Renal tumors

Benign

A. Epithelial tumors of Renal Parenchyma
- Adenoma
- Oncocytoma

B. Epithelial tumors of Renal pelvis
- Transitional cell papilloma

C. Embryonal tumours
- Mesoblastic nephroma
- Multicystic nephroma

D. Non-epithelial tumors.
- Angiomyolipoma
- Medullary interstitial tumours (fibroma)

E. Miscellaneous
- Juxtaglomerular cell tumour (Reninoma)

F. Metastatic tumors

Malignant.

- Adenocarcinoma
  - Renal Cell Carcinoma
- Transitional cell carcinoma
- Others
- Wilm's tumour (Nephroblastoma)
- Sarcoma

Adenocarcinoma of kidney

Overview

- Introdn
- Etiopathogenesis
- Classification
- Gross
- Microscopy
- Clinical features
- Spread
- Prognosis

Also known as

- Hypernephroma
- Renal cell carcinoma
- Grawitz tumour

∴ Renal cell Carcinoma is the most common malignant tumour of kidney
- Commonly in 50 to 70 yrs of age
- Male preponderance (2:1)

Etiopathogenesis:-

1. Tobacco → 20-30% cases of RCC
   → Cigarette smokers – 2 fold higher risk
2. Genetic factors
3. Cystic diseases of kidney.
4. Other risk factors.
   i) Exposure to asbestos, heavy metals & petrochemical products.
   ii) In women, obesity and oestrogen therapy
   iii) Analgesic nephropathy
   iv) Tuberous sclerosis.

Classification:-

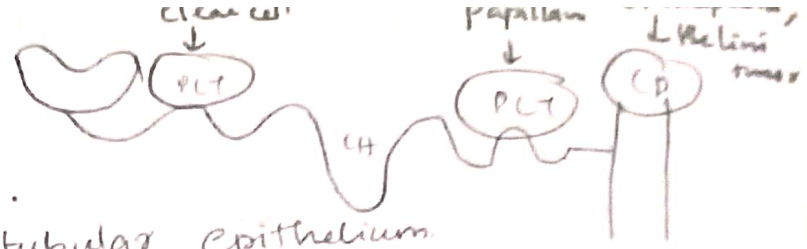
1. Clear cell Carcinoma
2. Papillary Carcinoma
3. Chromophobe (oncocytic) renal cell carcinoma
4. Collecting duct (Bellini duct) carcinoma.

Gross:-

- from poles of kidney.
- solitary & unilateral tumour (often - in upper pole)
- large, golden yellow & circumscribed.
- papillary tumour have grossly visible papillae.
- C/S → shows large areas of ischaemic necrosis, cystic change and haemorrhages.

Microscopy

1. Clear Cell Carcinoma:



-> most common pattern.
-> arises from proximal tubular epithelium

Arrangement : nests (solid pattern separated by delicate vasculature.

Cytoplasm : Clear : due to removal of glycogen & lipid from the cytoplasm during processing of tissues.

→ Most common cytogenic abnormality - Deletion of short arm of chrom - 3 (3p deletion) ie, VHL gene.

2) Papillary type RCC.

-> 2nd most common. (10-15%)
-> arises from DCT.
-> arranged in papillary pattern over fibrovascular stalks.
-> cuboidal with small round nuclei
-> Psammoma bodies may be seen.

(10-15%)

Mutation

Sporadic

-> Trisomy of 7 & 17
-> loss of Y chrom.
(Y); ±(X-1)

Hereditary.

↳ Trisomy 7

3. Chromophobe type RCC:
- Collecting duct (intercalated cells)
- prominent cell membrane; pale eosinophilic cytoplasm.
- perinuclear halo, arranged in sheath.
- Mutat^{n} – Hypodiploidy or monosomy
(Best prognosis (1, 2, 6, 10, 13, 17, 21 & Y)

4) Collecting duct (Bellini duct) Carcinoma:-
- least common type of RCC.
- arises from medullary collecting duct
- cells have prominent fibrotic stroma.
  - ↳ desmoplasia
  - ↳ worse prognosis

Clinical feature.

Triad of – Gross haematuria (most common)
– Flank pain
– Palpable abdominal mass

Spread:
- → via hematogenous route to the lungs (most common), brain & bone.
- → locally to liver & perirenal lymph nodes

Prognosis → overall (5-yr) survival rate is about 70%.
→ pr. of metastases, renal vein invasion & higher nuclear grade of the tumor are reason for poor prognosis

Wilm's Tumor :- Also known as Nephroblastoma

Age & Gender → 1 to 6 yrs

M = F

- most common abdominal malignant tumours of young children.
- arises from primitive renal components (epithelial & mesenchymal)

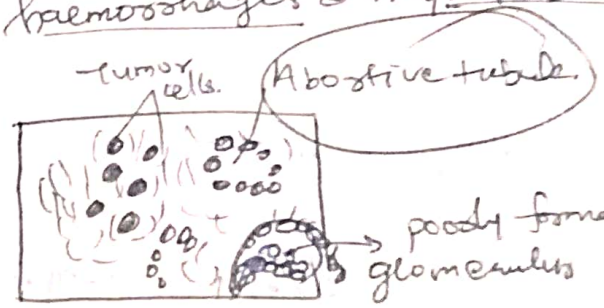
Etiology & Pathogenesis :-

- Genetic → WT1 gene mutation - located on chromosome 11p13.
  - mutation b/w β-catenin pathway & WNT (wingless) signaling pathway.

Grossly :-

- large - replaces most of the kidney
- solitary & unilateral.
- c/s → variegated appearance. Soft fish flesh - like grey white tumor with foci of necrosis and haemorrhages & myxomatous cartilaginous elements.

Microscopically



Triphasic →

- Blastemal → small, round, blue anaplastic tumor cells.
- Epithelial → Abortive tubules & poorly formed glomerular structures
- mesenchymal → elements such as smooth & skeletal muscle, fibrous tissue may be seen.

C/F

- palpable abdominal mass in a child detected by mother.

Prognosis = 95%

RCC | Wilms' tumor