

Urinary bladder cancer

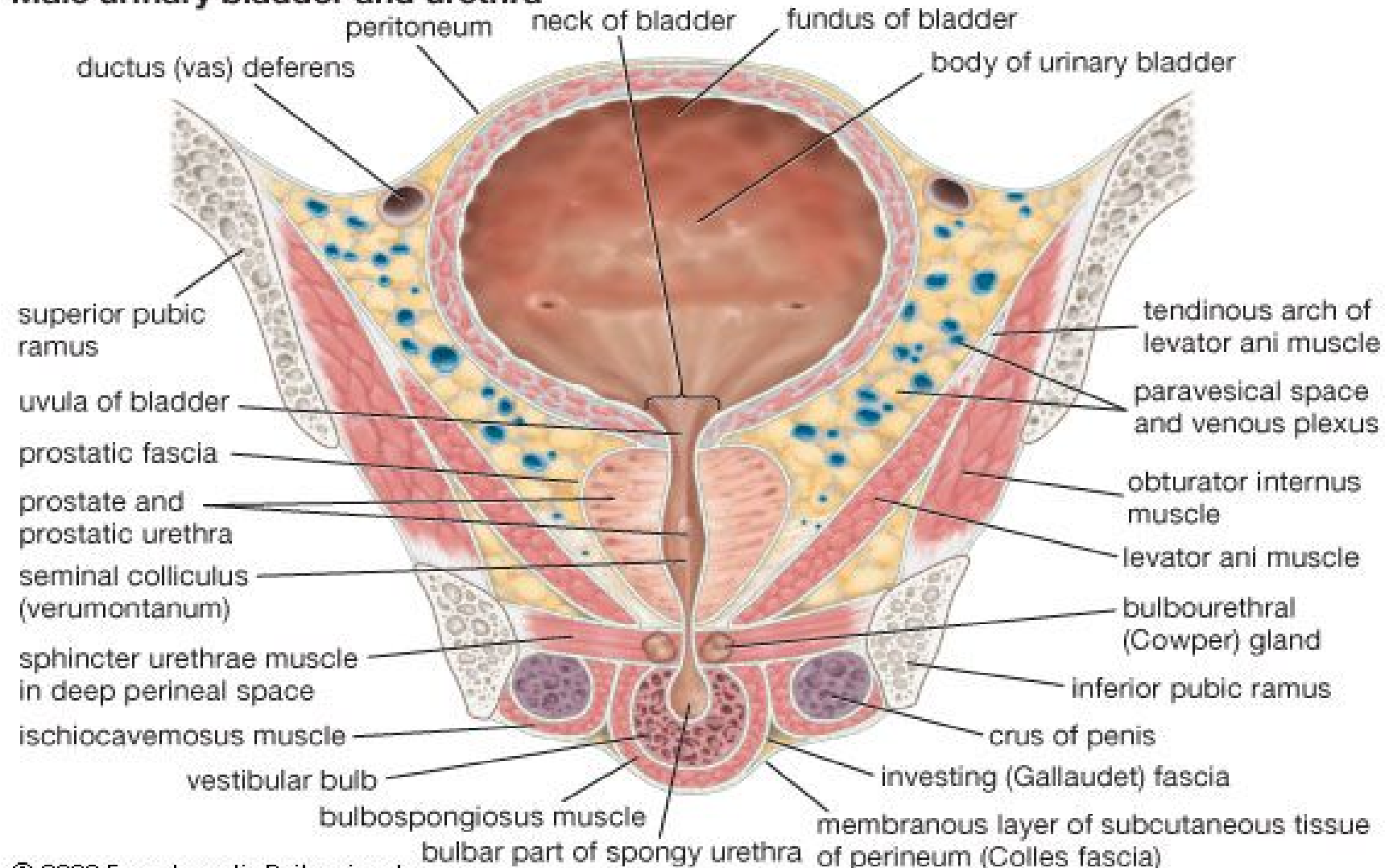
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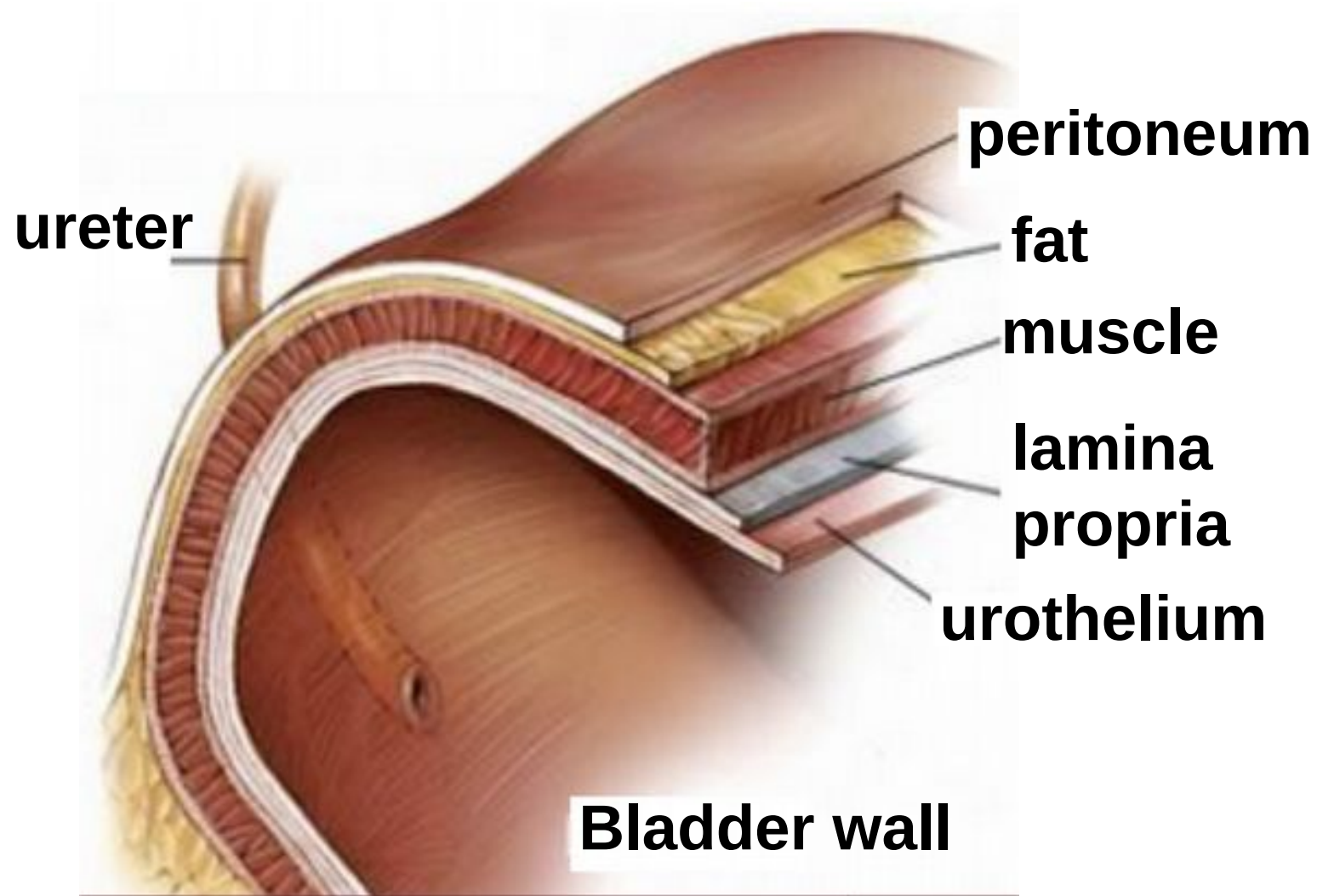
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Urinary bladder anatomy

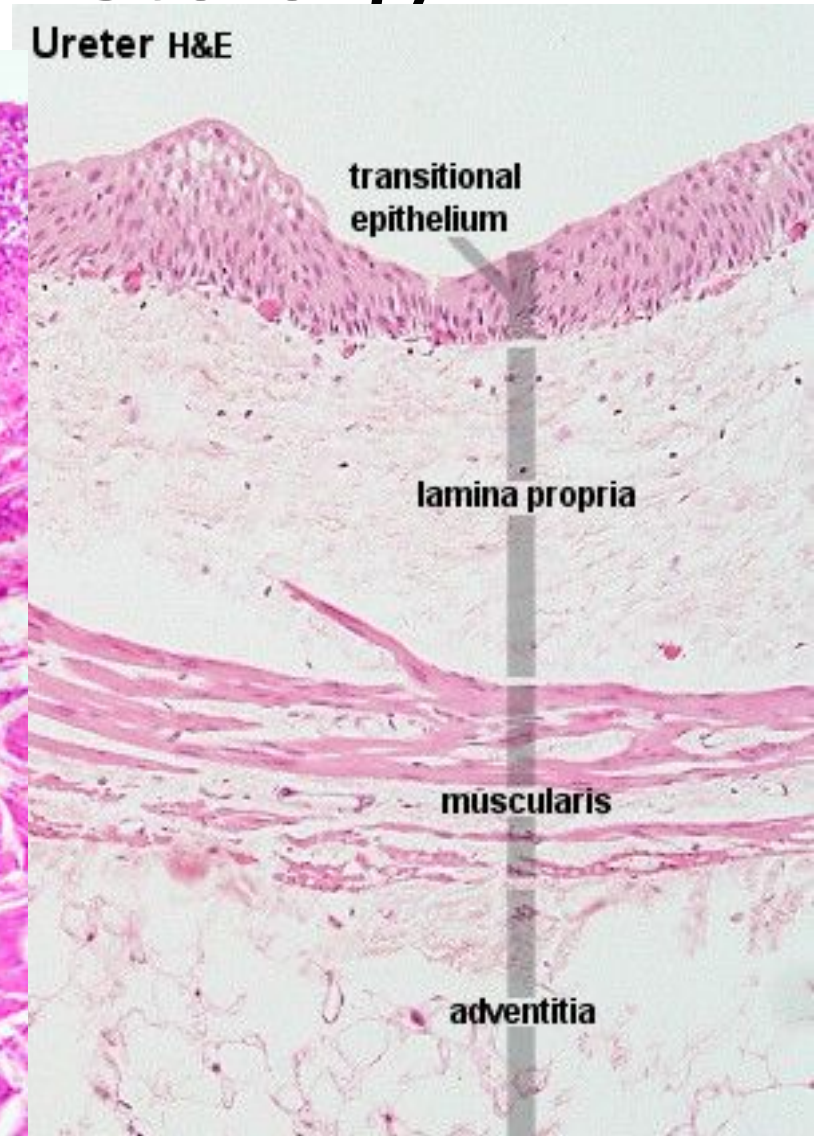
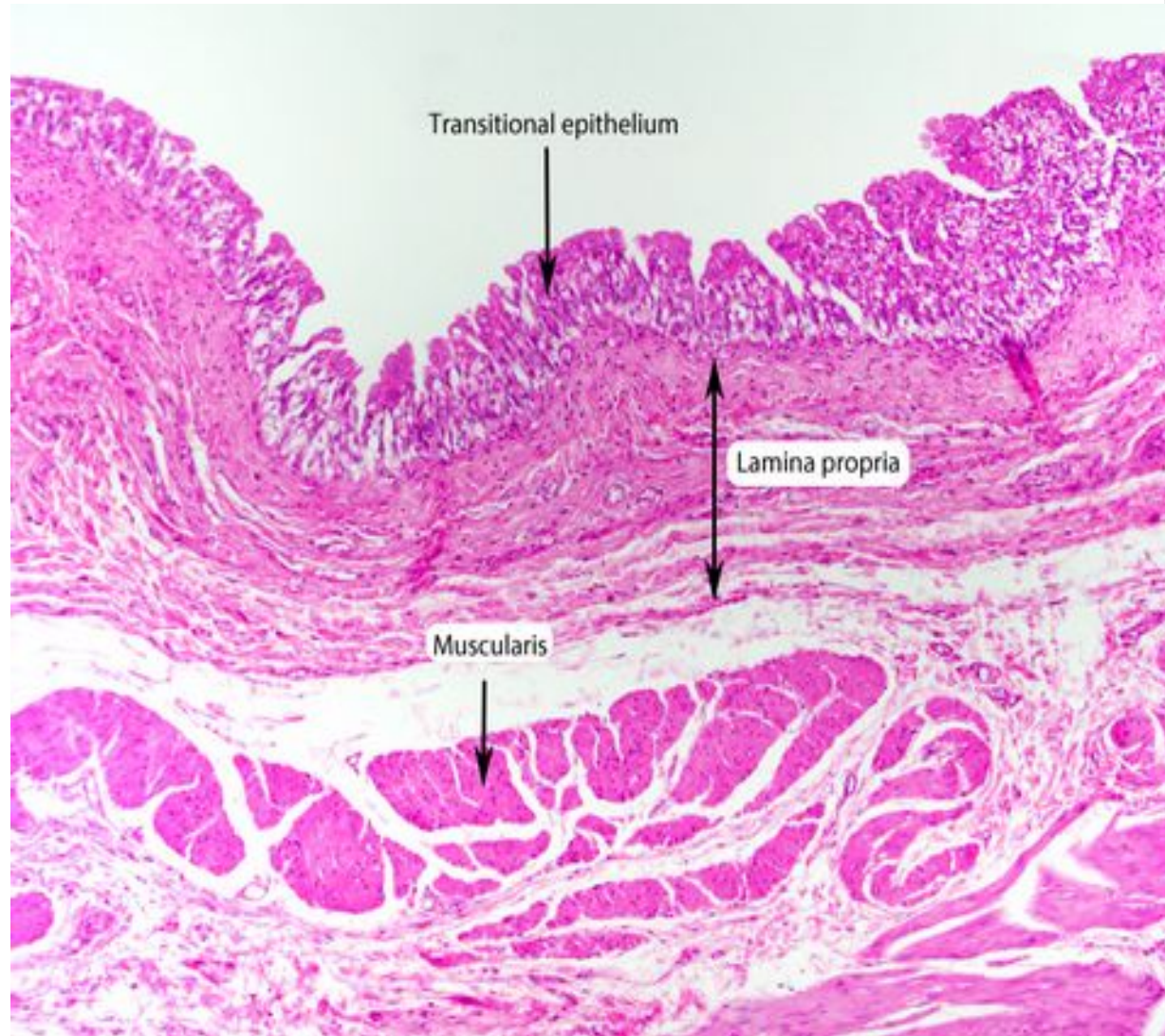
Male urinary bladder and urethra



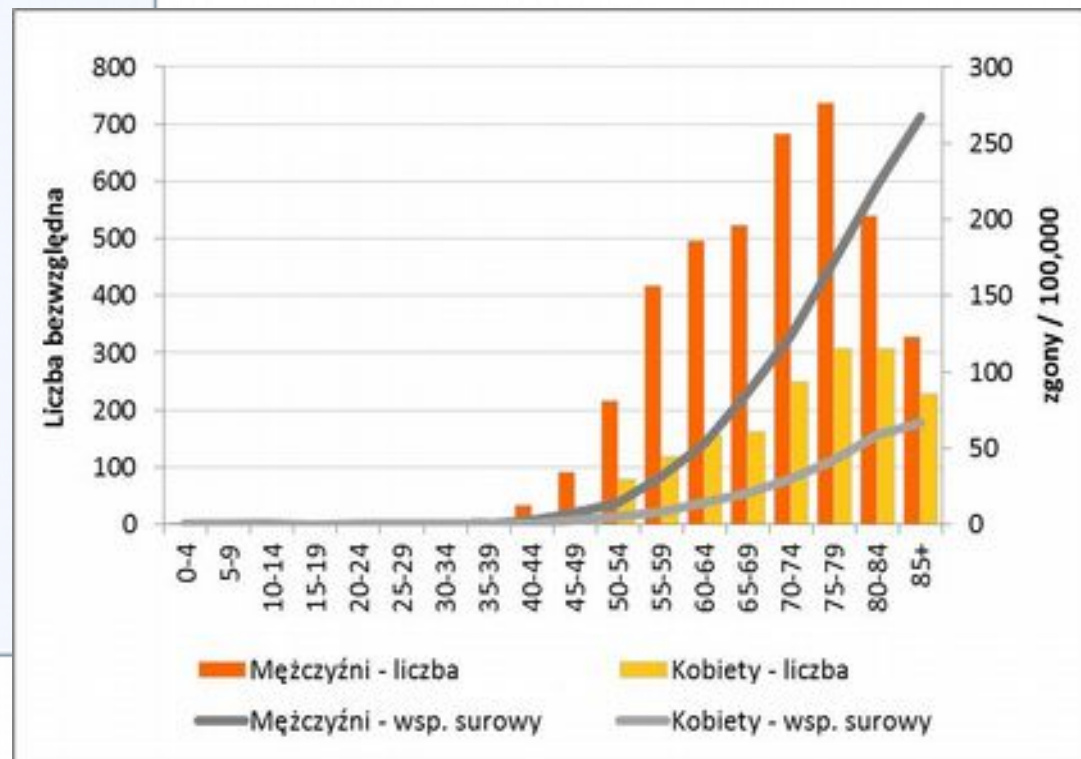
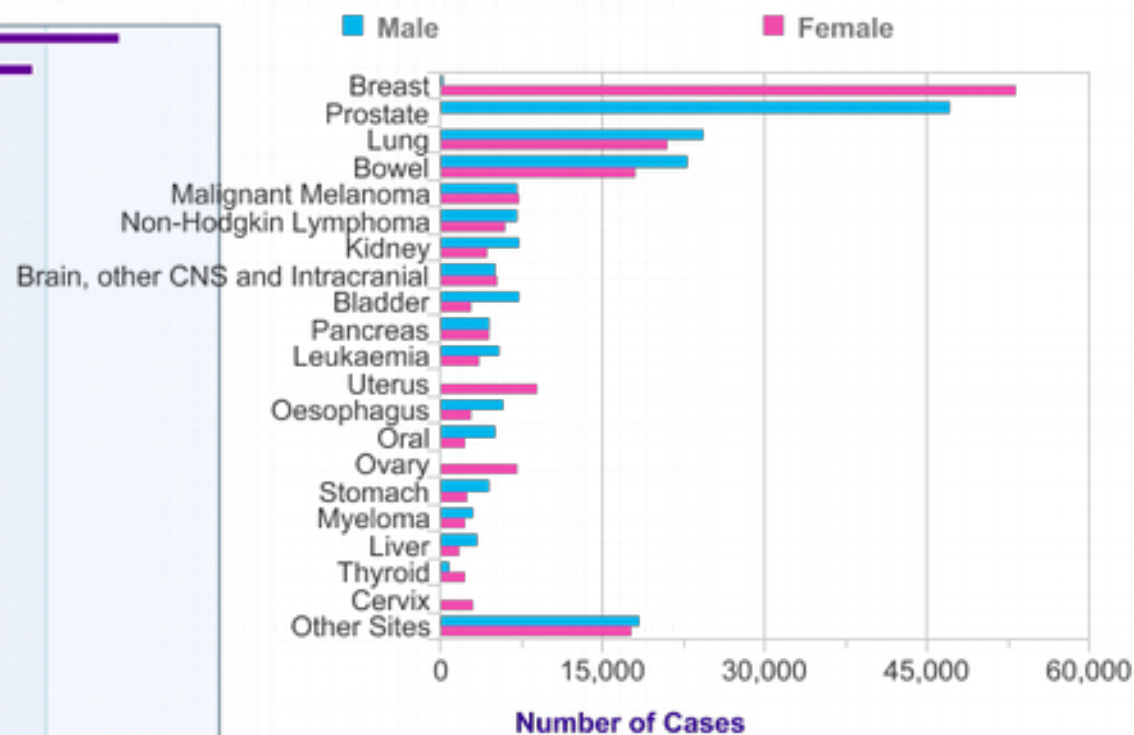
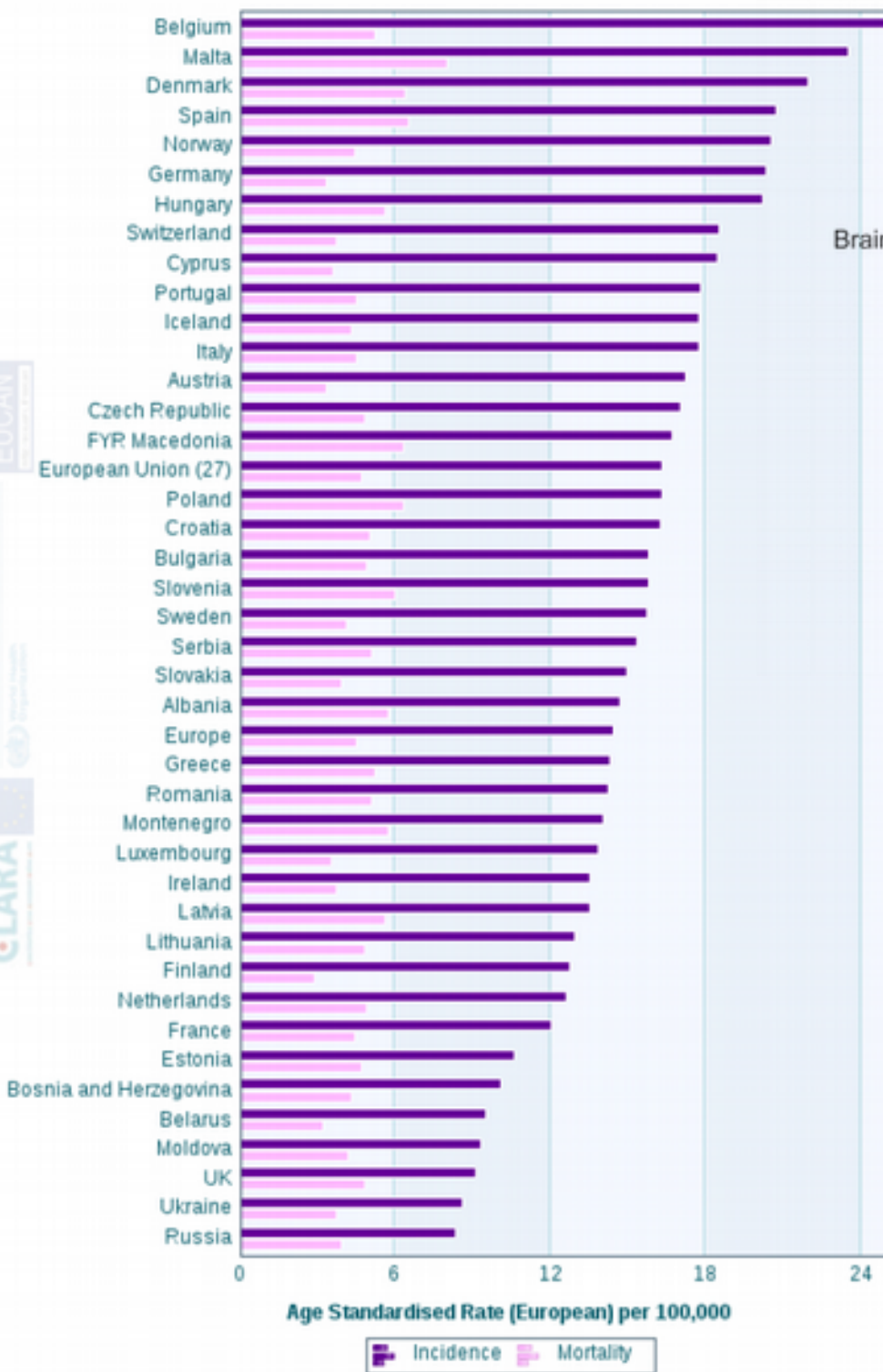
Urinary bladder layers



Urinary bladder histology



Estimated incidence & mortality from bladder cancer in both sexes, 2012



Bladder cancer – risk factors

- gene abnormalities
- chemical exposure:
 - tobacco
 - plastics, coal, tar, asphalt, and aristolochic acid
 - arsenic
 - cyclophosphamide
- chronic irritation:
 - catheters
 - recurrent urinary track infections
 - irradiation

Bladder cancer – symptoms

- hematuria
- Dysuria, urgency, frequency
- low back pain
- recurrent urinary tract infections

Bladder cancer – histology

- Urothelial Cancer > 90%
- (>90% are in bladder, 8% in renal pelvis, 2% in ureter or urethra)
- Squamous Cancer – 3%
- Adenocarcinoma – 1.4%
- Small Cell – 1%

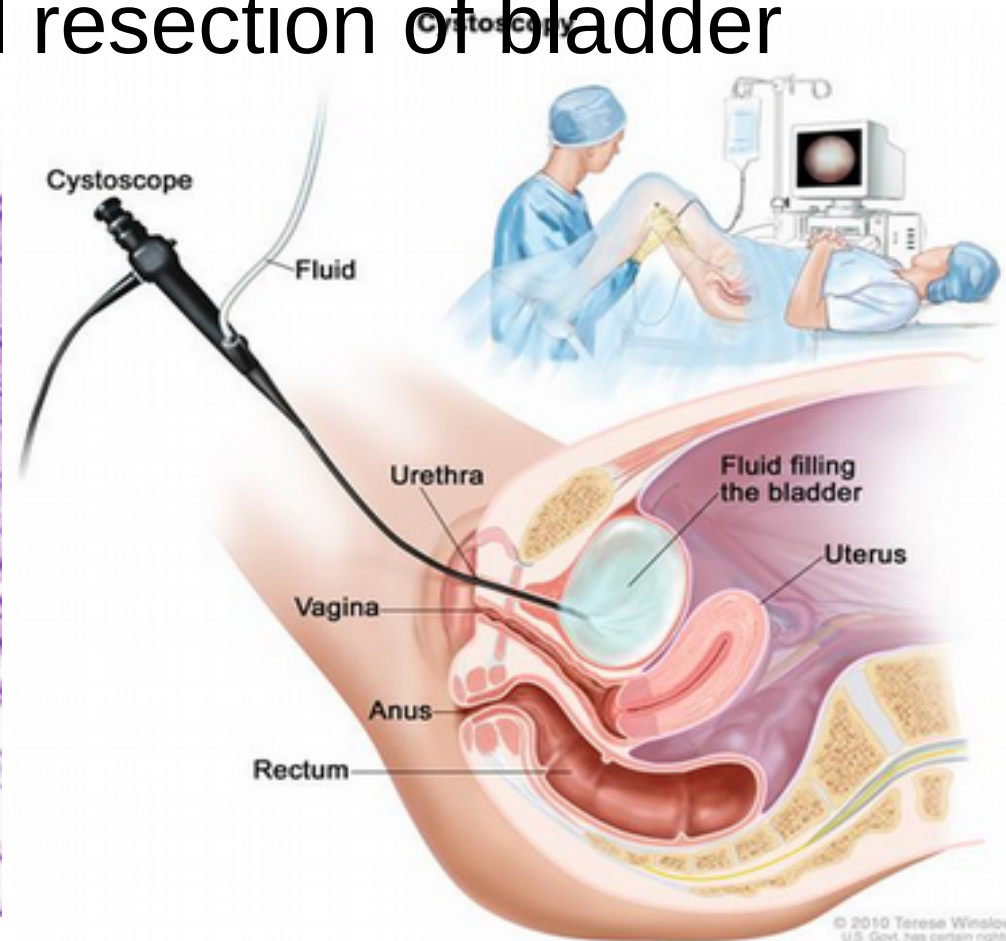
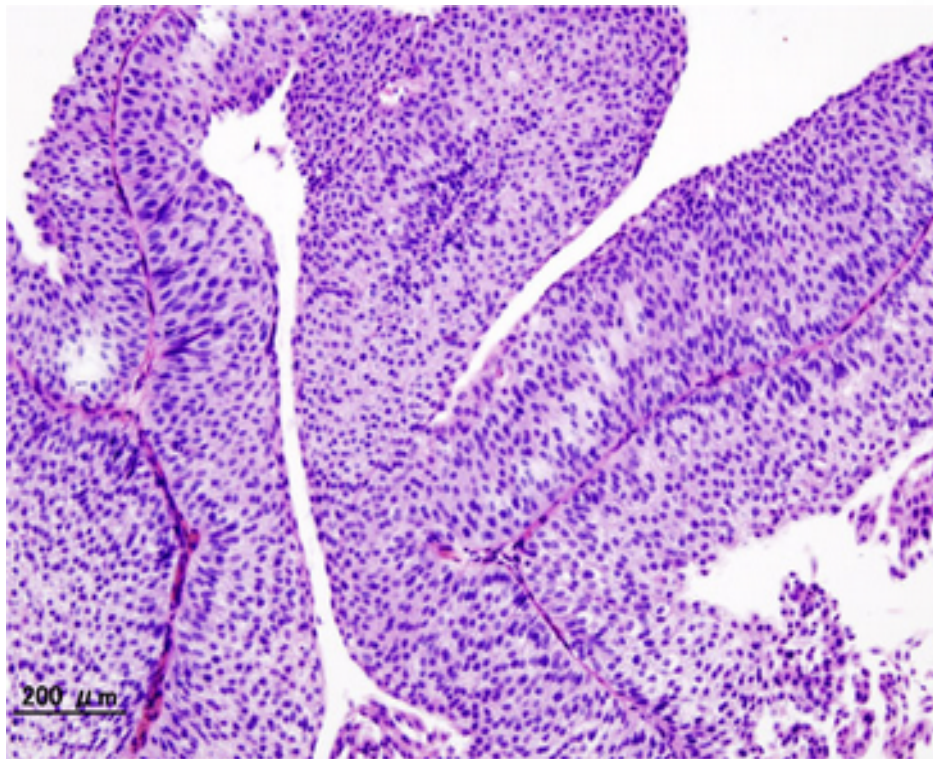
Bladder cancer - workup

- USG (full bladder required)
- urine cytology (unreliable)
- CT or MRI
- laboratory assessments (esp. RFTs)



Bladder cancer - workup

- Cystoscopy (possibly contrast enhanced) with TURBT or biopsy
- TURBT = trans urethral resection of bladder tumor

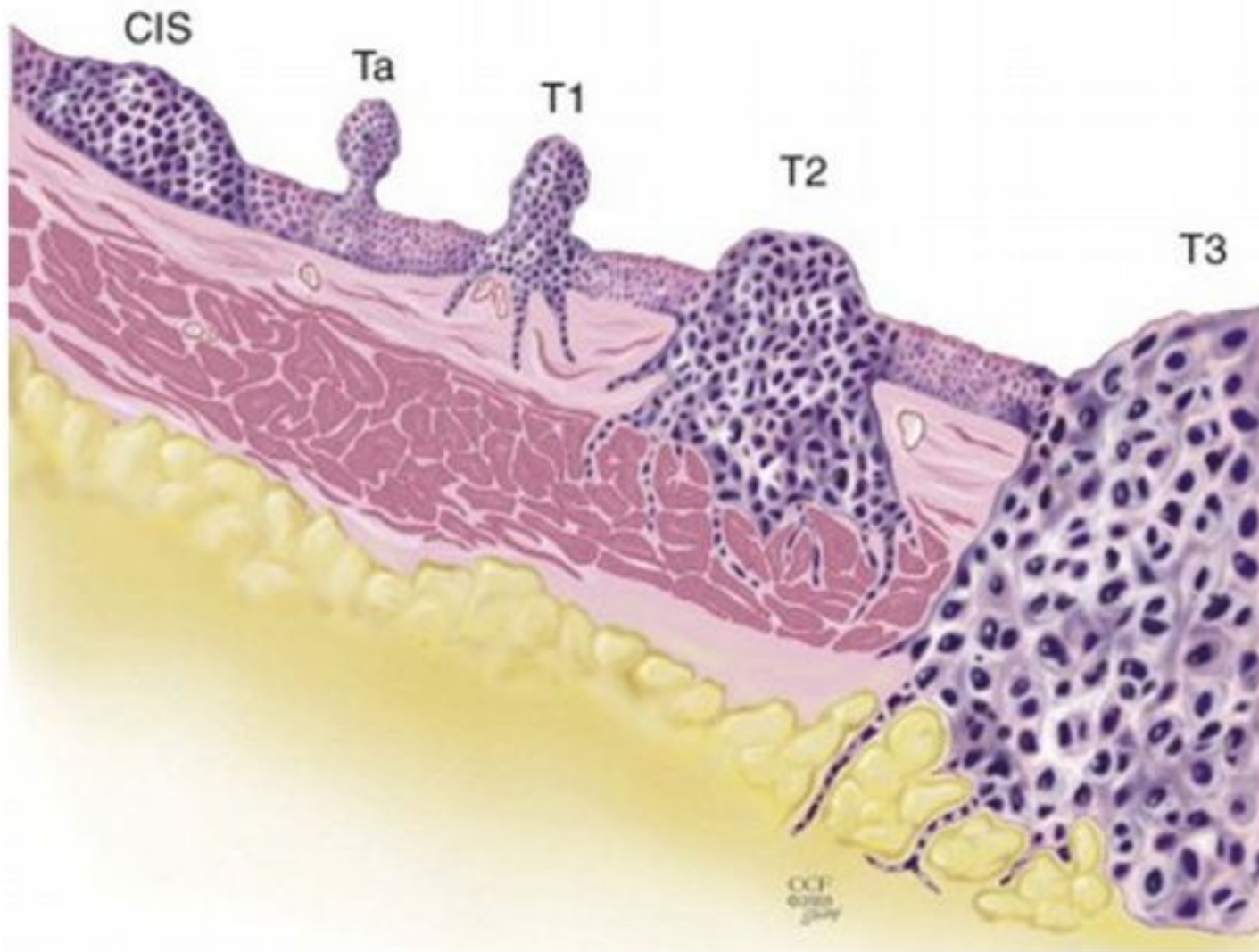


Bladder cancer - workup

- Bladder cancers and papillomas as seen in cystoscopy



Bladder cancer - staging

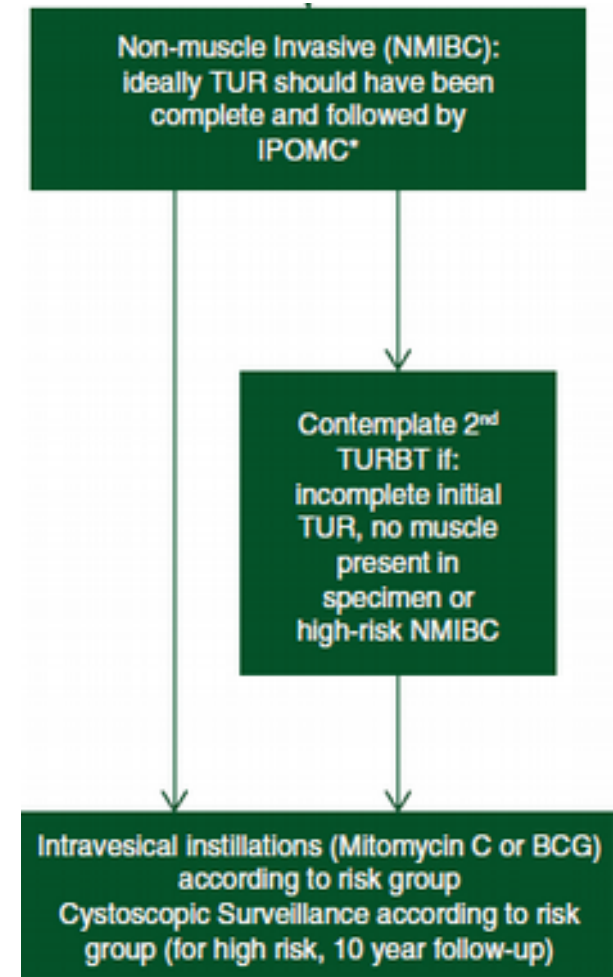


American Joint Committee on Cancer 2009 TNM Bladder Cancer Staging	
Primary Tumor (T)	
Tis	Carcinoma in situ
Ta	Noninvasive papillary tumor
T1	Tumor invades the lamina propria, but not beyond
T2	Tumor invades the muscularis propria
pT2a	Tumor invades superficial muscle (inner half)
pT2b	Tumor invades deep muscle (outer half)
T3	Tumor invades perivesical tissue
pT3a	Microscopically
pT3b	Macroscopically (extravesical mass)
T4	Tumor invades any of the following: prostatic stroma, uterus, vagina, pelvis, or abdominal wall
T4a	Tumor invades prostate, uterus, vagina
T4b	Tumor invades pelvic or abdominal wall
Regional Lymph Nodes (N)	
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in a single lymph node in primary drainage region
N2	Metastasis in multiple lymph nodes in primary drainage region
N3	Common iliac lymph node involvement
Distant Metastasis (M)	
MX	Distant metastasis cannot be assessed
M0	No distant metastasis
M1	Distant metastasis

Stage	T	N	M
I	T1	N0	M0
II	T2a-b	N0	M0
III	T3a-b, T4a	N0	M0
IV	T4b	N0	M0
	any T	N 1-3	M0
	any T	nny N	M1

Superficial urothelial cancer - therapy

- TURBT of all visible lesions
- H-P assessment
 - margins
 - muscular layer invasion
- adjuvant intracystic therapy (directly after resection)
 - cytotoxic (doxorubicin, mitomycin C, bleomycin)
 - immunomodulatory – BCG (preferred in Tis tumours)
 - depending of risk factors as much as 7 doses in 36 months
- Follow-up cystoscopy (1-4 weeks after TURBT)
 - assessment of pos-resection site with biopsy.
- Repeat for recurrent lesions



Superficial urothelial cancer – risk factors for recurrence

PROBABILITY OF RECURRENCE AND PROGRESSION

<u>Pathology</u>	<u>Probability of Recurrence in 5 years</u>	<u>Probability of Progression to Muscle Invasion</u>
Ta, low grade	50%	Minimal
Ta, high grade	60%	Moderate
T1, low grade (rare)	50%	Moderate
T1, high grade	50- 70%	Moderate- High
Tis	50%- 90%	High

Muscle invading urothelial cancer - therapy

- staging – imaging studies of chest, abdomen and pelvis
- consider diagnostic TURBT (if not done beforehand)
- Evaluate & decide:
 - Radical cystectomy + lymphadenectomy
 - „trimodality therapy” - bladder sparing
 - quality of life oriented patients
 - patients not fit enough to undergo cystectomy or refusing to consent

Muscle invading urothelial cancer - therapy

- Radical cystectomy
 - Open/Robotic
 - Extended Lymph node dissection
 - Nerve Sparing possible
 - Preservation of sexual function in both men and women in appropriate cases

Muscle invading urothelial cancer - therapy

Urinary diversion

- Non-Continent Urinary Diversion
 - Generation of stoma (most common diversion)
 - Patient wears urostomy appliance to collect urine
- Continent Urinary Diversion
 - Orthotopic ileal neobladder - void per urethra
 - Generation of pouch from intestine to store urine
 - Continence mechanism from “pouch” to skin
 - Patient catheterizes “pouch” throughout the day to empty urine

Muscle invading urothelial cancer - therapy

- Neoadjuvant chemotherapy

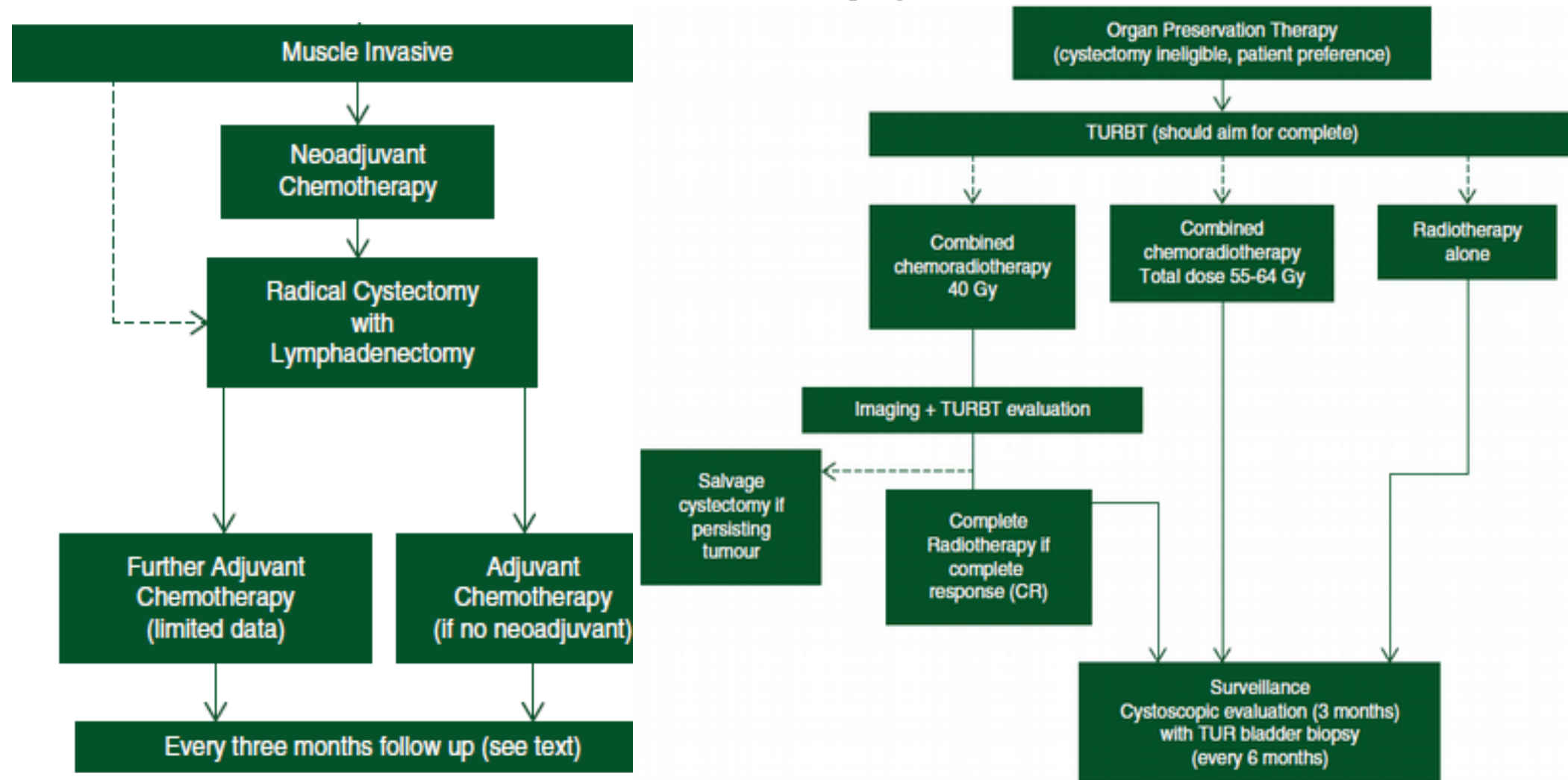
- chemo → operation → observation or chemo or (rarely) RT
- Platinum based, at least doublet

A standard of care in all muscle invasive cancers

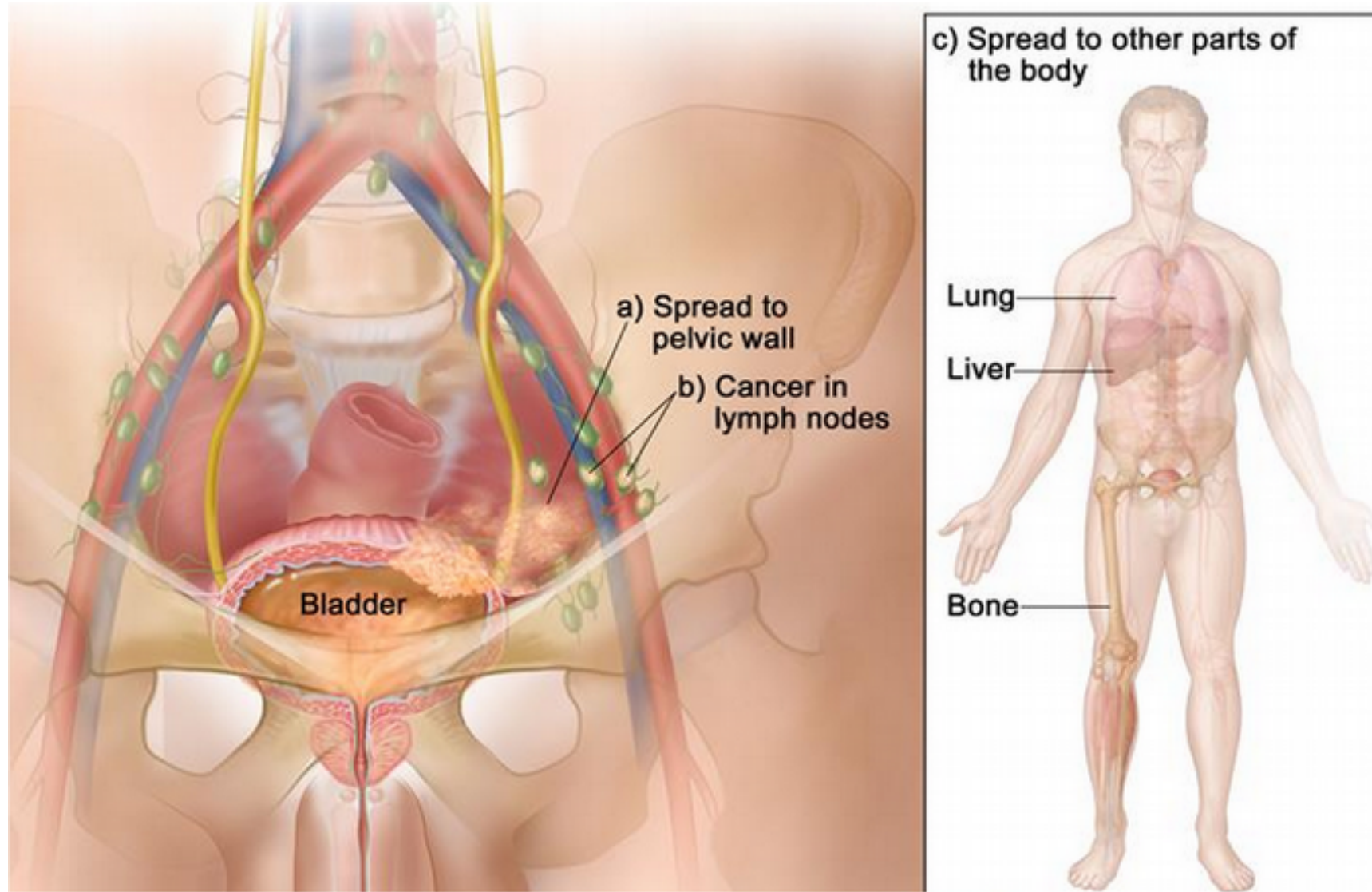
- Trimodality therapy:

- radical TURBT
- chemoradiotherapy with cisplatin (either concomitant or sequential) to total dose of ~ 66 Gy.
- Consider early (4 weeks into RT – after 40Gy) response assessment imaging and cystoscopy with biopsy
 - If complete response – continue radiochemotherapy
 - if not complete response – stop radiotherapy and perform cystectomy

Muscle invading urothelial cancer - therapy



Metastatic bladder cancer

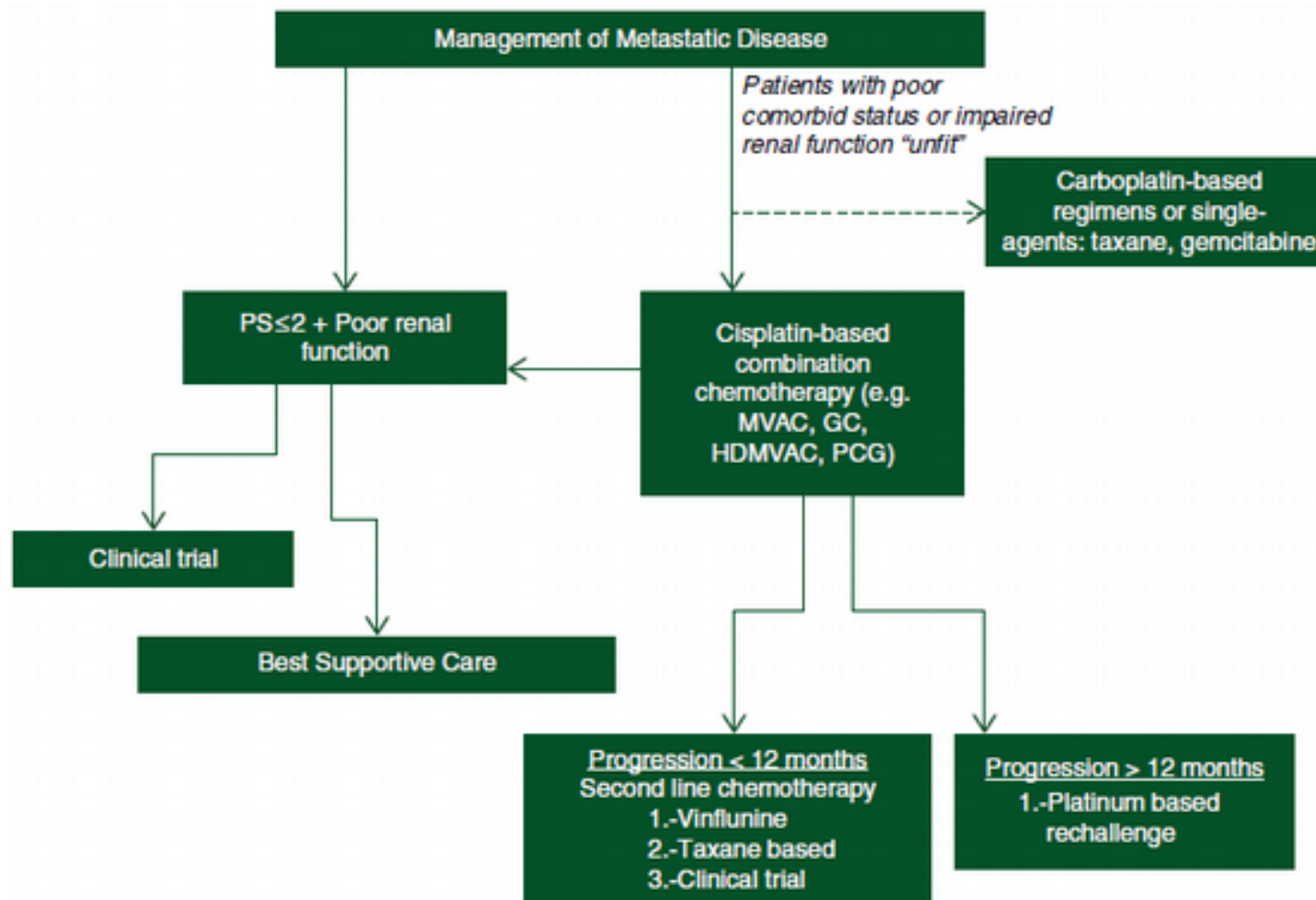


Typical locations of metastases a) the abdomen wall, (b) lymph nodes, and/or (c) other: lungs, liver, or bones.

Metastatic urothelial cancer - therapy

- Re-staging
- assess feasibility of localized treatment modalities (ie. radiotherapy or surgery in isolated nodal recurrence)
- check for clinical trial
- assess feasibility of palliative chemotherapy
 - poly vs mono
- remember about supportive care (bisphosphonates, thromboprophylaxis, pain management)
- Monitor response

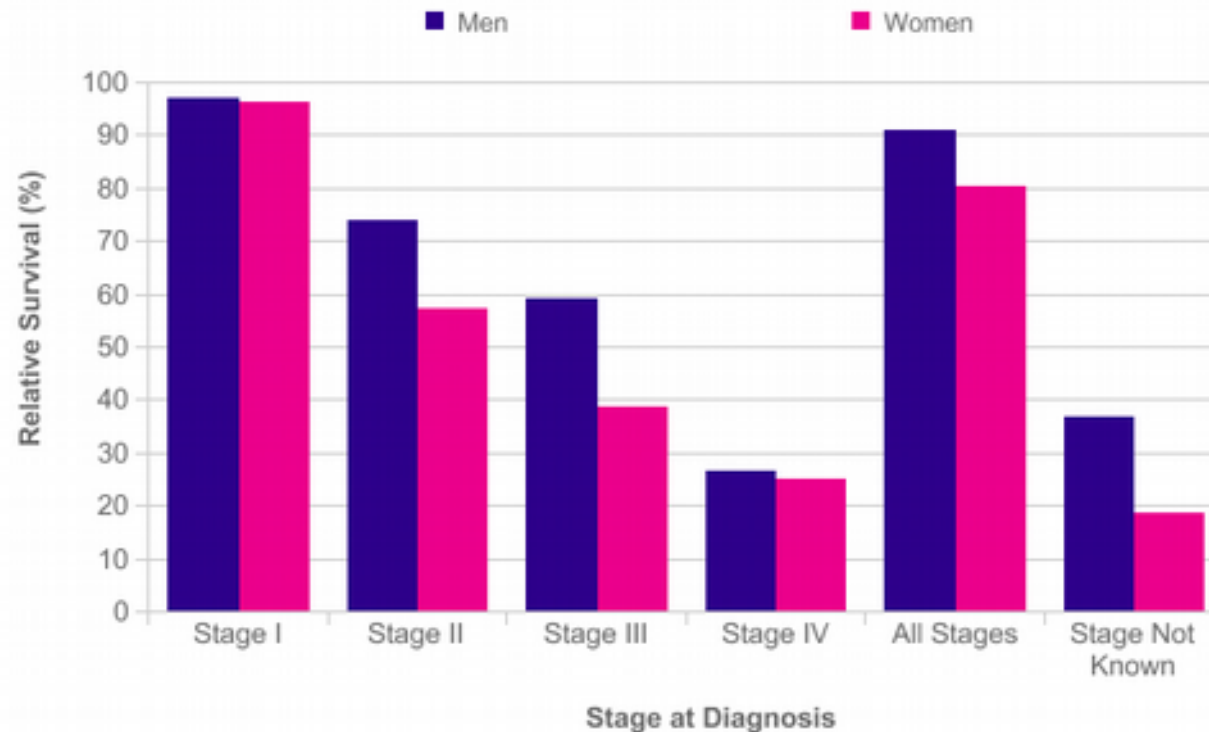
Metastatic urothelial cancer - therapy



Metastatic urothelial cancer - prognosis

Bladder Cancer (C67 D090 D414): 2006-2010

One-Year Relative Survival (%) by Stage, Adults Aged 15-99



Based on: Cancer Research UK, <http://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/testicular-cancer/incidence#heading-One>, Accessed OCT 2016.

Bladder cancer

Questions?

Thank You

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