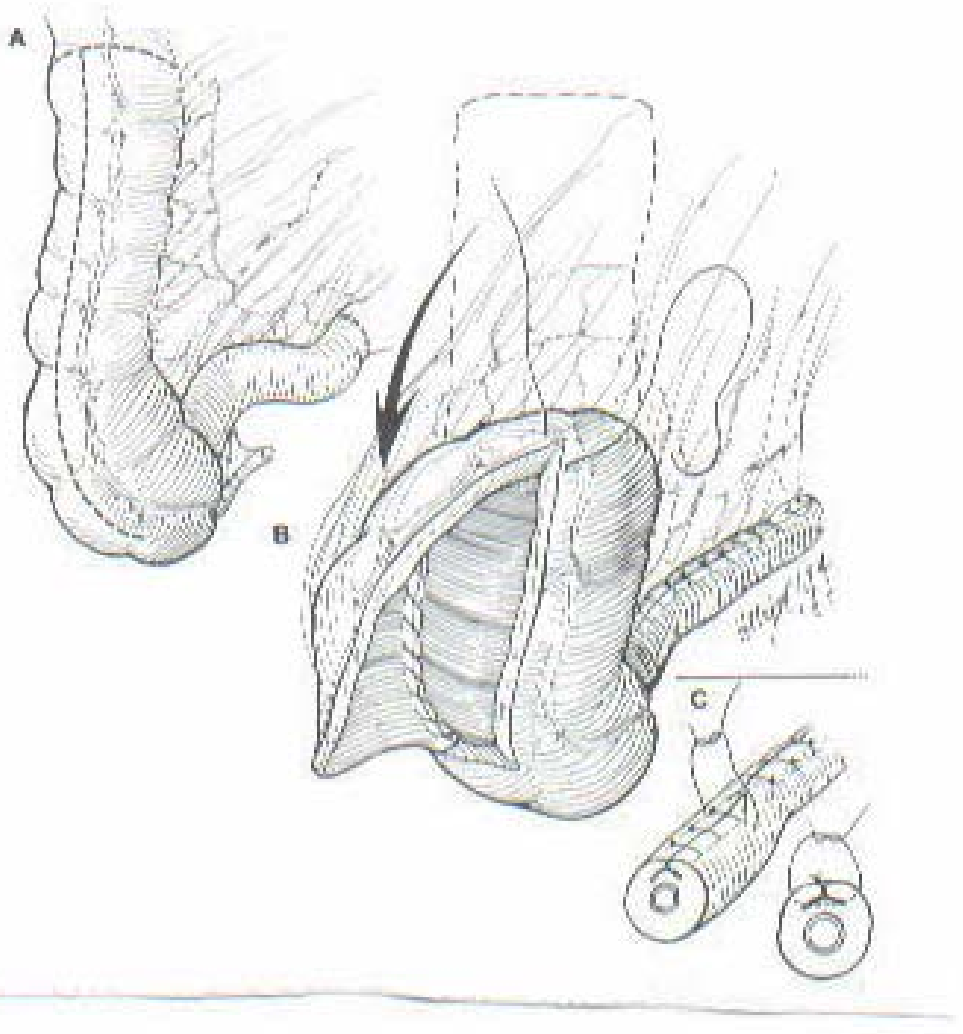
Continent cutaneous urinary diversion

- Reservoir for urine storage
- Abdominal stoma for catheterization of continent mechanism
  - No appliance
- Continence achieved via:
  - Ileocecal valve
  - Imbrication,
  - Tapering or
  - Intussusception
  - Appendix

Continent cutaneous urinary diversion

- Koch, Mainz, UCLA, Indiana, Florida
- Need to have manual dexterity
- Complication rate >10%
- Failure of continence mechanism
  - Continent at low volume, not at high

Indiana pouch:



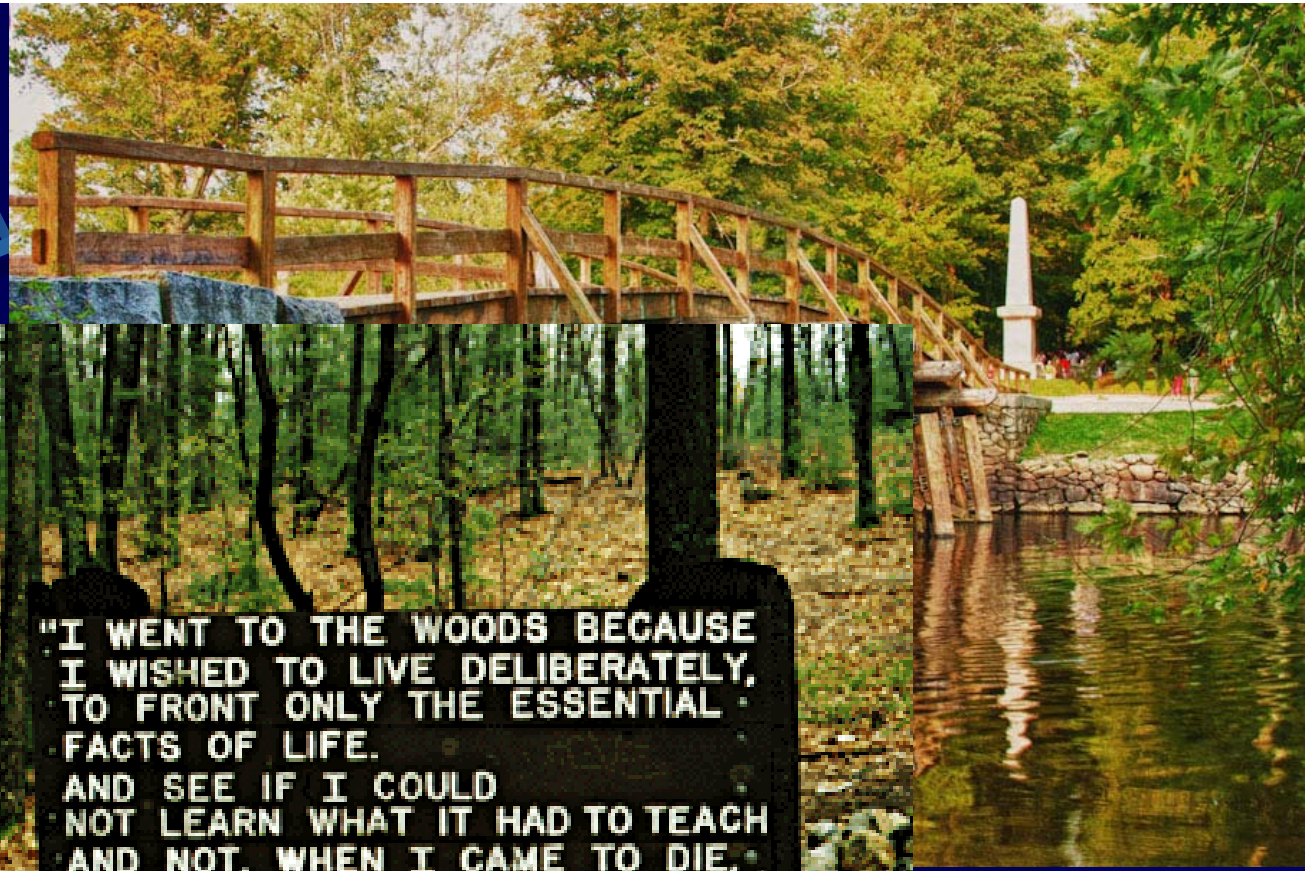
You will see some types of reconstructions similar to this with Dr. Triaca's neurogenic bladder patients

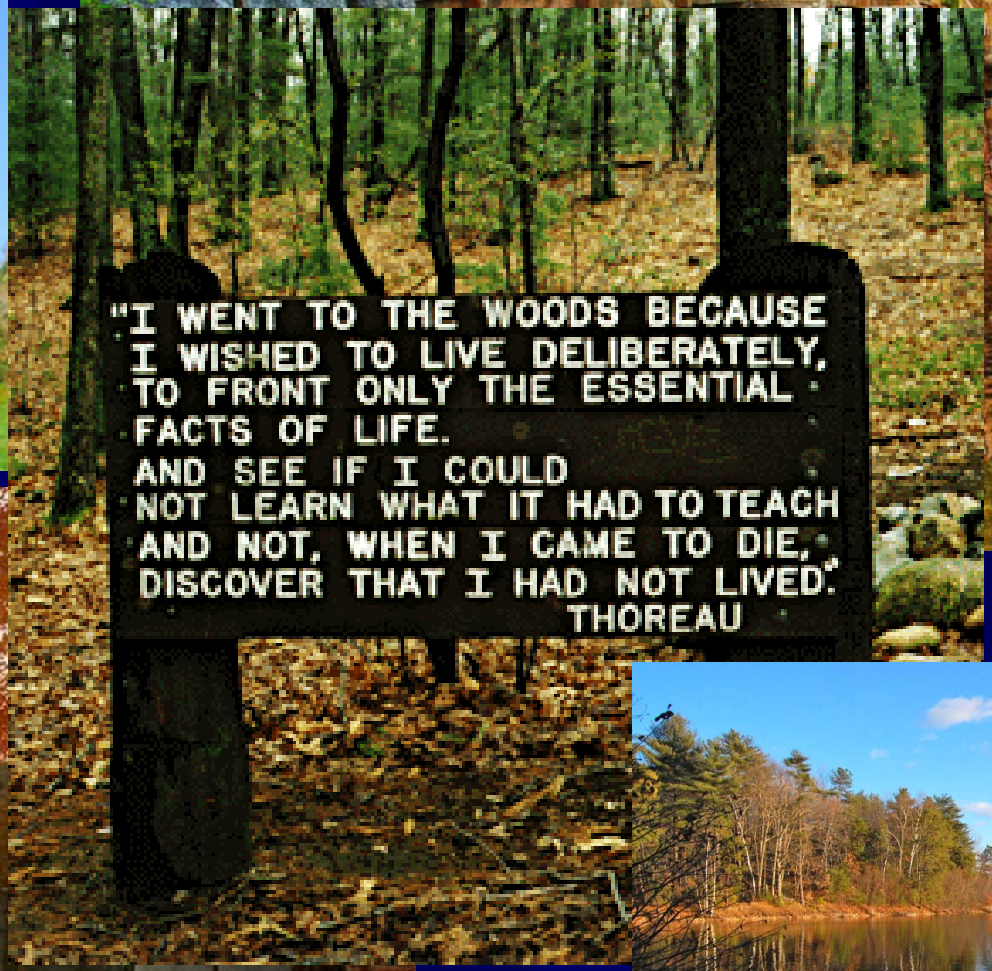
Case 1:

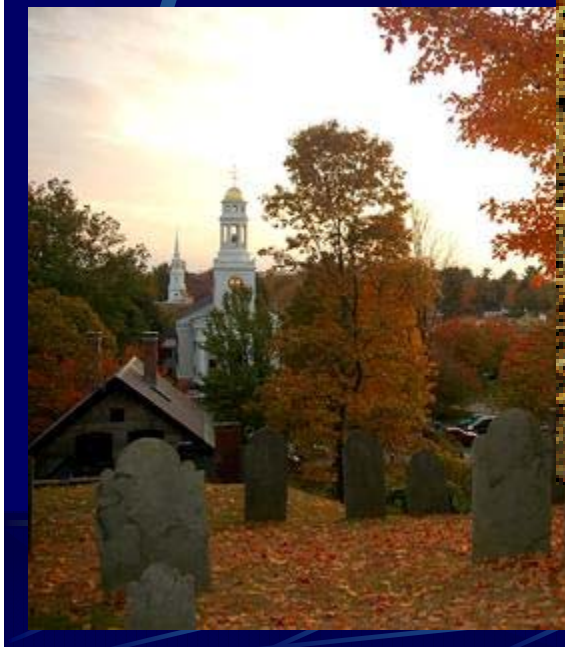
- 81 yo woman with dysuria
- Cystoscopy: large, flat based tumor
- TURBT: T2a, Grade III
- Staging: Bone scan -, CT -, CXR –
- Plan?
- Radical Cystectomy
- Ileal conduit urinary diversion
- Muscle invasive high grade disease

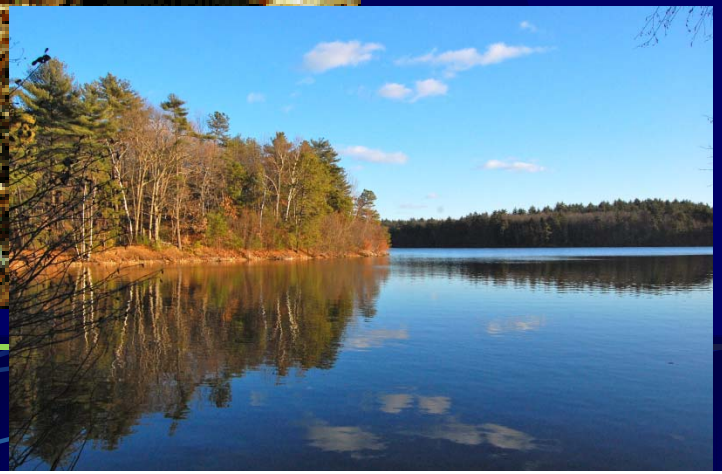
Case 2:

- 52 yo man with gross hematuria
- Cystoscopy: Single posterior large mass
- TURBT: T2a, Grade III, random bx –
- Staging: Bone scan -, CXR -, CT –
- Radical cystectomy
- Ileal neobladder



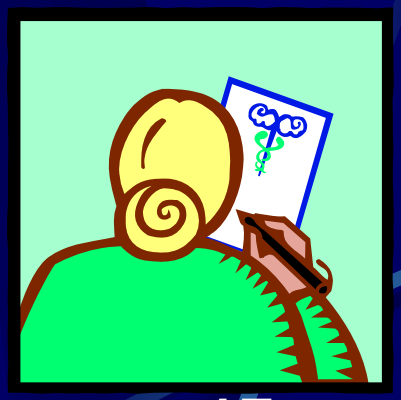

"I WENT TO THE WOODS BECAUSE
I WISHED TO LIVE DELIBERATELY,
TO FRONT ONLY THE ESSENTIAL
FACTS OF LIFE.
AND SEE IF I COULD
NOT LEARN WHAT IT HAD TO TEACH
AND NOT, WHEN I CAME TO DIE,
DISCOVER THAT I HAD NOT LIVED."
THOREAU



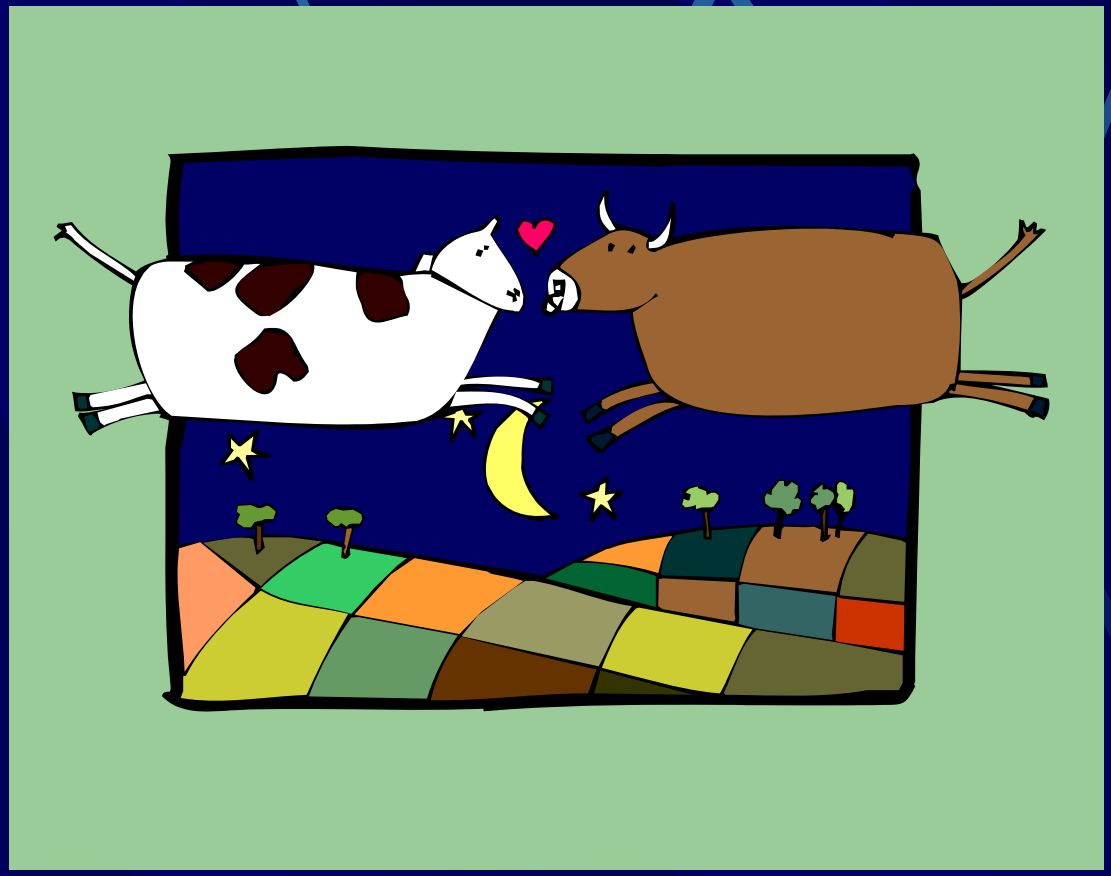


Case 3:

- 78 yo man with gross hematuria
- Cysto: multiple papillary lesions
- TURBT: Ta/Grade I
- IVP: WNL
- Plan?
- Surveillance with q3mos cystoscopy, cytology and yearly IVP
- Superficial low grade disease



Case 4:

- 45 you woman with microscopic hematuria
- Cystoscopy: Few erythematous patches
- Bladder biopsy: Multifocal CIS
- Plan?
- Treatment: Intravesical BCG qWk x 6wks
- Follow up: Bladder biopsy, repeat cytology, IVP
- Strongly suggest maintenance BCG per SWOG protocol

Thank you!