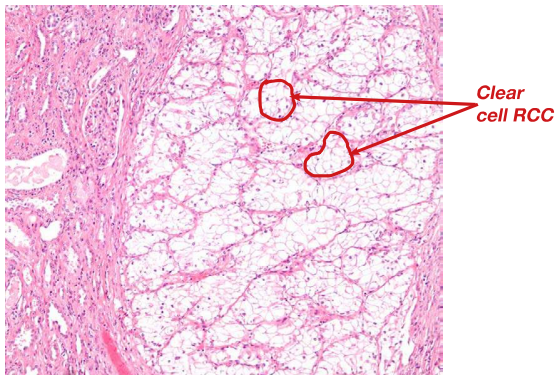
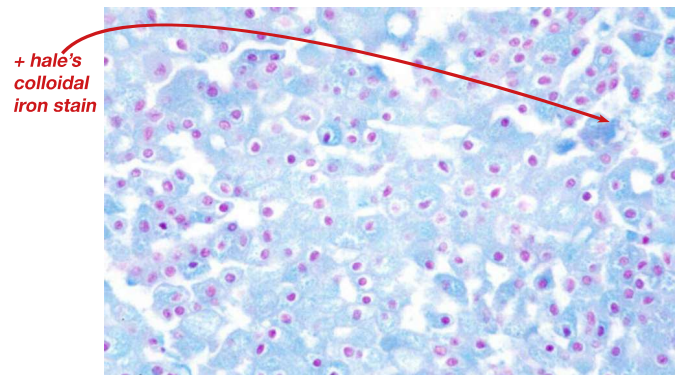


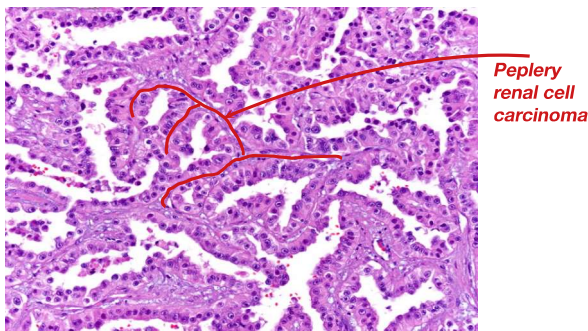
HEMATOLOGY



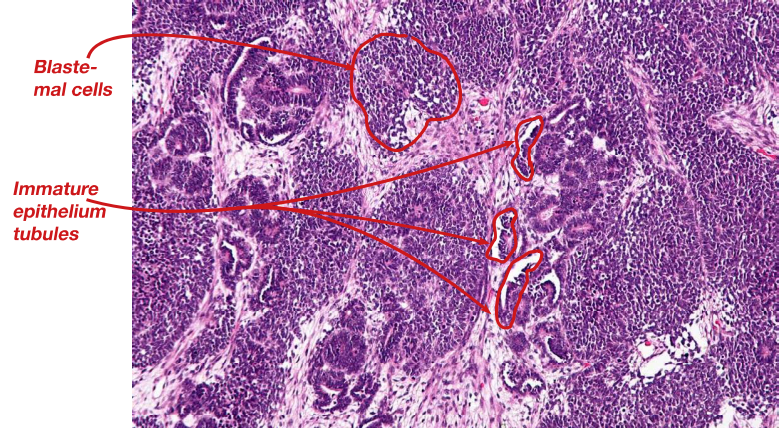
CLEAR CELL TYPE RENAL CELL CARCINOMA
showing tumor cells with clear cytoplasm



HALE'S COLLOIDAL IRON STAIN (SPECIAL STAINING)
Hale's colloidal iron stain is positive (blue) i.e. deep blue granular cytoplasmic positivity in the cytoplasm of Chromophobe RCC.

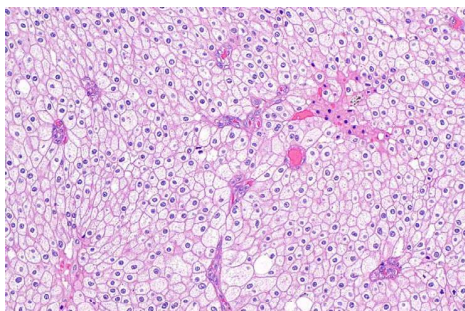


PEPLERY RENAL CELL CARCINOMA

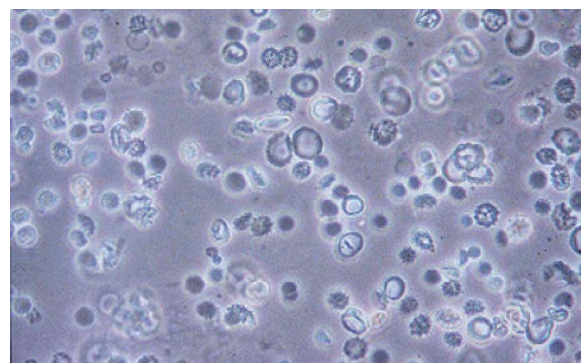


WILMS TUMOUR

- A)** Malignant small round (blue) cells twice the size of resting lymphocyte (blastema component).
- B)** Tubular structures/rosettes (epithelial component).
- C)** Loose paucicellular stroma with spindle cells (stromal component)



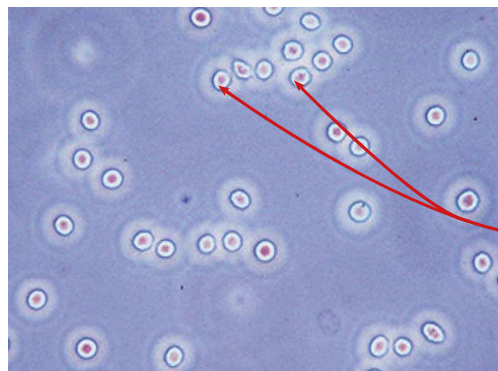
CHROMOPHOBIC RENAL CELL CARCINOMA (RCC)
Chromophobe RCC with admixture of classic (chromophobic) and eosinophilic cells. Characteristic features include perinuclear halos, nuclear "raisins", and distinct cytoplasmic borders and cytoplasm condenses around the edges, giving the appearance of thick prominent cell borders ("plant cell-like")



DYSMORPHIC RBC

These dysmorphic erythrocytes vary in size, shape, and hemoglobin content and reflect glomerular bleeding e.g. IgA nephropathy, Poststreptococcal glomerulonephritis

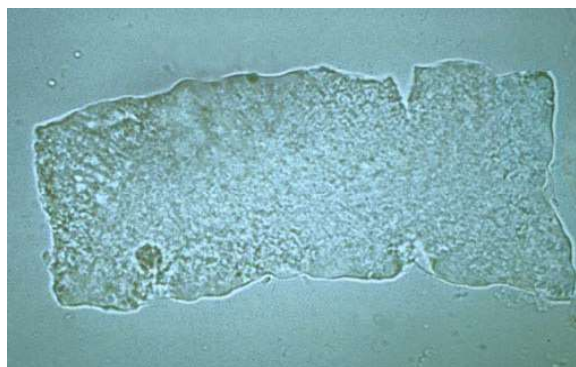
HEMATOLOGY



Isomorphic erythrocytes

ISOMORPHIC ERYTHROCYTES

These erythrocytes are similar in size, shape, and hemoglobin content. Isomorphic cells reflect nonglomerular bleeding from lesions such as calculi and papillomas or hemorrhage from cysts in polycystic renal disease.



WAXY CAST

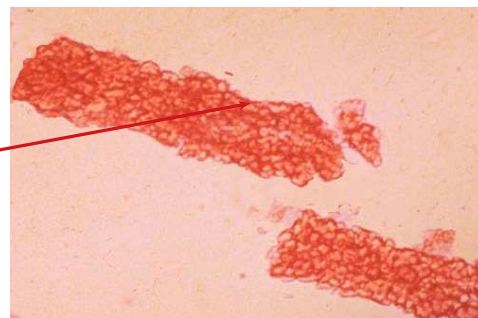
Waxy casts (renal failure casts)	<ul style="list-style-type: none"> Edges are sharp and there are "cracks" in such casts. End product of cast evolution which is suggestive of very low urine flow associated with severe, longstanding kidney disease such as renal failure. 	<ul style="list-style-type: none"> Nephrotic syndrome Chronic renal failure
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Fatty Casts

FATTY CASTS

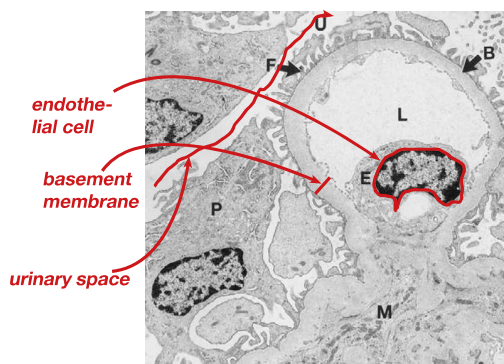
Waxy casts (renal failure casts)	<ul style="list-style-type: none"> Formed by the breakdown of lipid-rich epithelial cells, these are hyaline casts with fat globule inclusions 	<ul style="list-style-type: none"> Tubular degeneration Nephrotic syndrome Hypothyroidism
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RBC

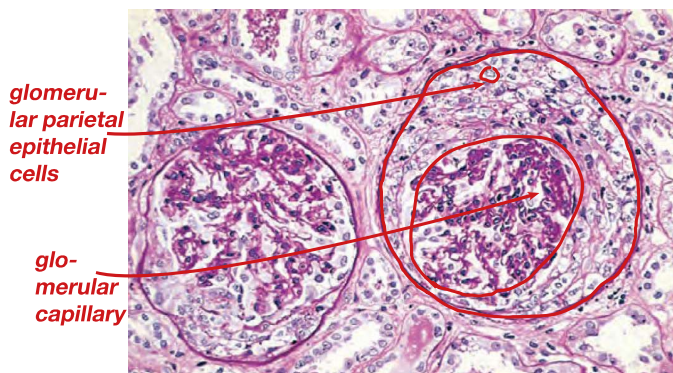
RED CASTS

Waxy casts (renal failure casts)	<ul style="list-style-type: none"> Red Blood Cells within the cast 	<ul style="list-style-type: none"> Nephritic syndrome Pyelonephritis Urinary tract injury
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NORMAL GLOMERULAR CAPILLARY (ELECTRON MICROSCOPY)

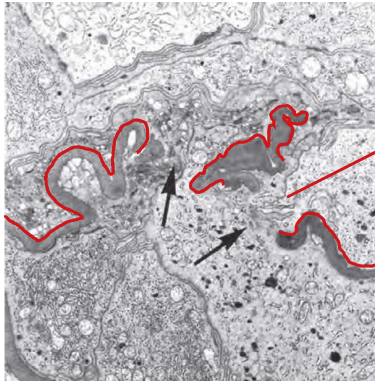
Single capillary loop showing the capillary wall portion of the **lumen (L)** is lined by a thin layer of fenestrated endothelial cytoplasm that extends out from the **endothelial cell body (E)**. Endothelial cell body is in direct contact with the mesangium, which includes the **mesangial cell (M)** and adjacent matrix. The outer aspect of the **basement membrane (B)** is covered by **foot processes (F)** from the **podocyte (P)** that line the **urinary space (U)**.



CRESCENTIC GLOMERULONEPHRITIS (PAS STAIN)

Showing collapsed glomerular tufts and the crescent-shaped mass of proliferating parietal epithelial cells and leukocytes internal to Bowman capsule.

HEMATOLOGY

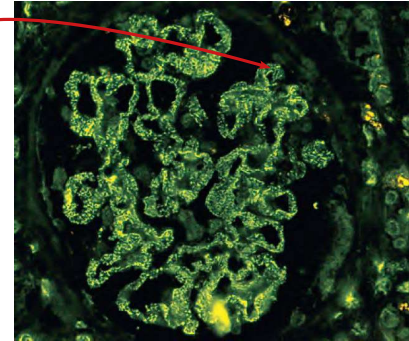


Rupture of basement membrane

CRESCENTIC GLOMERULONEPHRITIS

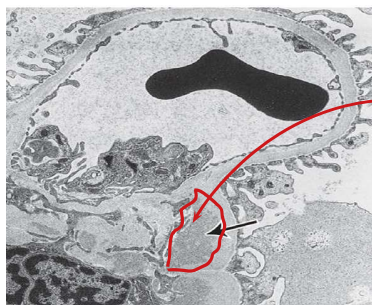
Electron micrograph showing characteristic wrinkling of glomerular basement membrane with focal disruptions (arrows).

RPGN-II Granular immunofluorescence



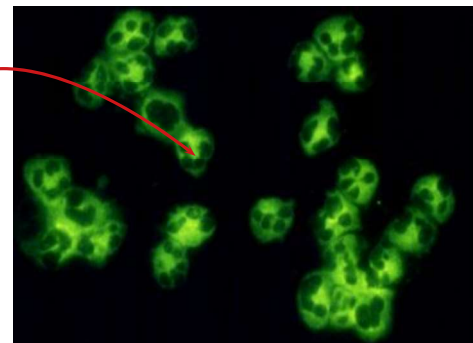
GRANULAR IMMUNOFLORESCENCE

Hyaline casts (Image)	<ul style="list-style-type: none"> Formed by Tamm-Horsfall mucoprotein. Hyaline cast has faintly visible outlines. The contours are smooth and the matrix is amorphous. 	<ul style="list-style-type: none"> Normal individuals Heavy exercise Dehydration
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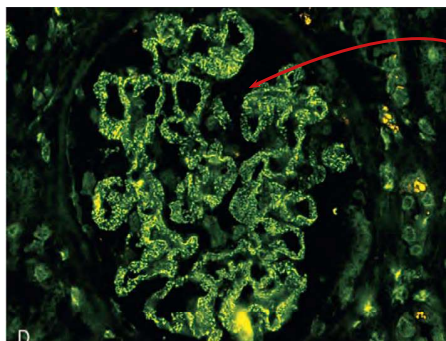
Homogeneous mass

C-Anca



HOMOGENEOUS AND LINEAR PATTERN IN IMMUNOFLORESCENCE SEEN IN GOOD PASTERURE SYNDROME

C-ANCA & P-ANCA IN GRANULAR IMMUNOFLORESCENCE



Granular immunofluorescence

P- Anca



WIRE LOOP LESION

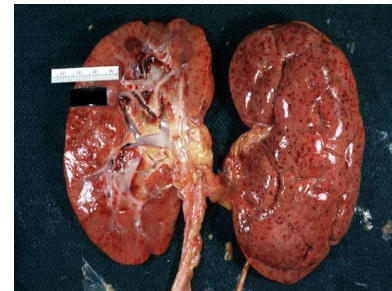
HEMATOLOGY



Fatty Casts

ALPORT SYNDROME

The lamina densa of the glomerular basement membrane is laminated (arrows) rather than forming a single dense band.



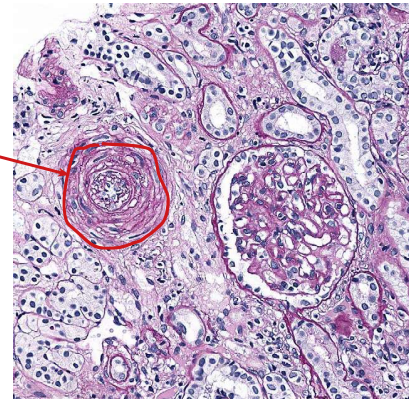
MALIGNANT HTN (FLEA BITTEN KIDNEY)



Leathery granularity

BENIGN NEPHROSCLEROSIS (GROSS APPEARANCE)

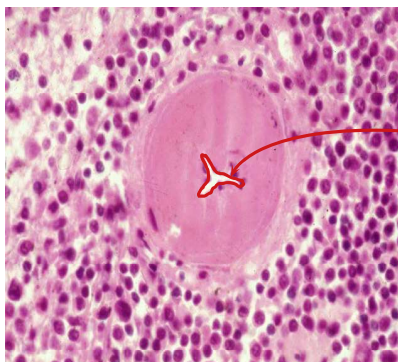
Showing cortical surface with fine and leathery granularity of the surface



onion skin appearance

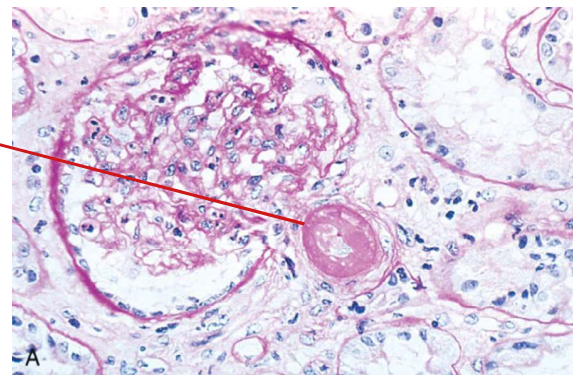
MALIGNANT HTN (-ONION-SKIN)

Thickening of the renal arteriolar wall associated with a hyperplastic arteriosclerosis (hyperplastic arteriolitis). This arteriole has an "onion skin" appearance due to endothelial and muscular hyperplasia.



Hyaline

HYALINE

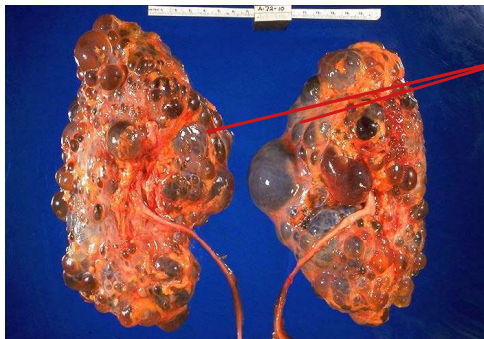


Fibrinoid necrosis

FIBRINOID NECROSIS (MALIGNANT HYPERTENSION)

Fibrinoid necrosis in the arteriole showing normal muscle layer of the media has been replaced by the fibrinoid material.

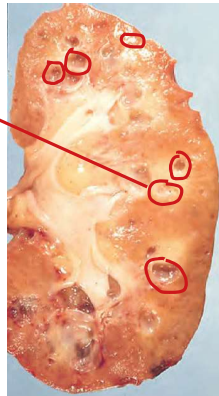
HEMATOLOGY



Autosomal dominant polycystic kidney disease.

AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE.

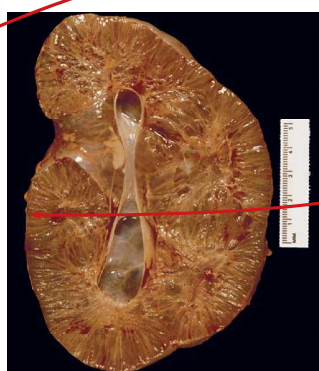
The kidneys are enlarged and studded with multiple fluid-filled structures. Renal parenchyma is almost entirely replaced by cysts of varying size.



Cortical systic tubules and interstitial
Salt losing nephritis

MEDULLARY CYSTIC DISEASE

Cut section showing cysts at the corticomedullary junction and in the medulla.

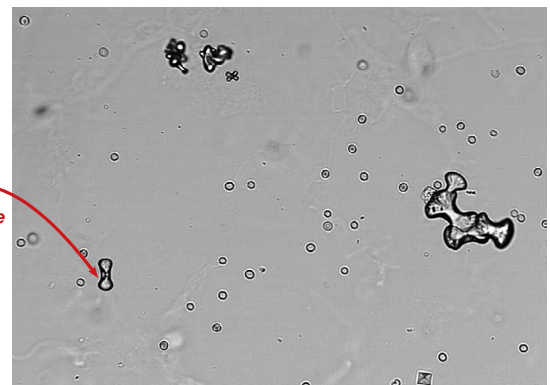


External surface

ARPKD

AUTOSOMAL RECESSIVE POLYCYSTIC KIDNEY DISEASE.

The dilated collecting ducts (Both cortical and medullary) are arranged radially and the external surface is smooth.



dumbbell shape
calcium oxalate monohydrate

GRANULAR IMMUNOFLORESCENCE

Calcium oxalate monohydrate	crystals vary in size and may have a <i>spindle, oval, or dumbbell shape</i>	Urolithiasis. Hypercalciuric or hyperoxaluric disorders. <i>Ethylene glycol poisoning.</i>
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cortical

medullary
cystic lesion

medullary
sponge kidney disease

MEDULLARY SPONGE KIDNEY

Showing cysts involving the inner medullary and papillary regions in this kidney with normal cortex

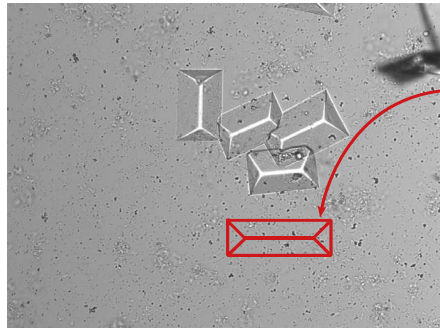
calcium oxalate dihydrate



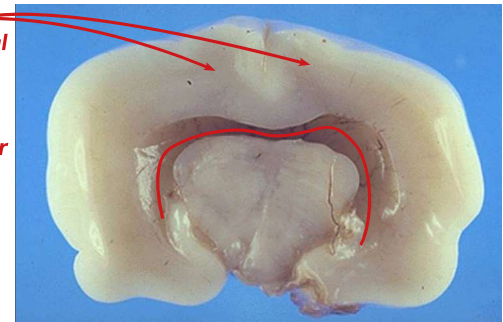
ALCIUM OXALATE DIHYDRATE

Calcium oxalate monohydrate	small crystals that are square with cross-striations, resembling an <i>"ENVELOPE"</i> .	High dietary oxalate ingestion. Ethylene glycol poisoning. Nephrolithiasis.
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HEMATOLOGY



struvite stones



No L/R cerebral hemisphere

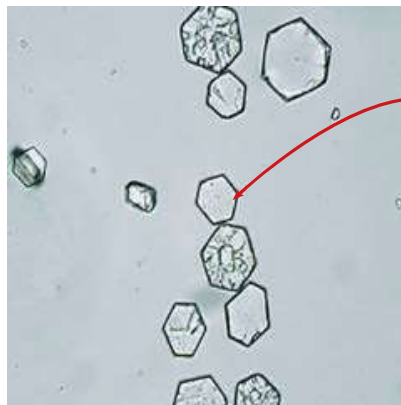
monoventricular cavity

STRUVITE CRYSTALS

Waxy casts (renal failure casts)	Three-dimensional prism-like crystals ("coffin lids")	UTIs caused by urea-splitting bacteria.
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A) HOLOPROSENCEPHALY

A coronal section of the brain showing **Forebrain of the embryo fails to develop** into two cerebral hemispheres (holoprosencephaly) with monoventricular cavity



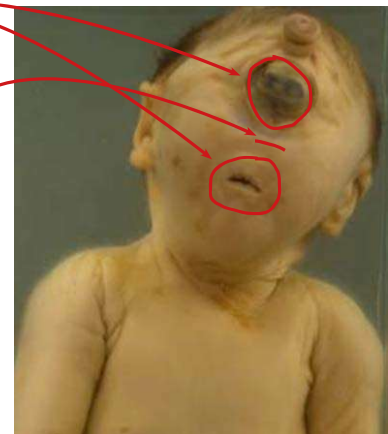
Cystine type

CYSTINE CRYSTALS

CYSTINE CRYSTALS	Hexagonal shape with irregular sides	Cystinuria
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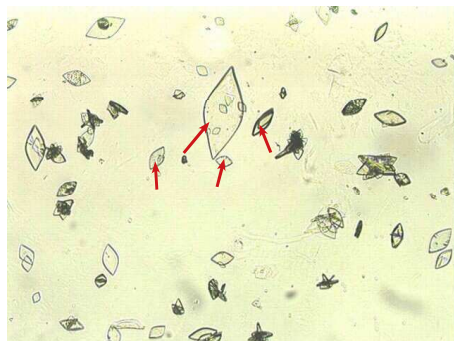
CYCLOPIA

Nose is absent



B) CYCLOPIA

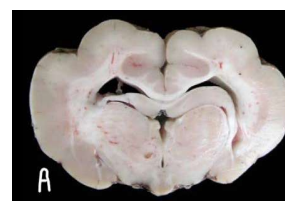
Affected fetuses and neonates typically have severe facial defects like **CYCLOPIA**. Associated with **trisomy 13** and **maternal diabetes mellitus**.



Uric acid crystals

URIC ACID CRYSTALS

URIC ACID CRYSTALS	Usually lozenges but varying shape, yellow-tinged	Acute uric acid nephropathy as part of tumor lysis syndrome, and
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agyria



N= Brain

A) LISSENCEPHALY VS B) NORMAL BRAIN

Absence of cortical gyri in brain .