

GU Oncology

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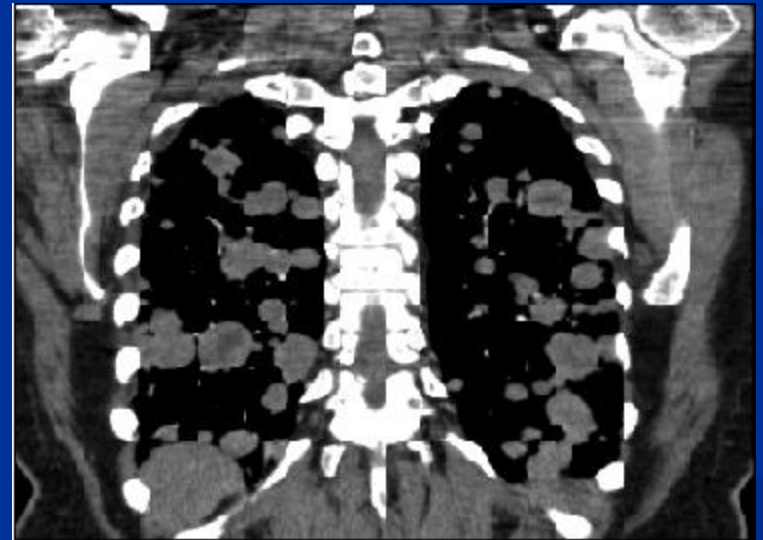
Renal Tumors

Renal Tumors

- Benign tumours of the kidney are rare
- All renal neoplasms should be regarded as potentially malignant
- Renal cell carcinomas arise from the proximal tubule cells

- Male : female ratio is approximately 2:1
- Increased incidence seen in von Hippel-Lindau syndrome.
- Pathologically may extend into renal vein and inferior vena cava
- Blood born spread can result in 'cannon ball' pulmonary metastases

'Cannon Ball' Pulmonary Metastases



Clinical features

- 10% present with classic triad of haematuria, loin pain and a mass.
- Other presentations include (Paraneoplastic Syndrome- PNS).
- Pyrexia of unknown origin, hypertension, Stauffer's syndrome.
- Polycythaemia due to erythropoietin production.
- Hypercalcaemia due to production of a PTH-like hormone \implies Can be treated medically.
- Other PNS, \implies Treatment usually nephrectomy.

Investigations

- Diagnosis can often be confirmed by renal ultrasound
- CT scanning allows assessment of renal vein and caval spread
- Echocardiogram should be considered if clot in IVC extends above diaphragm

RCC with IVC thrombosis

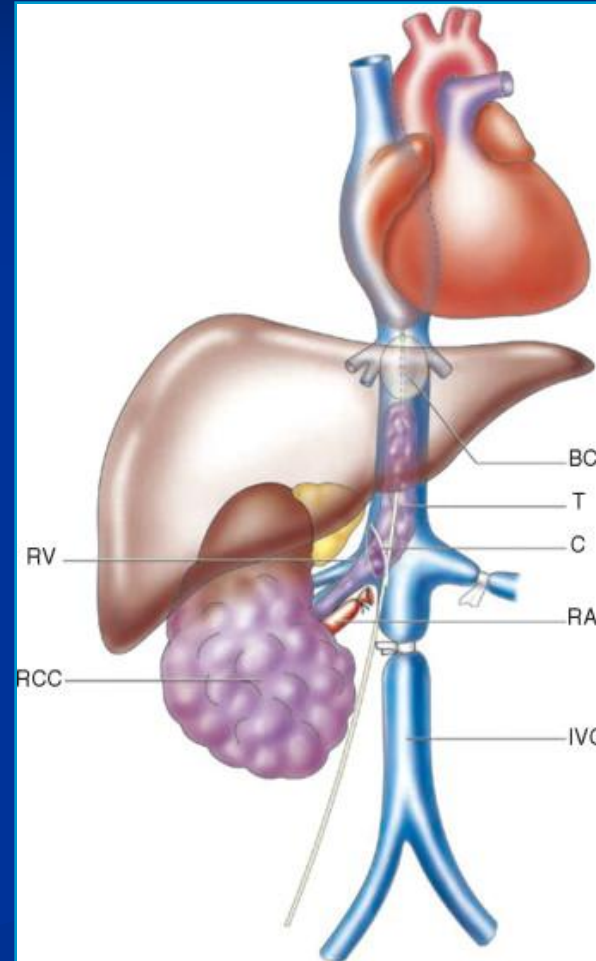
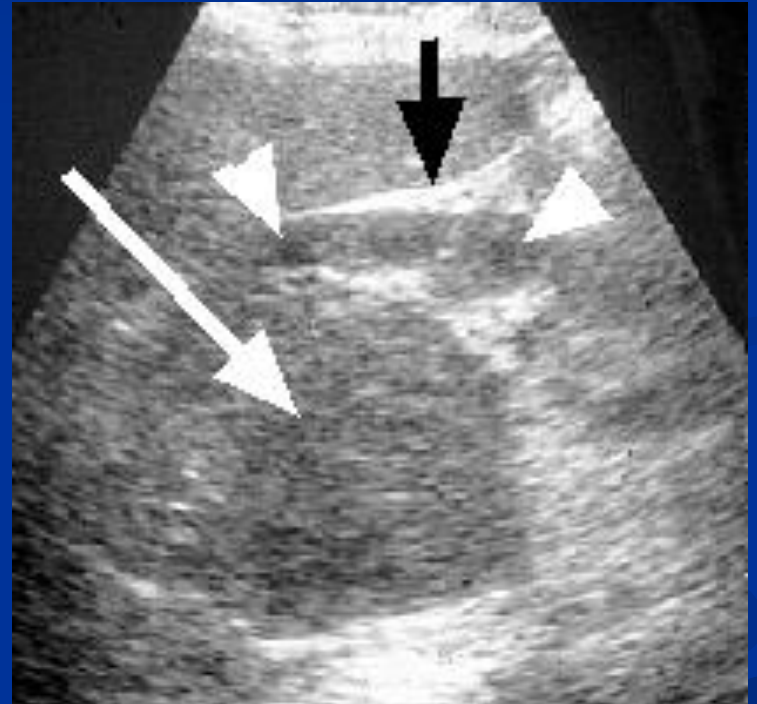
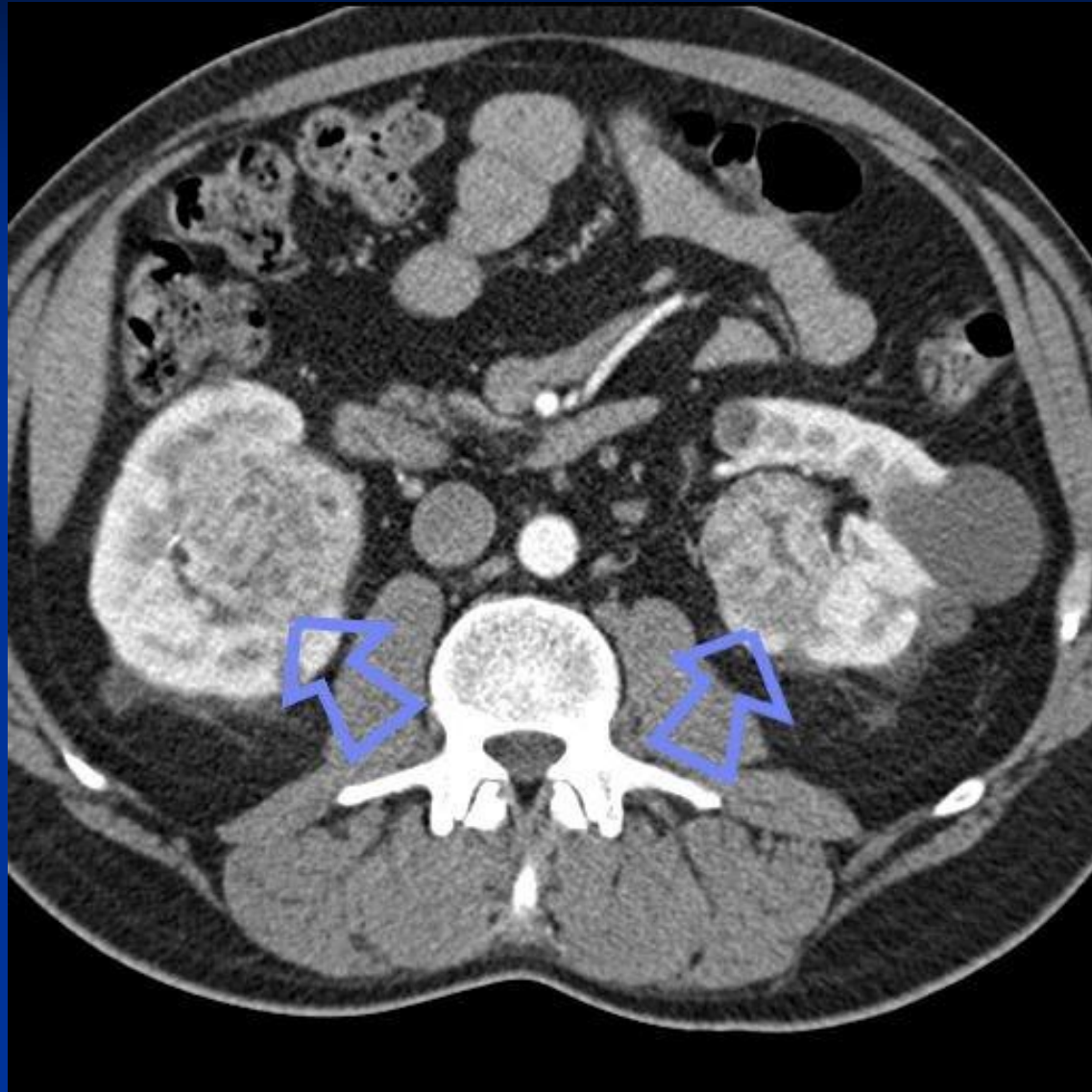




Figure 1: Computed tomography scan of patient's chest when he was first diagnosed with intracardiac extension of disease.



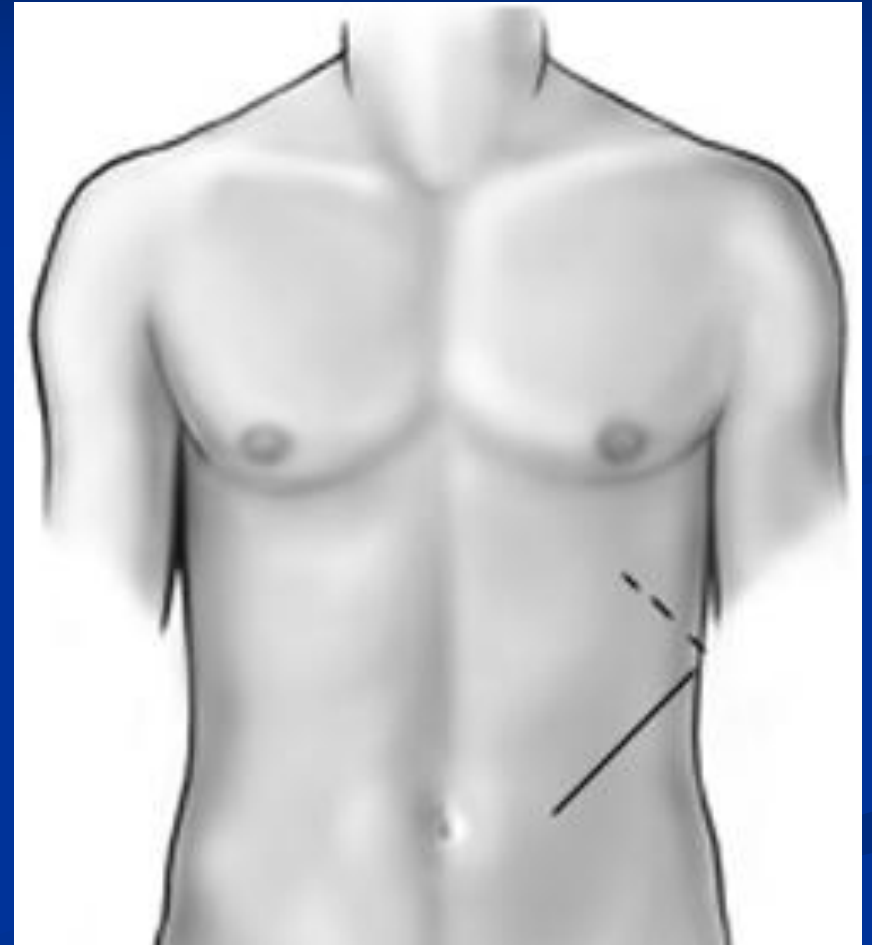




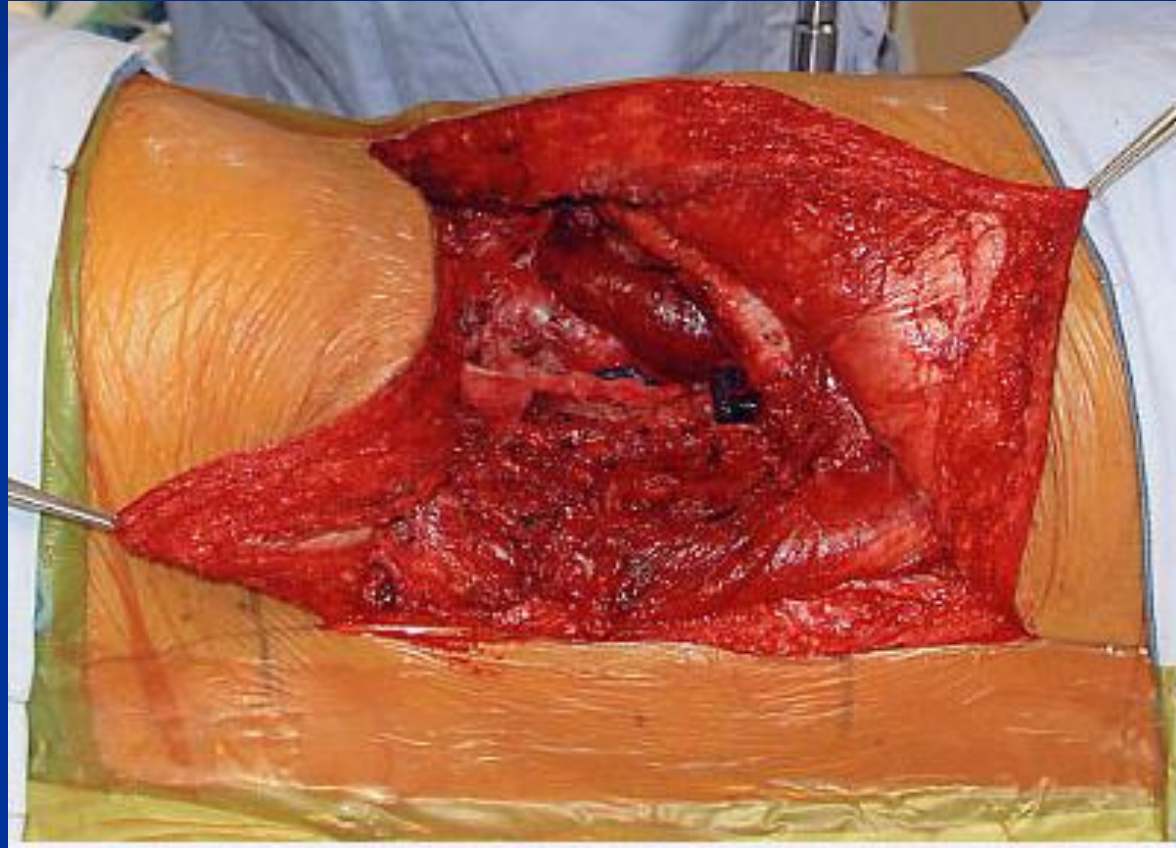
Management

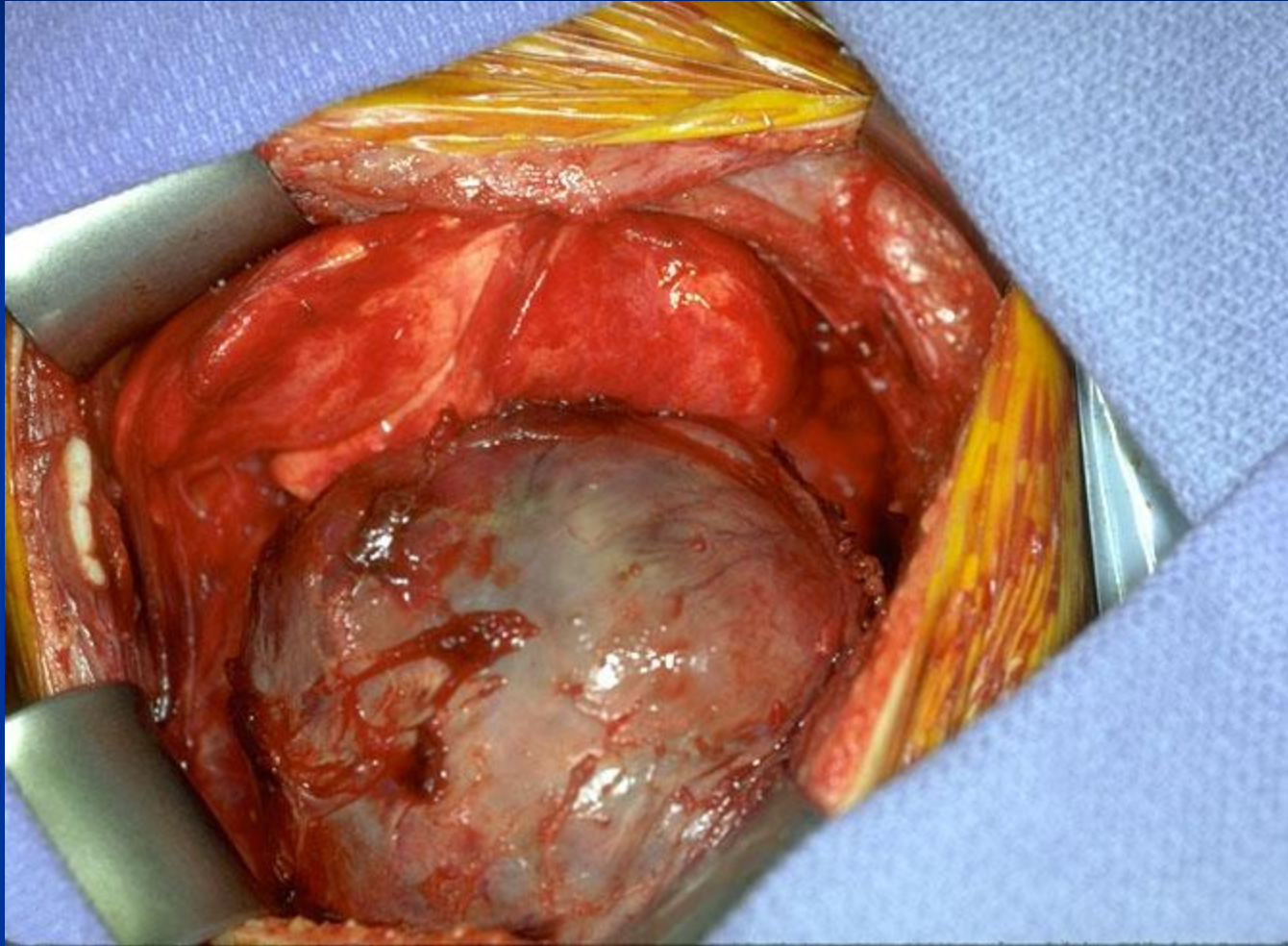
- Unless extensive metastatic disease it invariably involves surgery
- Surgical option usually involves a radical nephrectomy
- Kidney approached through either a transabdominal or loin incision
- Renal vein ligated early to reduce tumor propagation
- Kidney and adjacent tissue (adrenal, perinephric fat) excised

Open Radical Nephrectomy



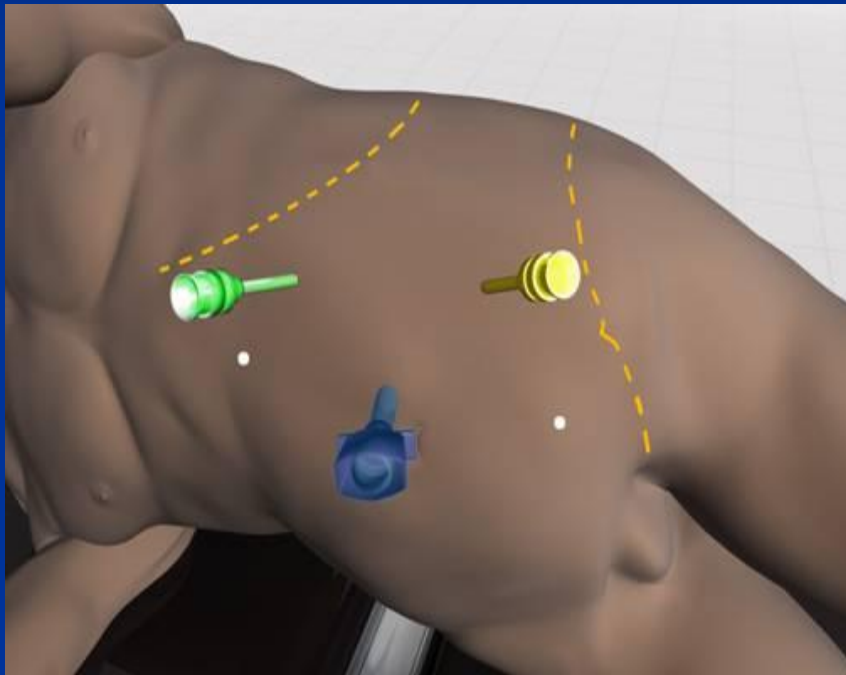
Open Radical Nephrectomy

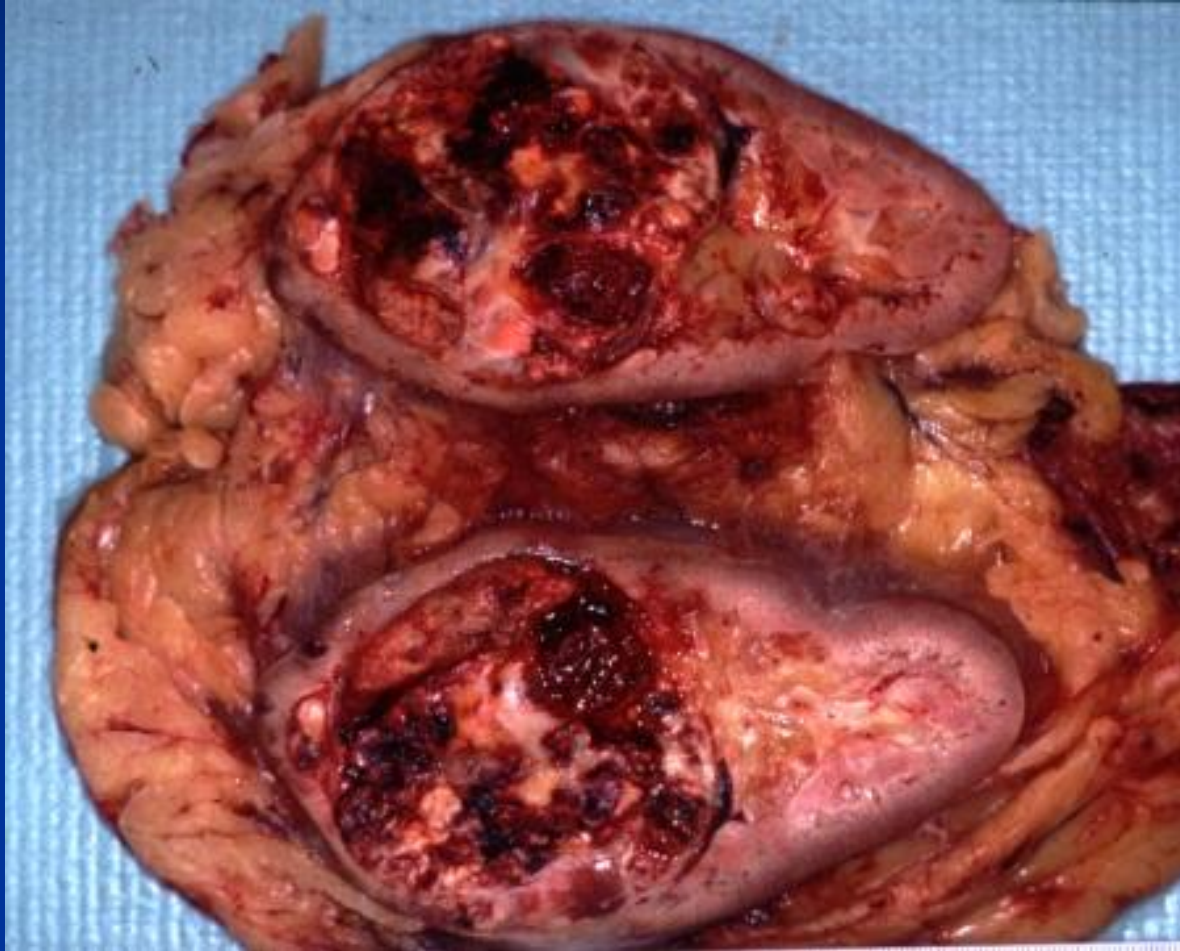




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Laparoscopic Nephrectomy



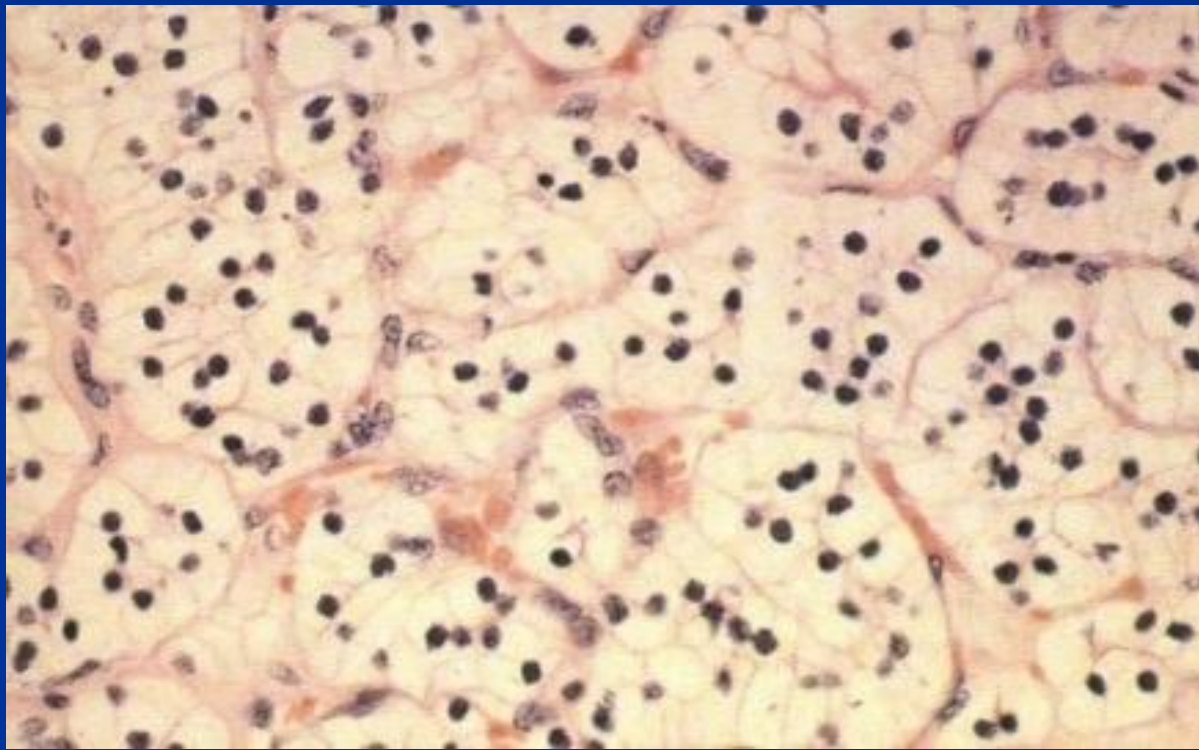


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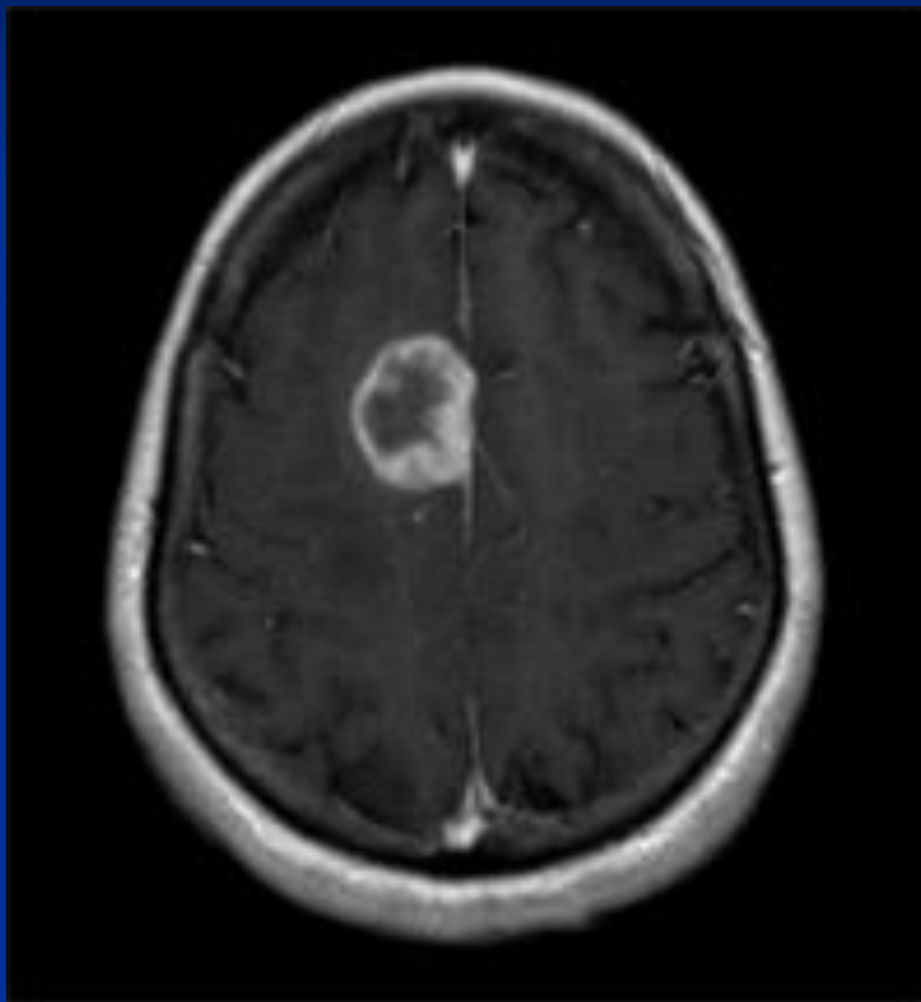
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Microscopic CRCC



Metastasis Rx

- Lymph node dissection of no proven benefit.
- Solitary (e.g. lung metastases) can occasionally be resected.
- Radiotherapy and chemotherapy have **No** role.
- Immunotherapy can help (Performance status).



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Bladder Tumors

Pathology

- Of all bladder carcinomas:
 - 90% are transitional cell carcinomas
 - 5% are squamous carcinoma
 - 2% are adenocarcinomas
- TCCs should be regarded a 'field change' disease with a spectrum of aggression
- 80% of TCCs are superficial and well differentiated
 - Only 20% progress to muscle invasion
 - Associated with good prognosis
- 20% of TCCs are high-grade and muscle invasive
 - 50% have muscle invasion at time of presentation
 - Associated with poor prognosis

Etiological factors

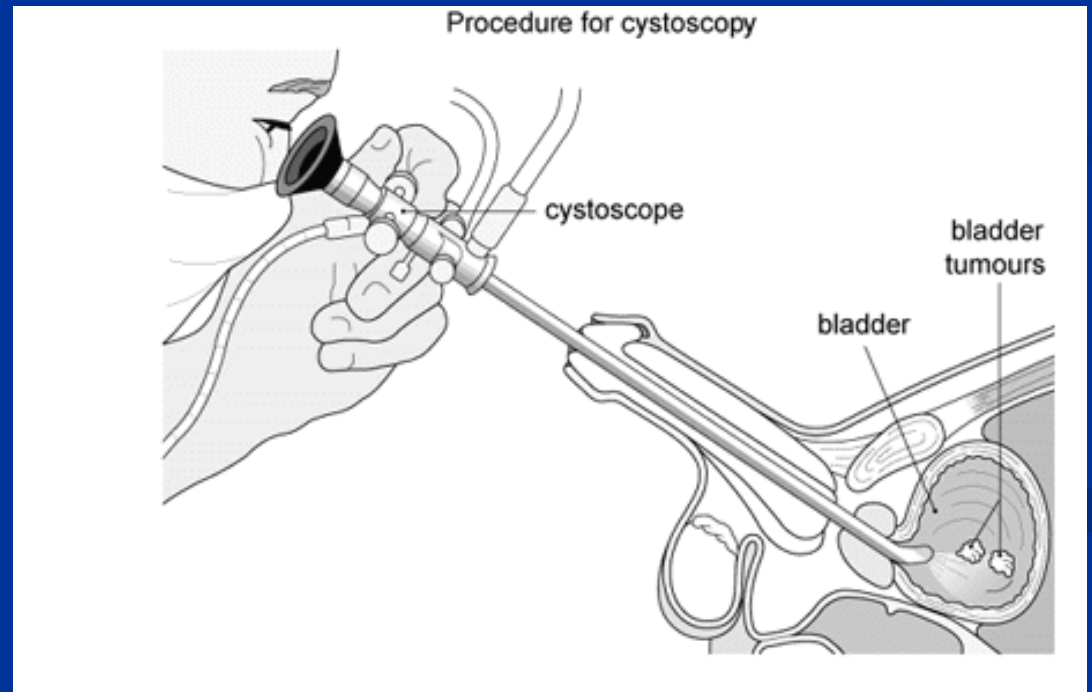
- Occupational exposure
- 20% of transitional cell carcinomas are believed to result from occupational factors
- Chemical implicated - aniline dyes, chlorinated hydrocarbons
- Cigarette smoking
- Analgesic abuse e.g. phenacitin
- Pelvic irradiation - for carcinoma of the cervix
- *Schistosoma haematobium* associated with increased risk of squamous carcinoma

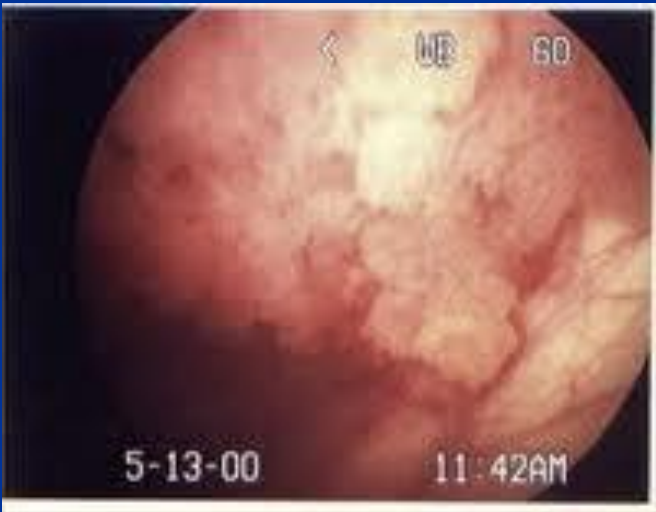
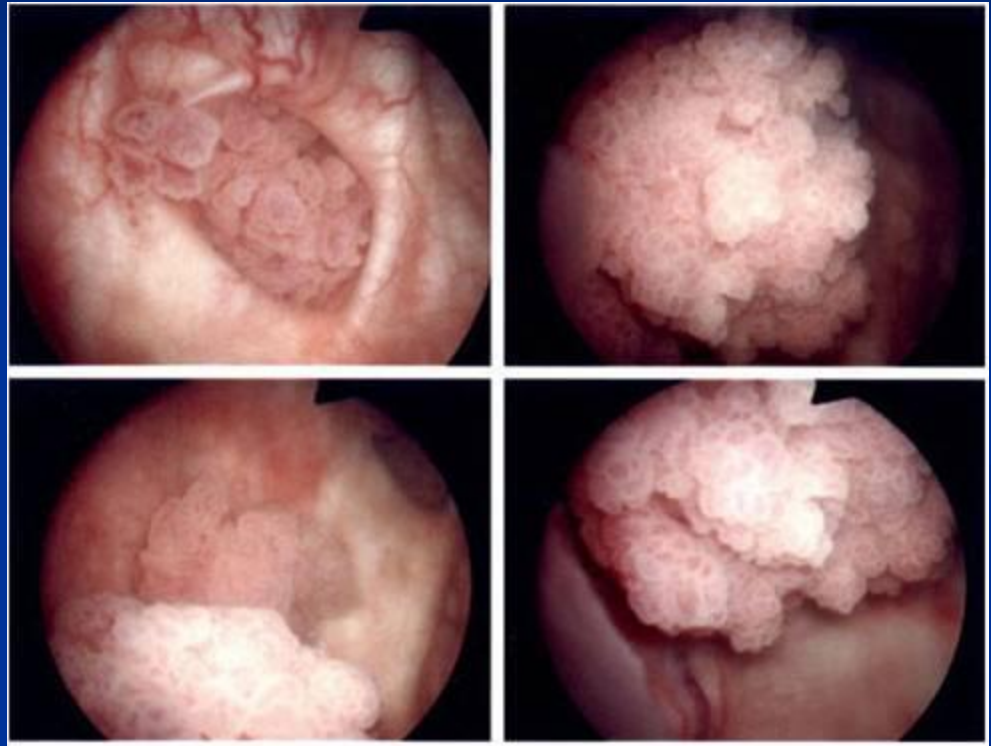
Presentation

- 80% present with painless hematuria.
- Also present with treatment-resistant infection or bladder irritability and sterile pyuria.

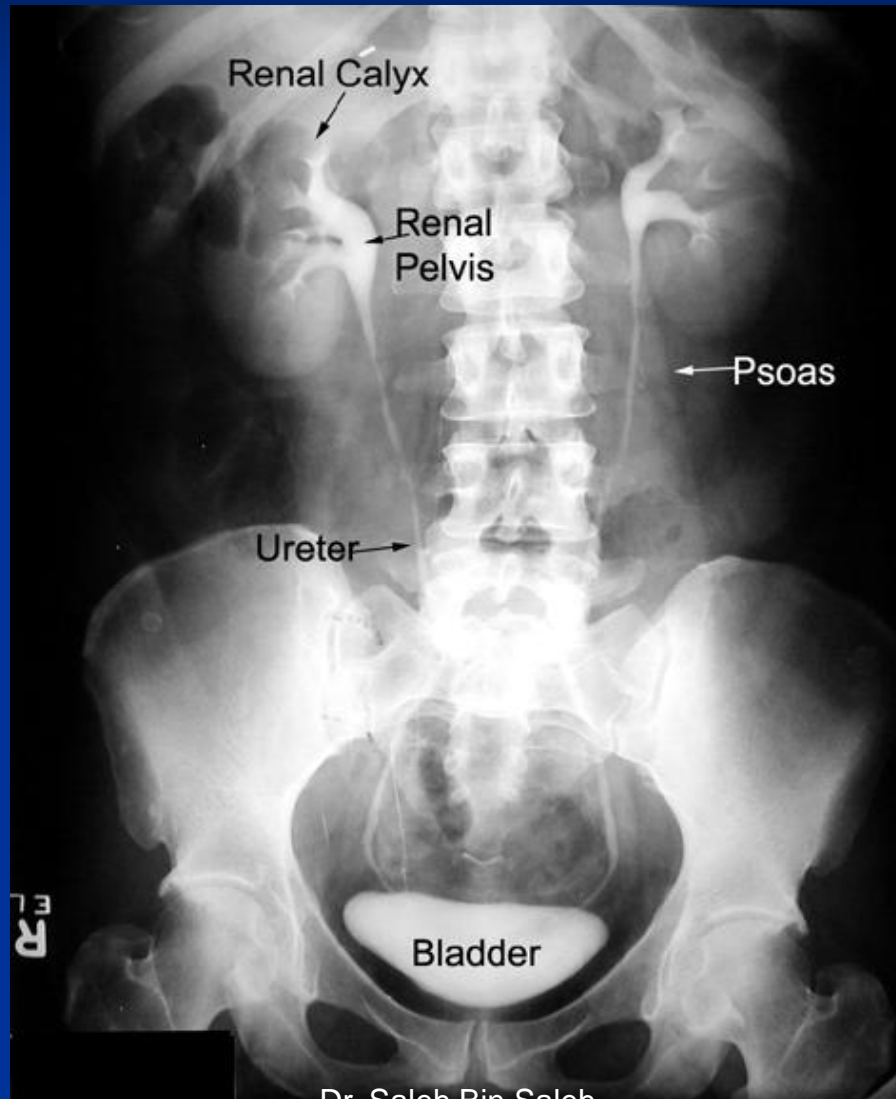
Investigation of Painless Haematuria

- Urinalysis
- Ultrasound - bladder and kidneys
- KUB - to exclude urinary tract calcification
- Cystoscopy
- Urine Cytology
- Consider IVU- CT scan if no pathology identified





IVP



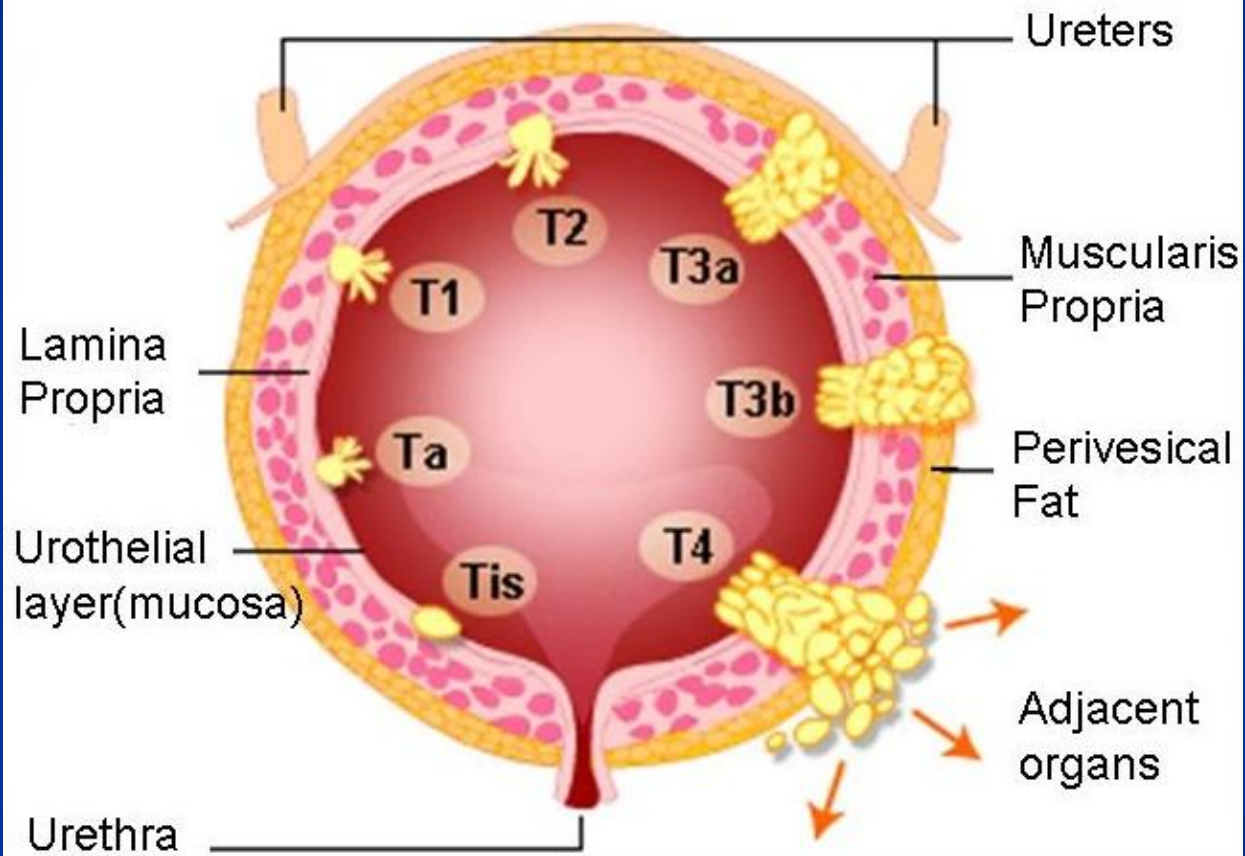
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IVP



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BLADDER CANCER STAGING (TNM)



Pathological staging

- Requires bladder muscle to be included in specimen
- Staged according to depth of tumor invasion
 - Tis In-situ disease
 - Ta Epithelium only
 - T1 Lamina propria invasion
 - T2 Superficial muscle invasion
 - T3a Deep muscle invasion
 - T3b Perivesical fat invasion
 - T4 Prostate or contiguous muscle

Grade of Tumor

- G1 Well differentiated
- G2 Moderately well differentiated
- G3 Poorly differentiated

Carcinoma in-situ

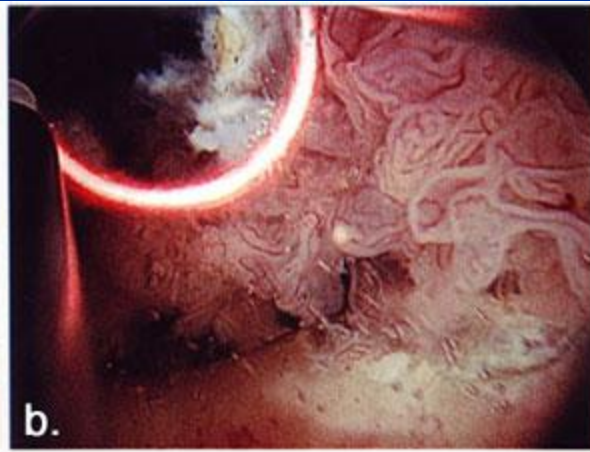
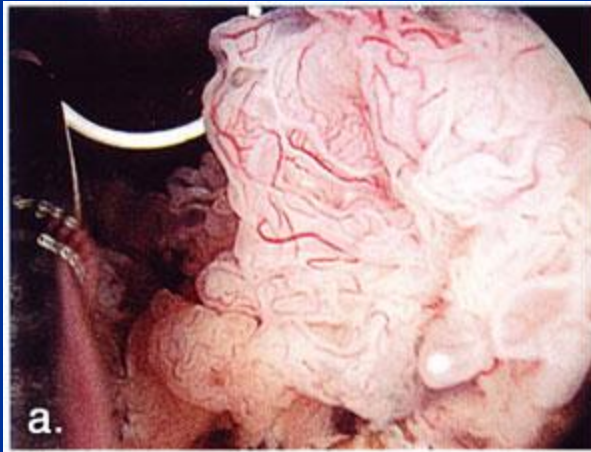
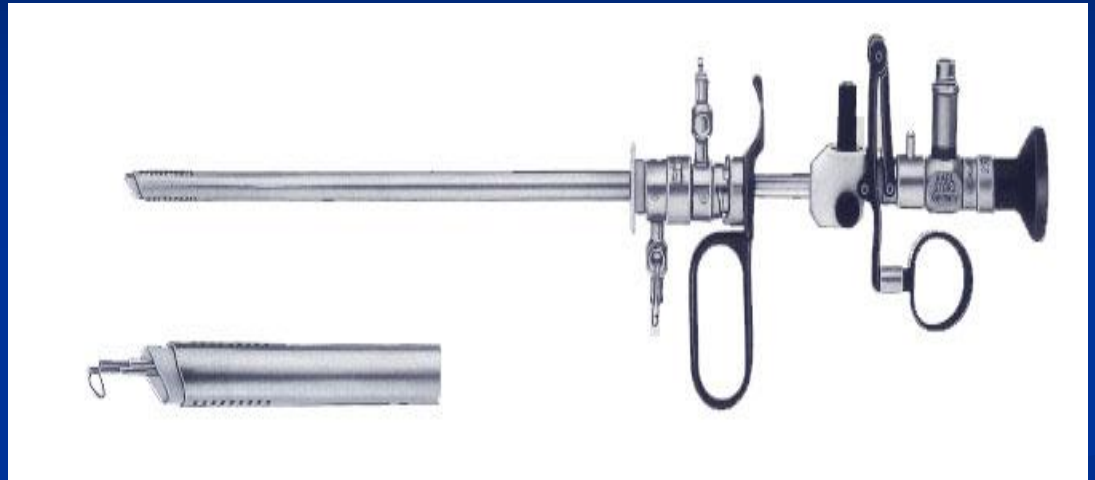
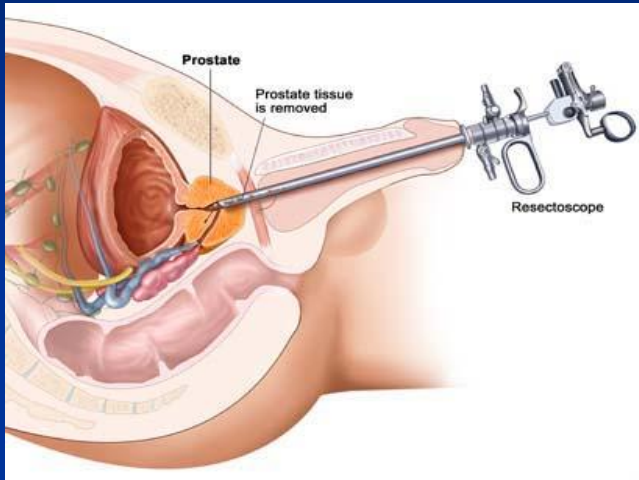
- Carcinoma-*in-situ* is an aggressive disease
- Often associated with **positive cytology**
- 50% patients progress to muscle invasion
- Consider immunotherapy
- If fails patient may need radical cystectomy

Treatment of bladder carcinomas

Superficial TCC

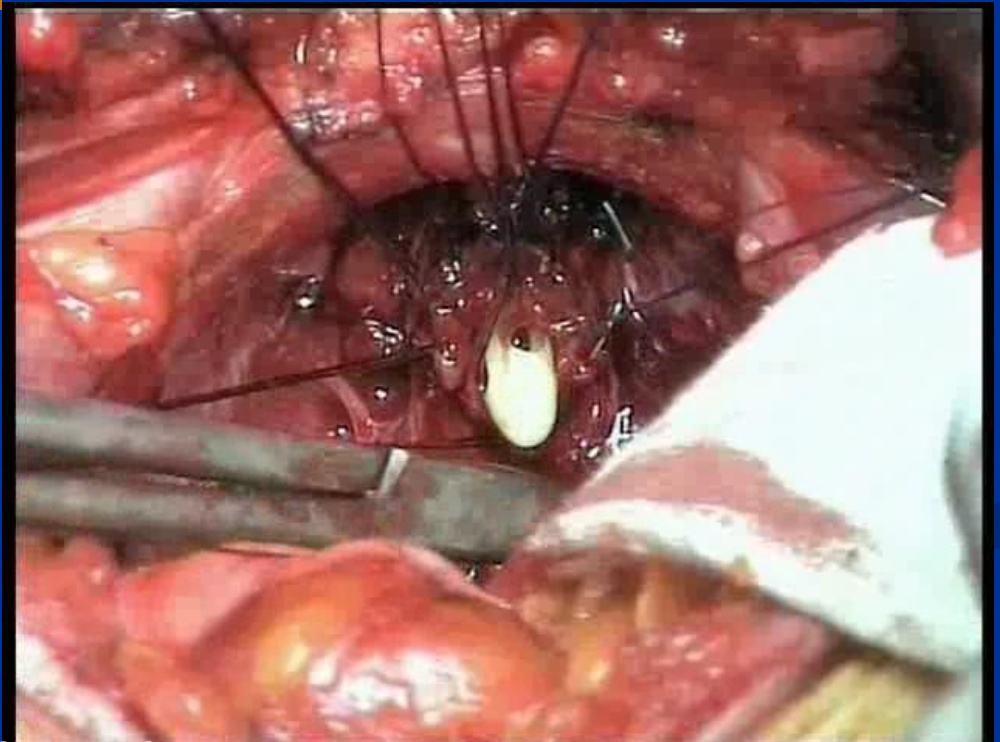
- Requires transurethral resection and regular cystoscopic follow-up
- Consider prophylactic chemotherapy if risk factor for recurrence or invasion (e.g. high grade)
- Consider immunotherapy
- BCG = attenuated strain of *Mycobacterium bovis*
- Reduces risk of recurrence and progression
- 50-70% response rate recorded
- Occasionally associated with development of systemic mycobacterial infection

TURBT



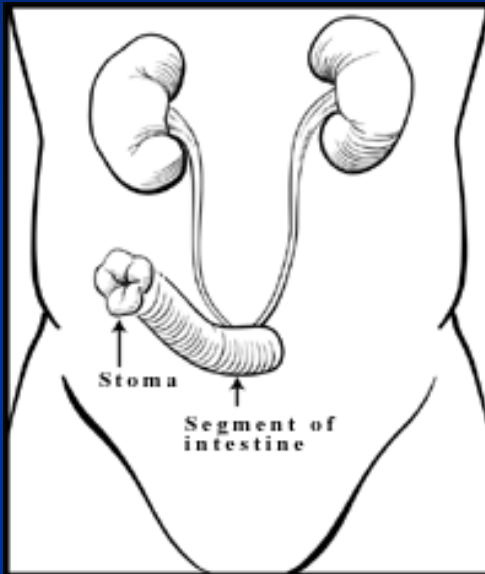
Rx: Invasive TCC

- Radical cystectomy has an operative mortality of about 5%
- Urinary diversion achieved by:
 - Ileal conduit
 - Neo-bladder
- Local recurrence rates after surgery are approximately 15% and after radiotherapy alone 50%
- Pre-operative radiotherapy is no better than surgery alone
- Adjuvant chemotherapy may have a role

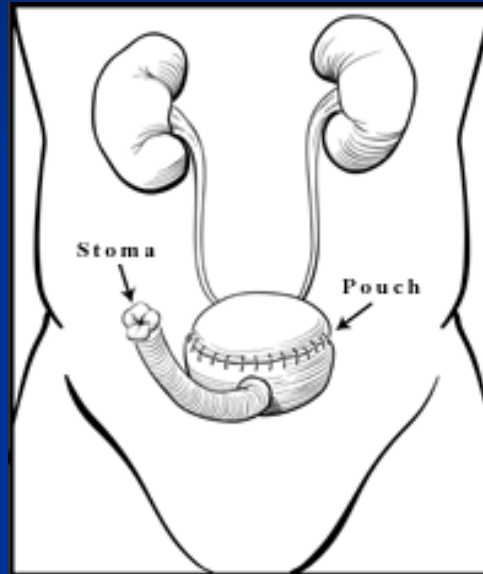


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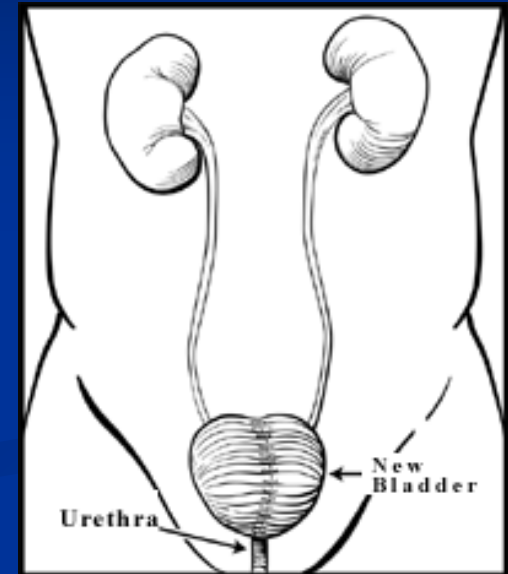
Types of Urinary Diversion



ILEAL CONDUIT
(incontinent diversion
to skin)



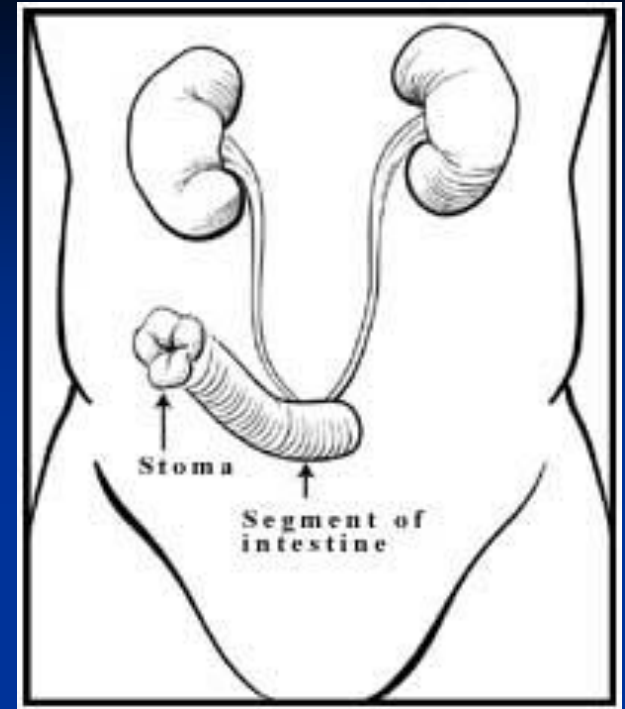
**CONTINENT
CUTANEOUS
RESERVOIR**
(continent diversion
to skin)



**ORTHOTOPIC
NEOBLADDER**
(continent diversion
to urethra)



SCIENCEPHOTOLIBRARY



Medscape

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Prostate Tumors

Prostate cancer

- Commonest malignancy of male urogenital tract
- Rare before the age of 50 years
- Found at post-mortem in 50% of men older than 80 years
- 5-10% of operation for benign disease reveal unsuspected prostate cancer

Pathology

- The tumours are adenocarcinomas
- Arise in the peripheral zone of the gland
- Spread through capsule into perineural spaces, bladder neck, pelvic wall and rectum
- Lymphatic spread is common
- Haematogenous spread occurs to axial skeleton
- Tumours are graded by Gleason classification

Clinical features

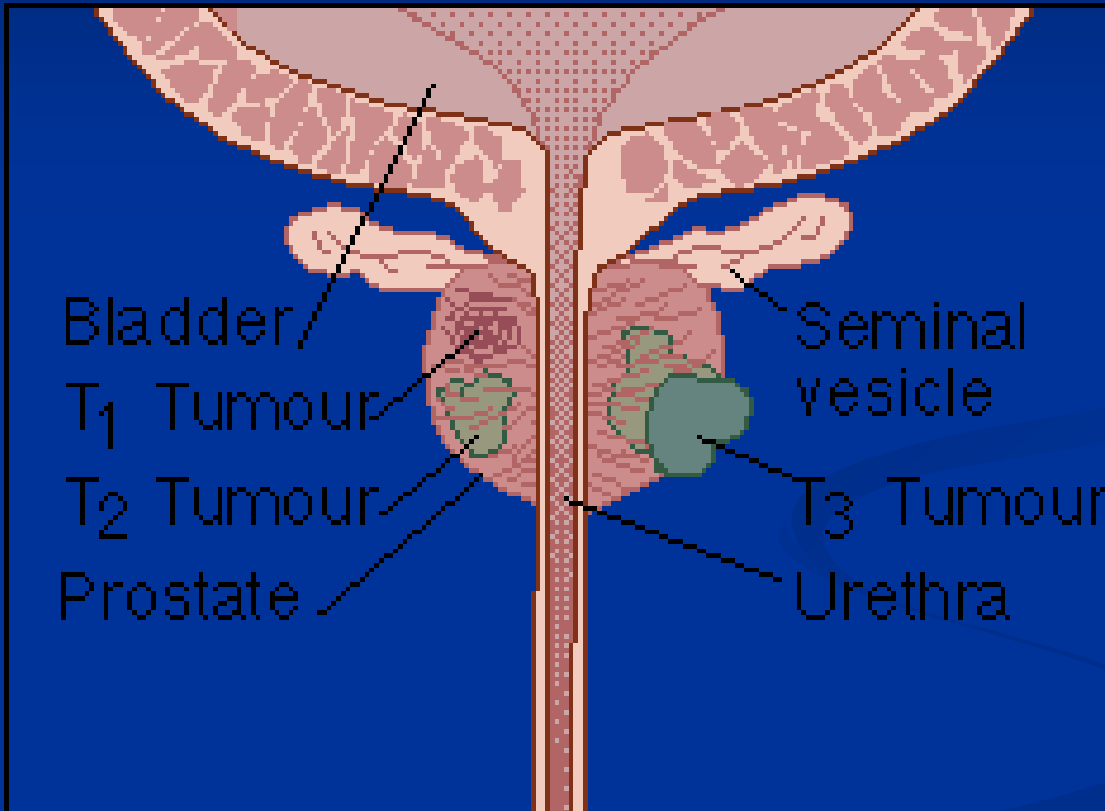
- Majority these days are picked up by screening
- 10% are incidental findings at TURP
- Remainder present with bone pain, cord compression or leuco-erythroblastic anaemia
- Renal failure can occur due to bilateral ureteric obstruction

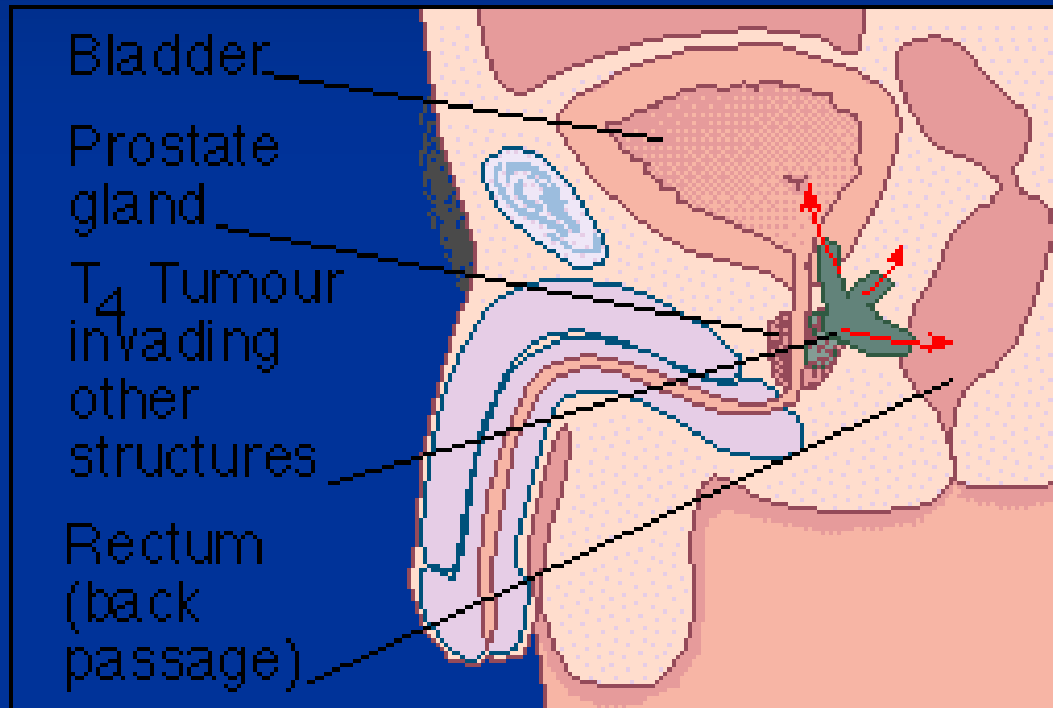
Diagnosis

- With locally advanced tumors diagnosis can be confirmed by rectal examination
- Features include hard nodule or loss of central sulcus
- Transrectal biopsy should be performed
- Multi-parametric MRI maybe useful in the staging of the disease
- Bone scanning may detect the presence of metastases
- Unlikely to be abnormal if asymptomatic and PSA < 10 ng/ml

Serum prostate specific antigen (PSA)

- Kallikrein-like protein produced by prostatic epithelial cells
- 4 ng/ml is the upper limit of normal
- >10 ng/ml is highly suggestive of prostatic carcinoma
- Can be significantly raised in BPH
- Useful marker for monitoring response to treatment





Treatment

- More men die with than from prostate cancer
- Treatment depends on stage of disease, patient's age and general fitness
- Treatment options are for:
 - Local disease
 - Observation
 - Radical radiotherapy
 - Radical prostatectomy
 - Locally advanced disease
 - Radical radiotherapy
 - Hormonal therapy
 - Metastatic disease
 - Hormonal therapy

Open

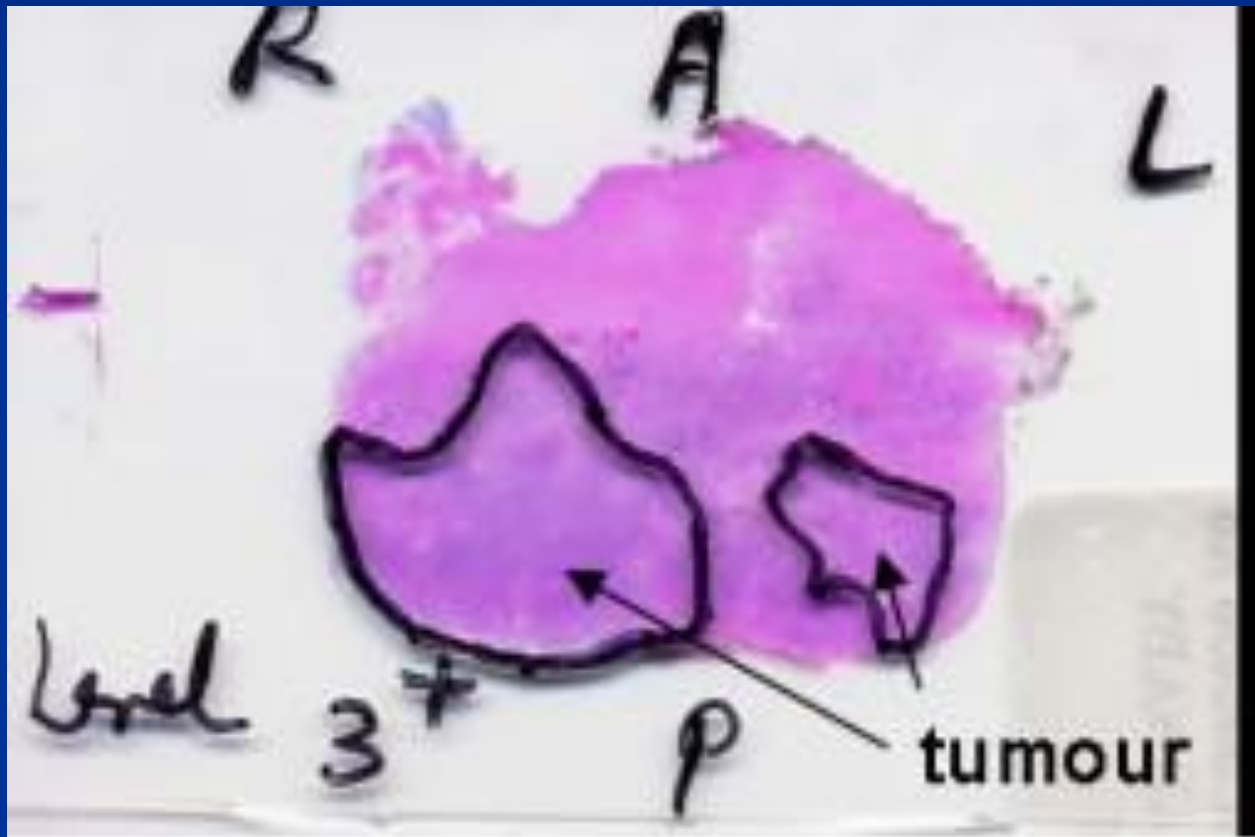


Laparoscopic

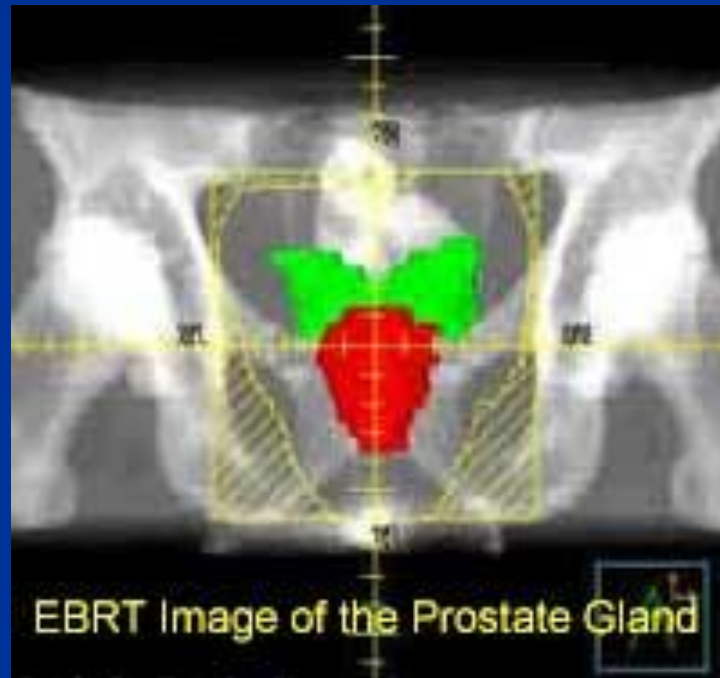


Robotic





EBRT



EBRT



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Brachytherapy

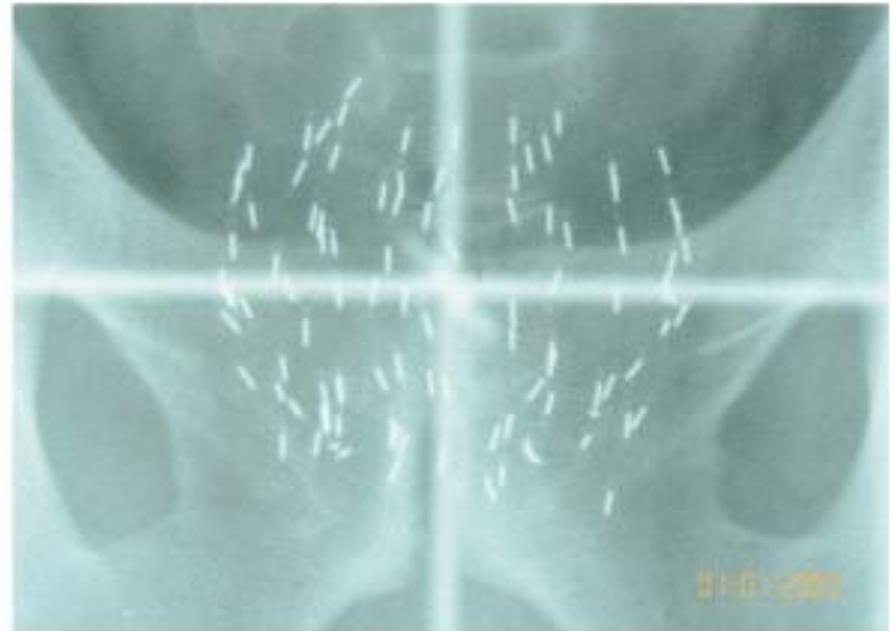
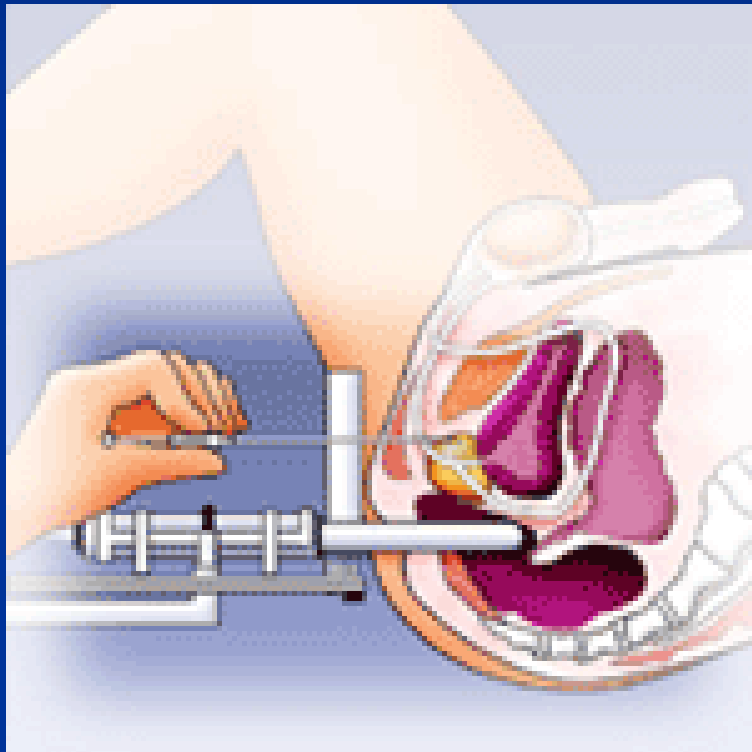
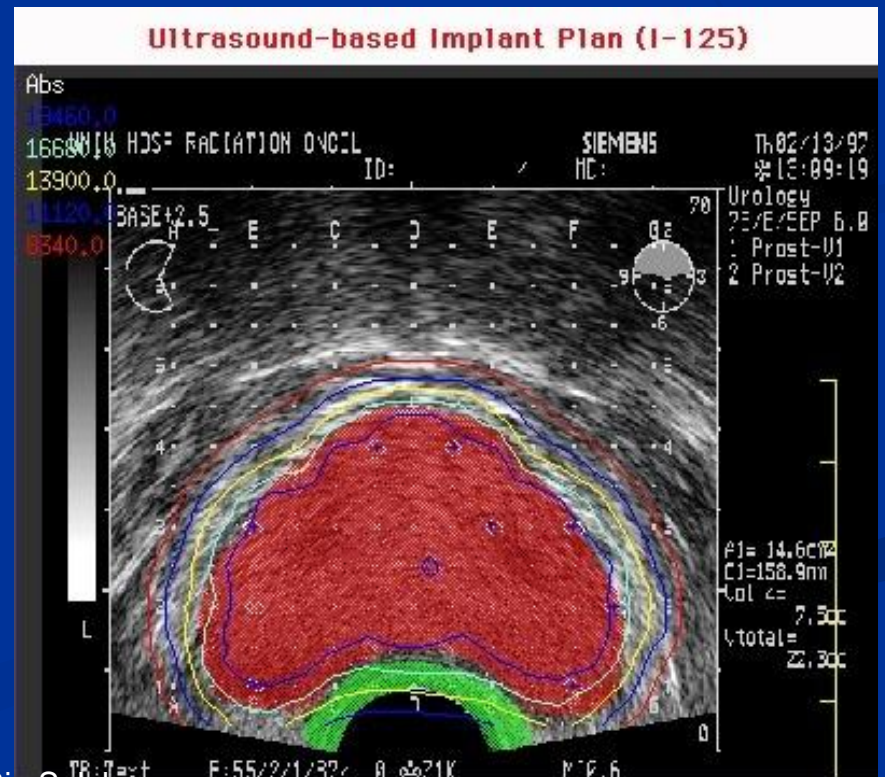
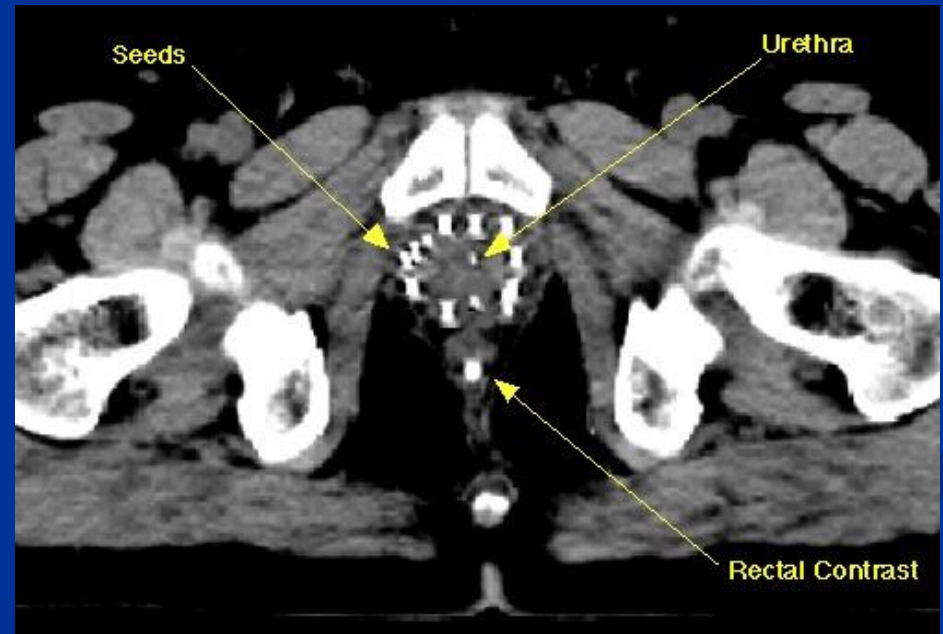
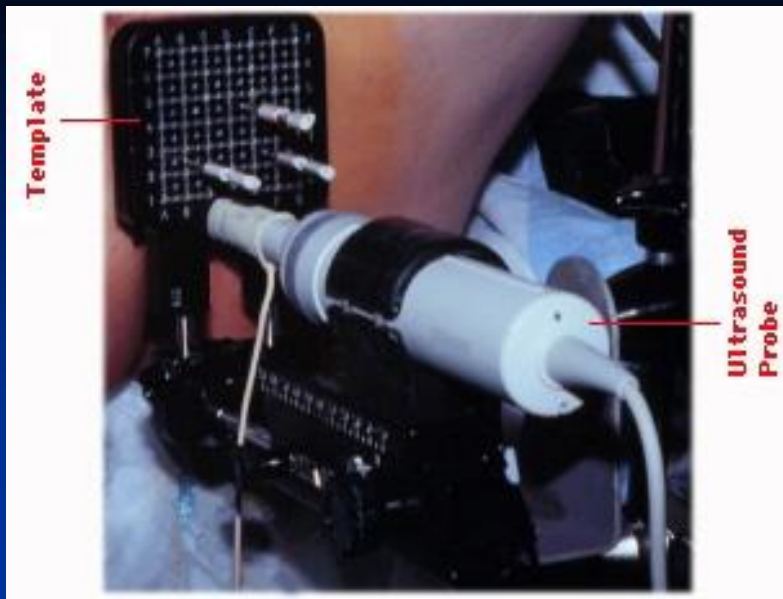


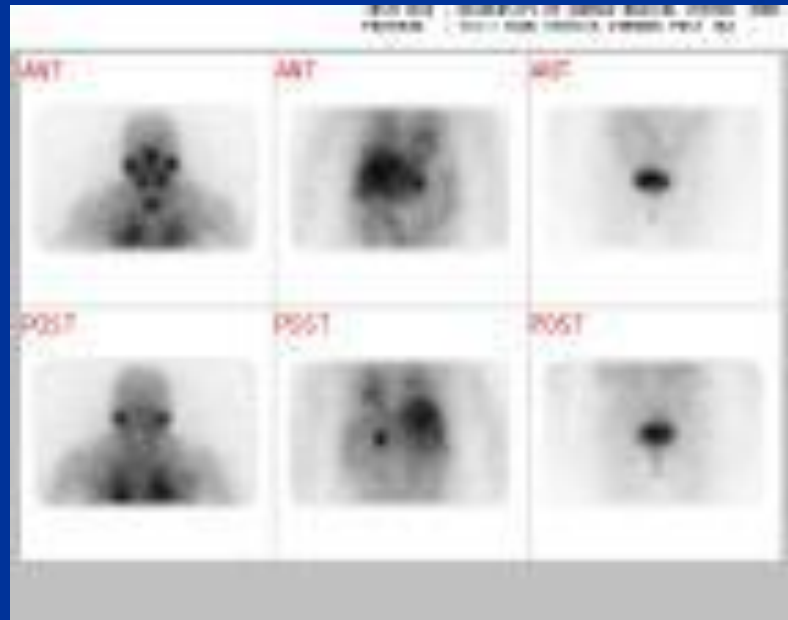
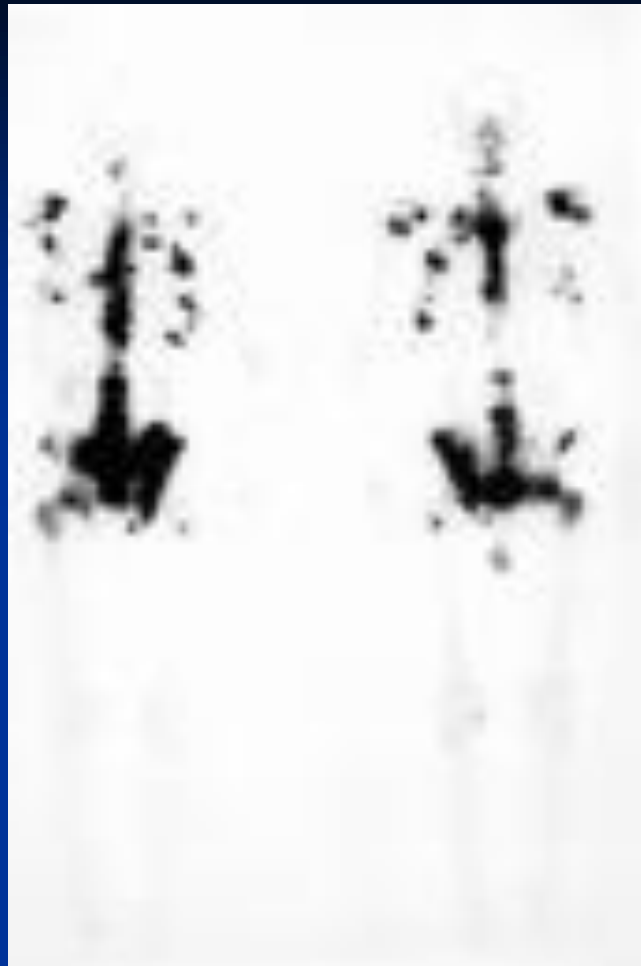
Figure 1. Location of radioactive seeds used in brachytherapy of prostate gland.

Photos courtesy of Russell Greene, MD, Stormont-Vail Regional Health Center, Topeka, Kan.



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Hormonal therapy

- 80-90% of prostate cancers are androgen dependent for their growth
- Hormonal therapy involves androgen depletion
- Produces good palliation until tumours 'escape' from hormonal control
- Androgen depletion can be achieved by:
 - Bilateral orchidectomy
 - LHRH agonists - gosereline
 - Anti-androgens - cyproterone acetate, flutamide, Bicalutamide
 - Complete androgen blockade

Testicular Tumors

Testicular Tumors

- Commonest presentation: testicular swelling on the side of the tumor.
- Commonest malignancy in young men
- Highest incidence in Caucasians in northern Europe and USA
- Peak incidence for teratomas is 25 years and seminomas is 35 years
- In those with disease localized to testis more than 95% 5 year survival possible
- Risk factors include cryptorchidism, testicular and Klinefelter's syndrome

Classification

- Seminomas (~50%)
- None- Seminoma (~50%)
 - Teratomas
 - Yolk sac tumors
 - Embryonal
 - Mixed Germ cell tumor

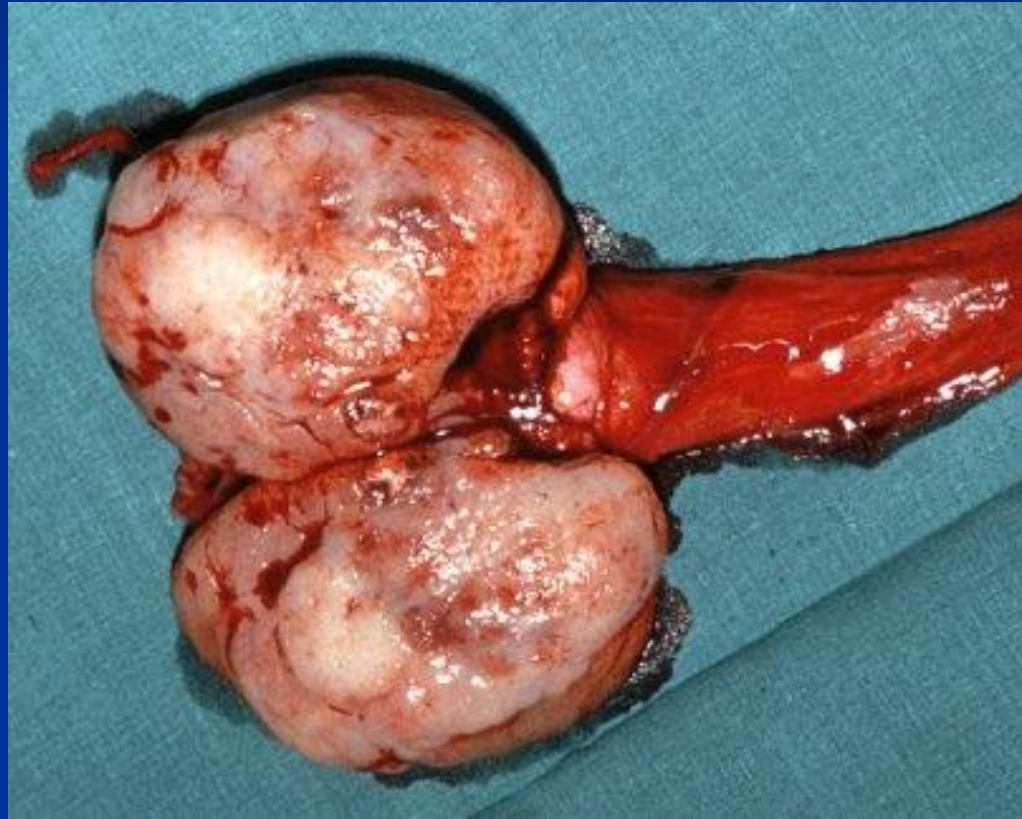
Investigation

- Diagnosis can often be confirmed by testicular ultrasound
- Pathological diagnosis made by performing an inguinal orchidectomy
- Disease can be staged by thoraco -abdominal CT scanning
- Tumor markers are useful in staging and assessing response to treatment
 - Alpha-fetoprotein (alpha FP)
 - Produced by yolk sac elements
 - Not produced by seminomas
 - Beta-human chorionic gonadotrophin (beta HCG)
 - Produced by trophoblastic elements
 - Elevated levels seen in both teratomas and seminoma
 - LDH

Stage Definition

- I Disease confined to testis
- IM Rising post-orchidectomy tumour marker
- II Abdominal lymphadenopathy
 - A < 2 cm B 2-5 cm C > 5 cm
- III Supra-diaphragmatic disease

Seminomas



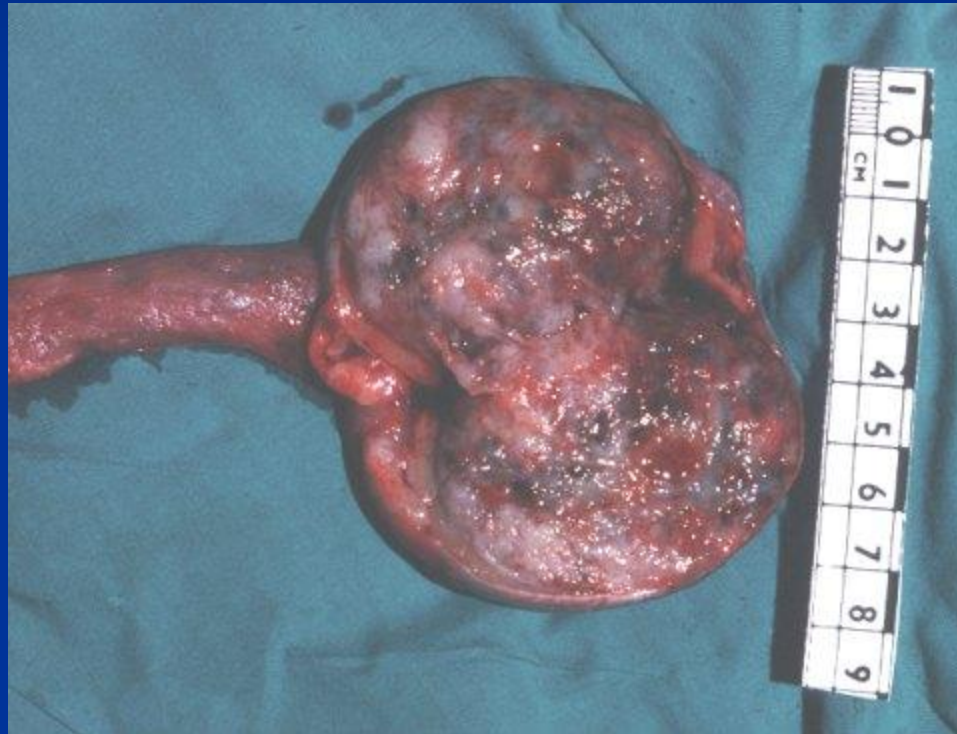
Seminomas

- Seminomas are radiosensitive
- The overall cure rate for all stages of seminoma is approximately 90%.
- Stage I and II disease treated by inguinal orchidectomy plus
 - Radiotherapy to ipsilateral abdominal and pelvic nodes ('Dog leg') or
 - Surveillance
- Stage IIC and above treated with chemotherapy

Radical Orchiectomy



None-Seminoma



None-Seminoma

- None-Seminoma are not radiosensitive
- Stage I disease treated by orchidectomy and surveillance Vs RPLVD Vs Chemo
- Chemotherapy (BEP = Bleomycin, Etoposide, Cisplatin) given to:
 - Stage I patients who relapse
 - Metastatic disease at presentation

Questions

