

CASE DISCUSSIONS IN UROPATHOLOGY



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CASE NO: 1

Clinical history:

- A 45 year old man presented with complaints of left loin pain which was non-radiating with intermittent fever for the past six months

Clinical examination:

- Smooth non-tender mass in the left flank

INVESTIGATIONS:

1. Abdominal ultrasonography showed a multicystic lesion in the left kidney
2. CECT of the abdomen showed a heterogeneously hypodense multicystic lesion of 17 x 9cm with calcified thick and irregular walls, with small multiple daughter cysts within the lesion



Complete blood picture shows:

1. Mild eosinophilia
2. Raised ESR

Surgery:

Laparoscopic left sided nephrectomy was done

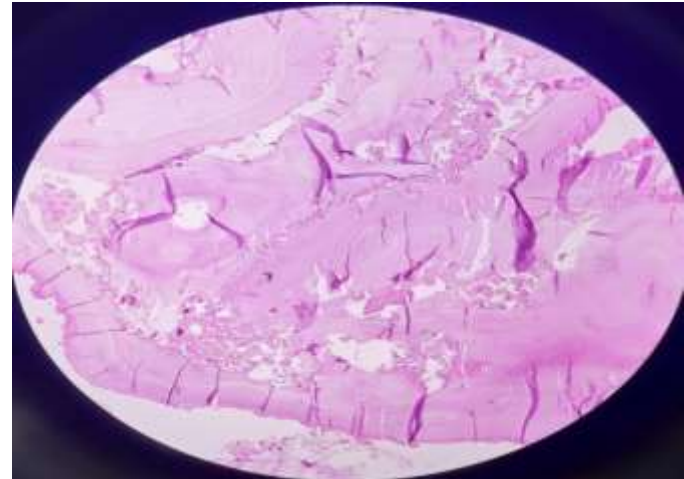
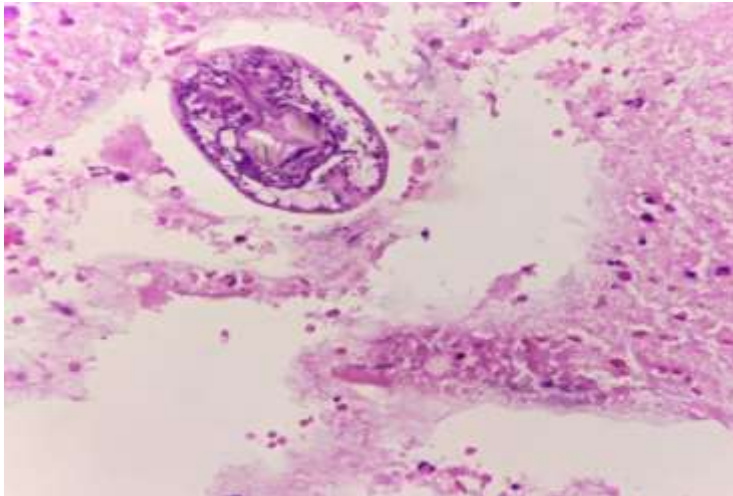
Gross findings

- Left nephrectomy specimen measuring 12x10x9 cms along with ureter measuring 3cms
- Cut section shows multiple cysts noted in the renal parenchyma



MICROSCOPY FINDINGS

- Renal parenchyma with few tubules showing thyroidisation and chronic mononuclear inflammatory cell collection
- Thickened hyalinised cyst wall with lamellated membrane and brood capsules



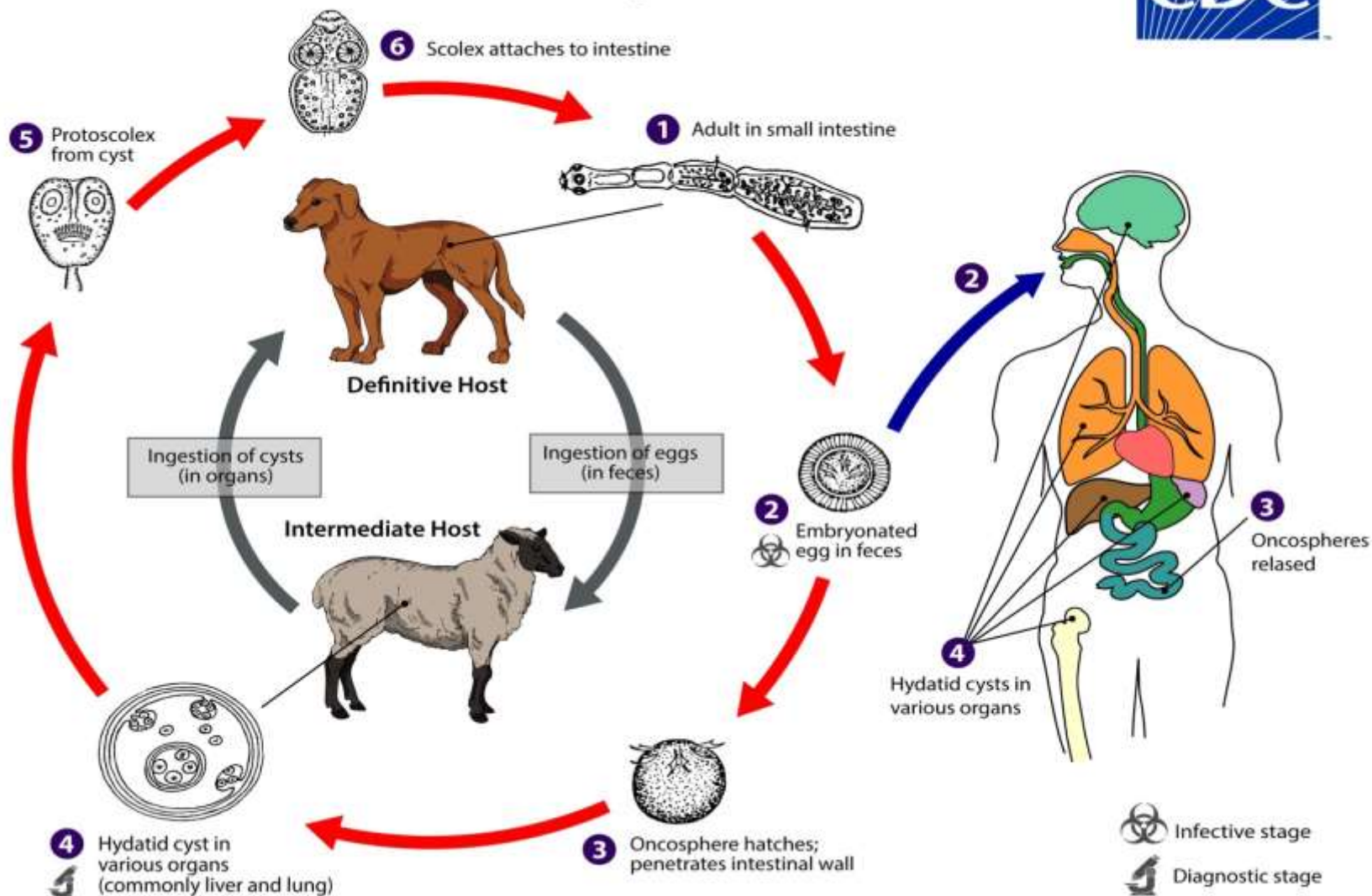
DIAGNOSIS

Left sided Renal hydatid cyst

RENAL HYDATID CYST

- Caused by *Echinococcus granulosus*
- Definitive host is dog, intermediate host is sheep
- When transmitted to humans it can affect various organs like liver, lung, brain and urinary tract
- Kidney is the most commonly affected organ in the urinary tract

Cystic Echinococcosis *Echinococcus granulosus sensu lato*



- Benign disease remains asymptomatic for many years
- Most common clinical presentation is hematuria and / hydatiduria

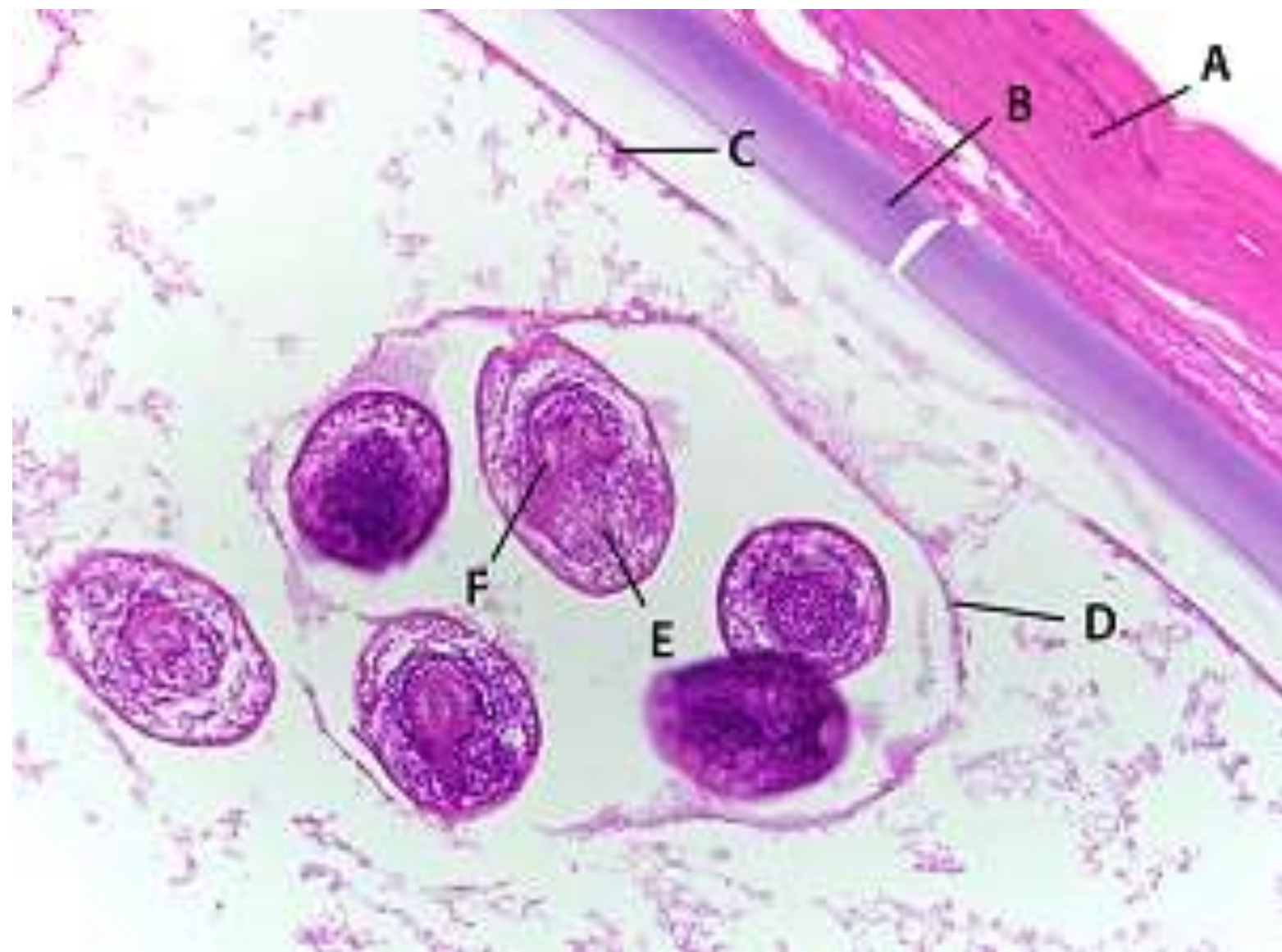
DIAGNOSIS:

- Requires high index of suspicion
- Peripheral eosinophilia
- Positive ecchinococcal antigen immunofluorescence
- Hemagglutination tests
- H/O exposure in an endemic areas

MORPHOLOGY

Cyst is composed of 3 layers

1. Outermost *pericyst* is fibrous
2. Middle *ectocyst* which is laminated, hyaline, acellular
3. Inner *endocyst* is germinative layer consists of daughter cyst and brood capsules with scolices



DIFFERENTIAL DIAGNOSIS

1. Multicystic renal cell carcinoma:

- Variably sized cyst with thin septae lined by clear cells with low nuclear grade

2. Multicystic nephroma:

- Cysts are lined by epithelium of variable morphology with hypo/hypercellular stroma
- Stroma composed of closely packed spindle cells with areas of calcifications, multinucleated giant cells

CASE NO:2

Case history:

- A 35 year old *female* presented with swelling in the region of external urethral orifice, gradually increasing in size since 6 months along with hematuria, dysuria

Clinical examination:

- Firm, mobile, nontender mass sized 3cmx2.5cm located just proximal to the urethral meatus *anteriorly*

➤ Investigations:

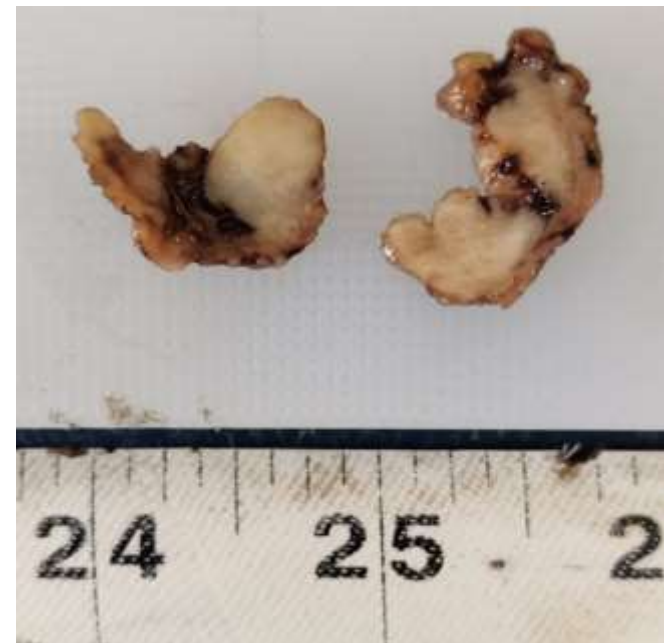
- Ultrasound abdomen and pelvis revealed a normal genitourinary system
- Uroflometry was normal
- Cystourethroscopy showed a mass arising from the anterior wall of the urethra, extending 2cms *proximally* from the meatus

➤ Surgery:

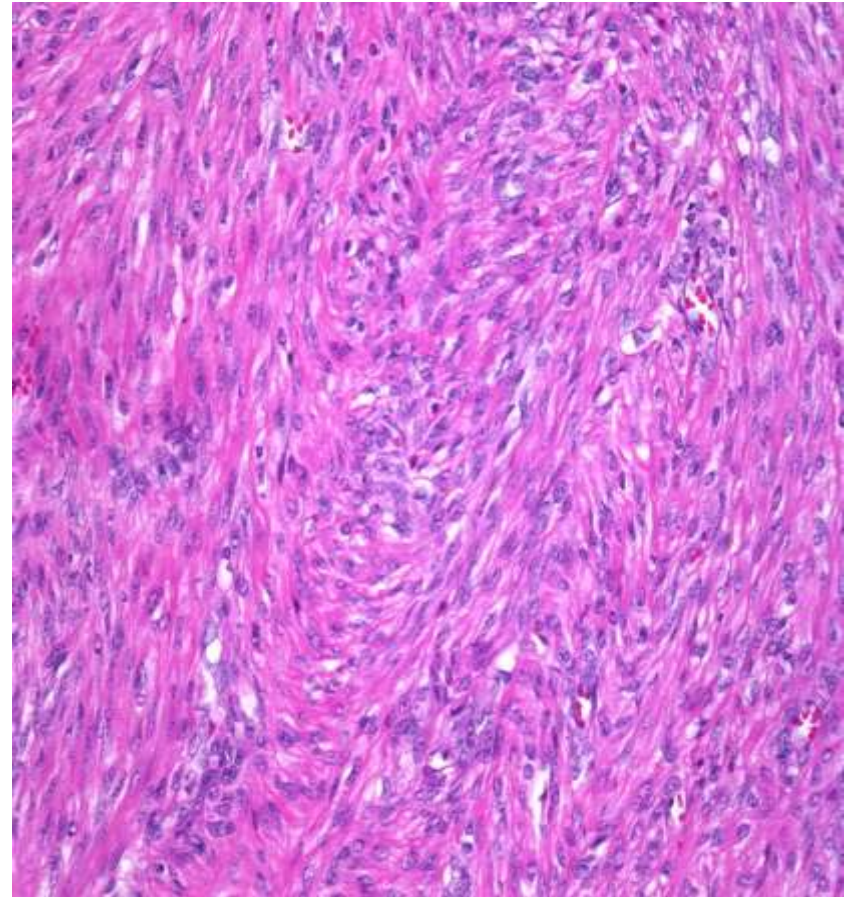
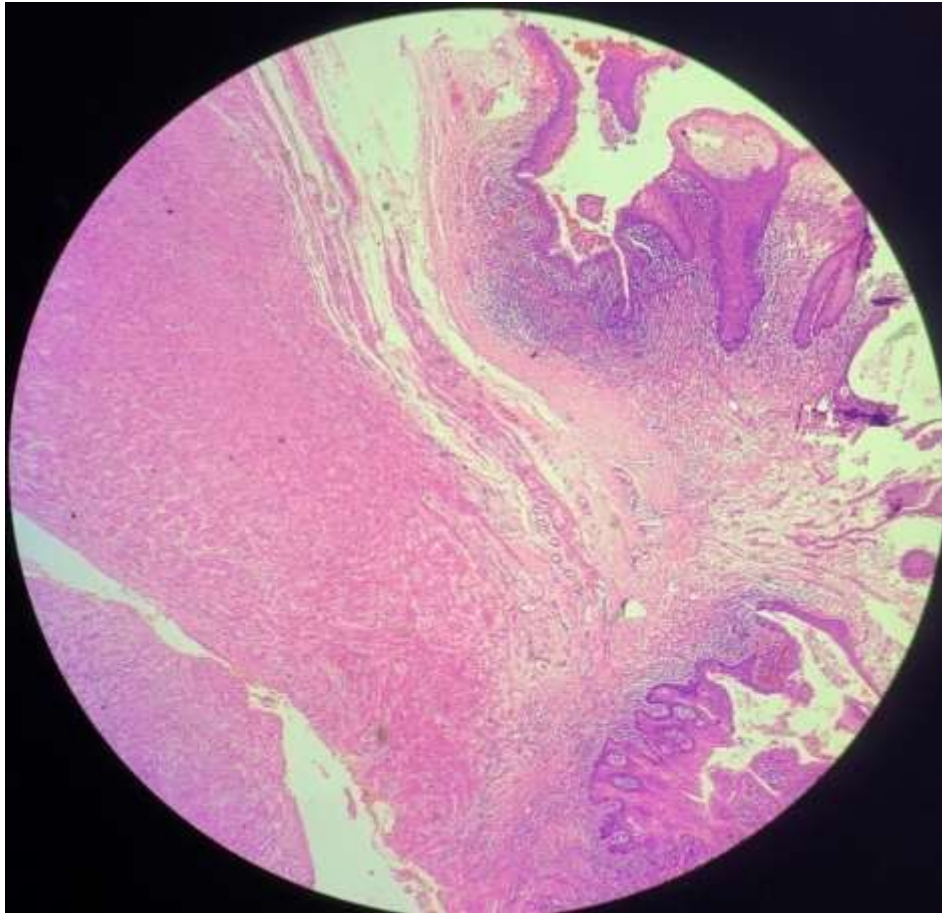
- The mass was completely excised under spinal anaesthesia

Gross findings:

- Pedunculated growth of urethral wall measuring 3cmx1.5cmx1cm



Microscopy:



DIAGNOSIS

URETHRAL LEIOMYOMA

URETHRAL LEIOMYOMA

- Leiomyoma of urethra is a rare benign mesenchymal tumor
- Occur in 1 among 1000 women of reproductive age
- They constitute 5% of all paraurethral masses
- Most common site of presentation is *proximal urethra*
- Distal urethral involvement is very rare

- The tumor has been reported to enlarge during pregnancy and shrink after delivery
- Diagnosis of such tumors is primarily based on clinical history, physical examination and imaging techniques
- The final diagnosis should be made based on histopathological report

Types of leiomyoma:

1. Conventional

2. Subtypes:

- Cellular
- Leiomyoma with bizarre nucleus
- Lipoleiomyoma
- Epitheloid
- Myxoid
- Dissecting
- Diffuse leiomyomatosis

CASE NO:3

- A 72 year male complaints of lower abdominal pain since 2 months, associated with gross hematuria
- **On examination:**
- P/A: soft, non tender, bowel sounds present, external genitalia: meatus -normal

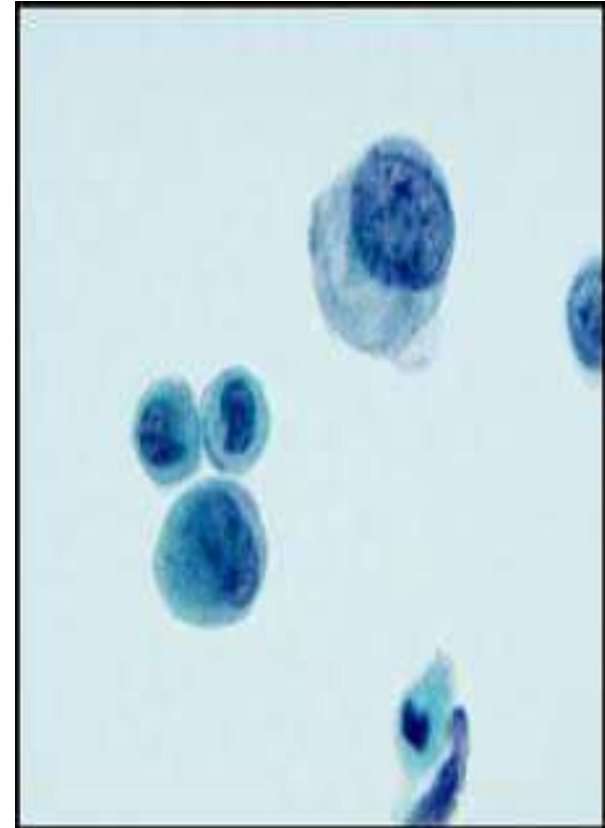
INVESTIGATIONS:

Urine cytology:

- Positive for atypical urothelial cells

Ultrasound abdomen and pelvis:

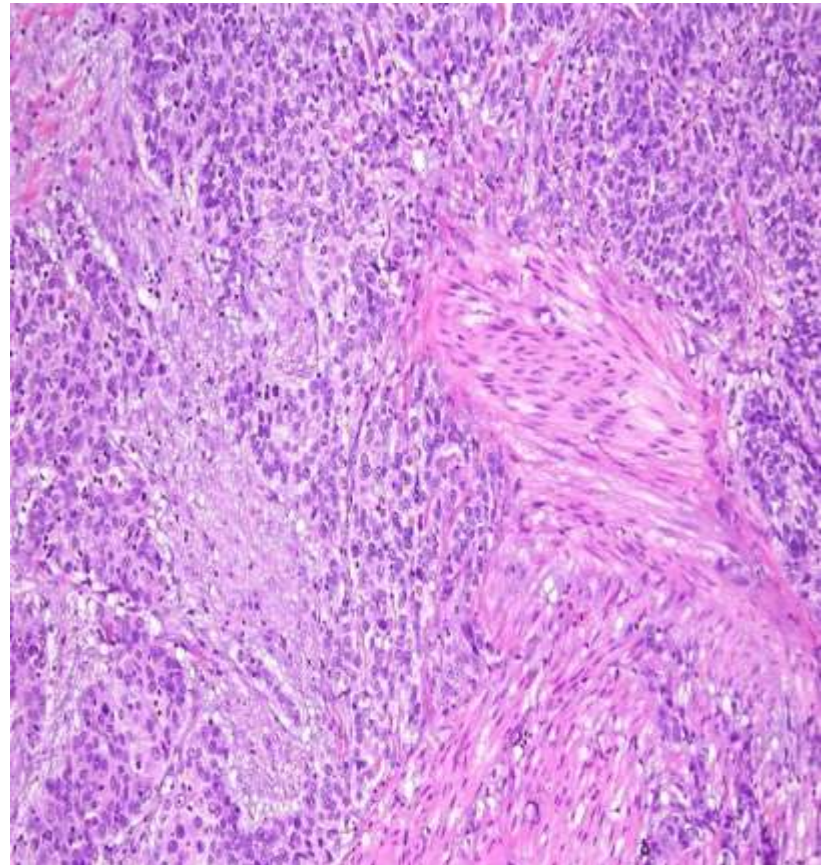
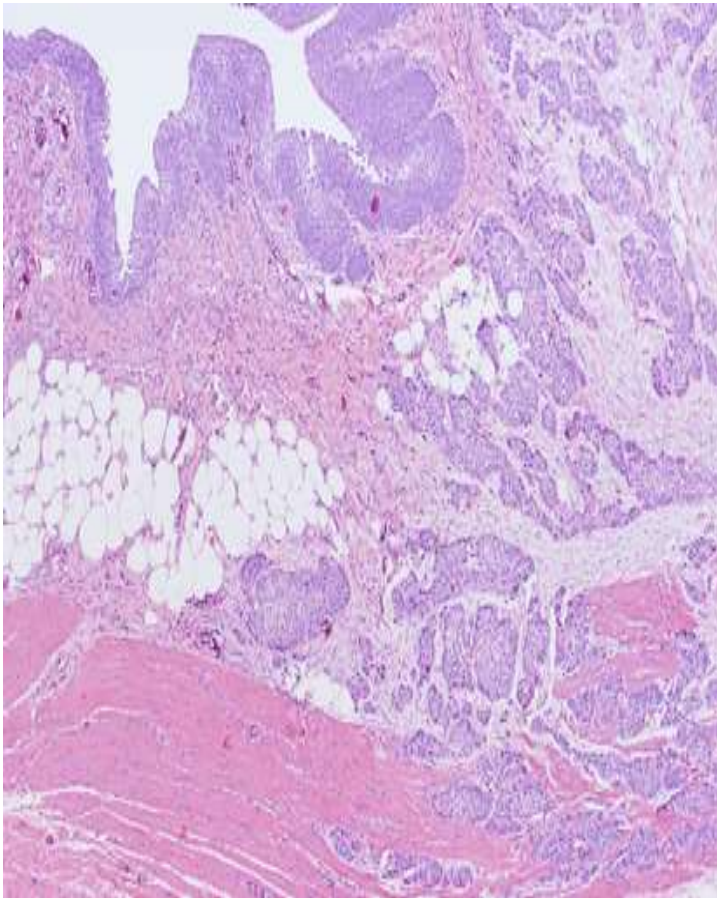
- Gross hydroureteronephrosis



Gross:

Bladder and ureter biopsy

Microscopy:



DIAGNOSIS

INFILTRATING UROTHELIAL CARCINOMA

UROTHELIAL NEOPLASMS

RISK FACTORS:

1. Smoking
2. Environmental exposure
3. Occupational exposure
4. Schistosoma hematobium
5. Congenital bladder exstrophy

Localization:

- 90% arises in bladder
- Among bladder lateral wall involvement is most common, anterior wall involvement is rare

➤ Urethral involvement is rare

➤ Can cause hydronephrosis

➤ IMAGING:

➤ cystoscopy

➤ Bimanual examination under anaesthesia

➤ Biopsy

➤ Transurethral resection

Non invasive urothelial lesions

- Urothelial dysplasia
- Urothelial papilloma
- Inverted urothelial papilloma
- Urothelial carcinoma in situ
- Papillary urothelial neoplasm of low malignant potential
- Non invasive papillary urothelial carcinoma-low grade and high grade

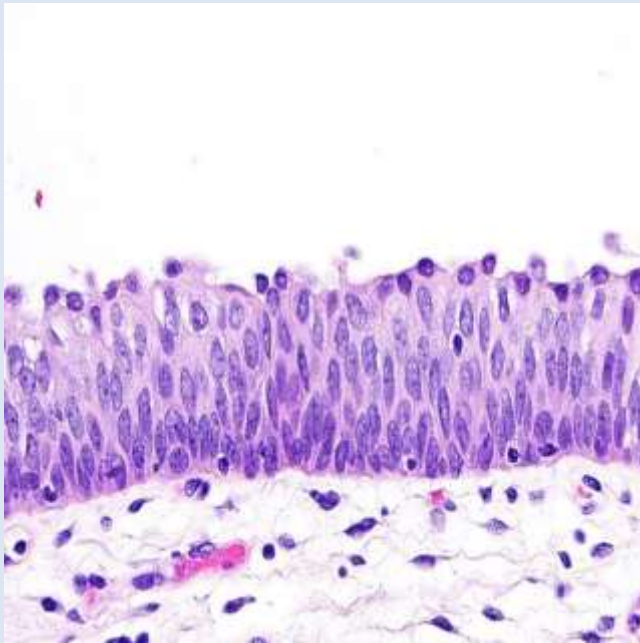
INFILTRATING UROTHELIAL

CARCINOMA

- Nested, including large nested
- Microcystic
- Micropapillary
- Lymphoepithelioma like
- Plasmacytoid/ signet ring cell/ diffuse
- Sarcomatoid
- Giant cell
- Lipid rich
- Clear cell
- Poorly differentiated

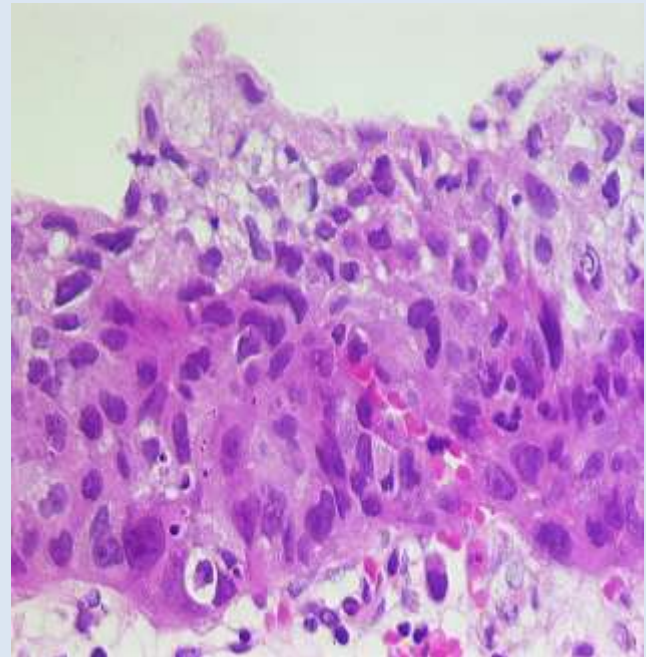
1.UROTHELIAL DYSPLASIA

Defined as degree of atypia
believed to be definitely
preneoplastic yet not sufficient
for diagnosis of CIS



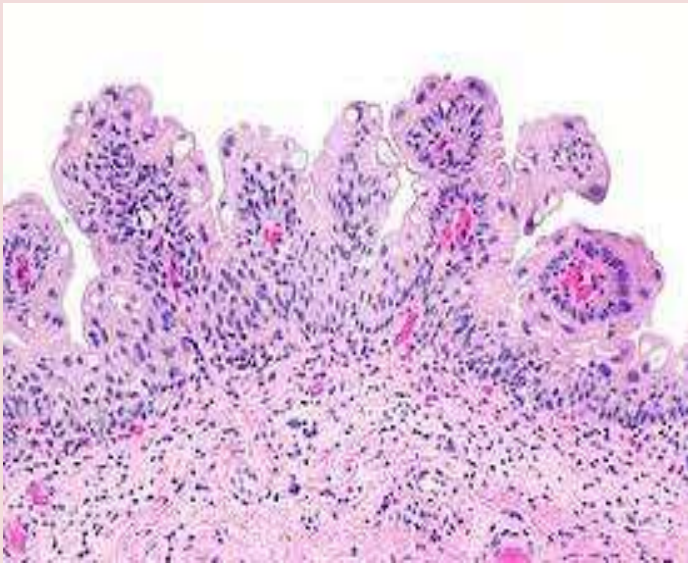
2. Urothelial carcinoma in situ

Flat lesion in which surface
epithelium contains cytologically
malignant cells



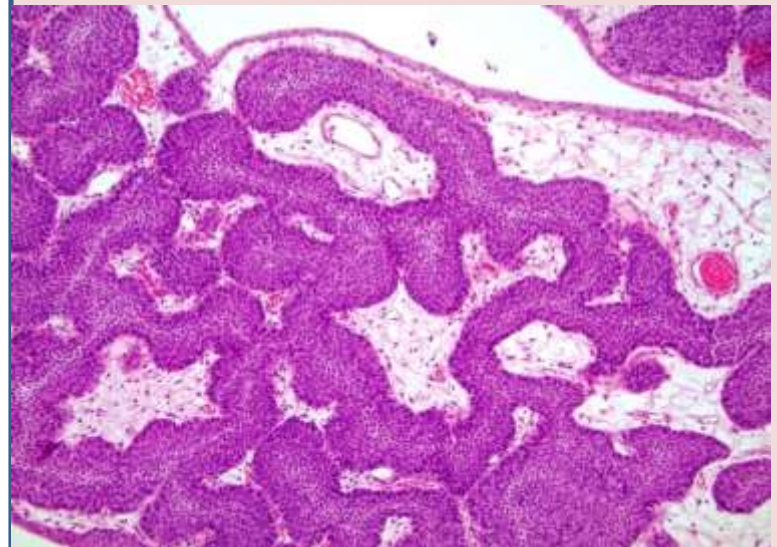
3.UROTHELIAL PAPILLOMA

Delicate fibrovascular cores with exophytic pattern lined by normal appearing urothelium with out atypia



4.INVERTED PAPILLOMA

- Benign urothelial tumor characterized by inverted growth pattern with no to minimal cytologic atypia
- May invaginate extensively into lamina propria but not into muscular wall

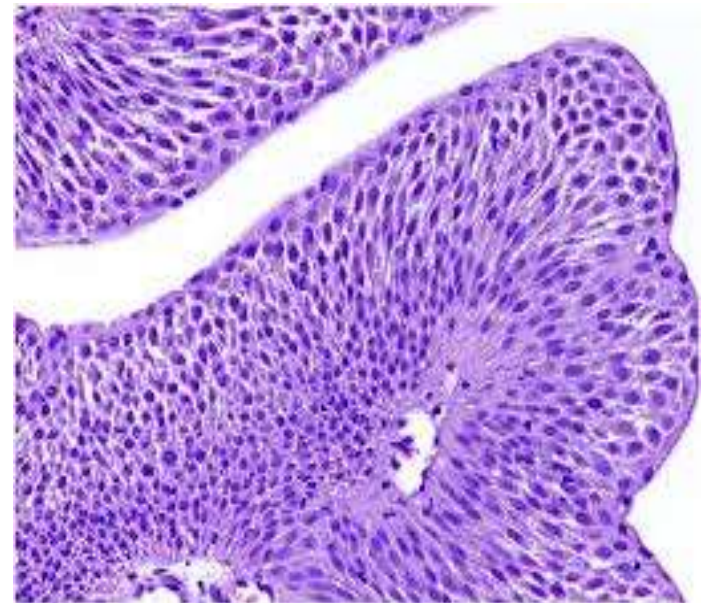


5. Papillary urothelial neoplasm of low malignant potential

- Papillae are lined by *multilayered epithelium* thicker than papilloma
- Cell density appears to be increased
- Polarity is preserved
- Minimal or absent cytological atypia

Differential diagnosis:

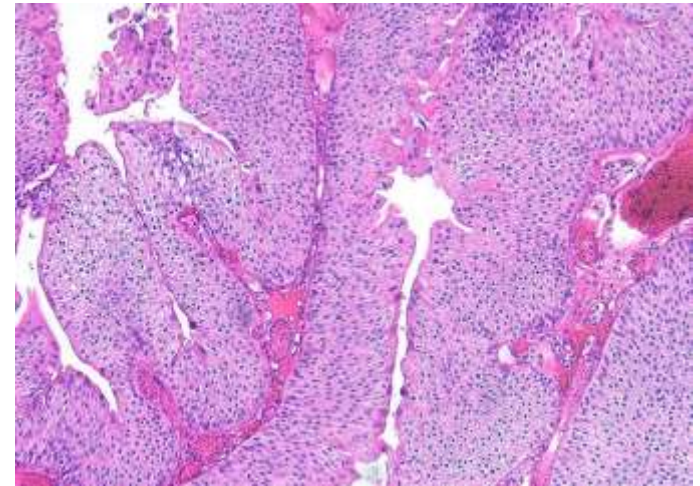
- Urothelial papilloma
- Non invasive low grade papillary urothelial carcinoma



6. Non invasive papillary urothelial carcinoma

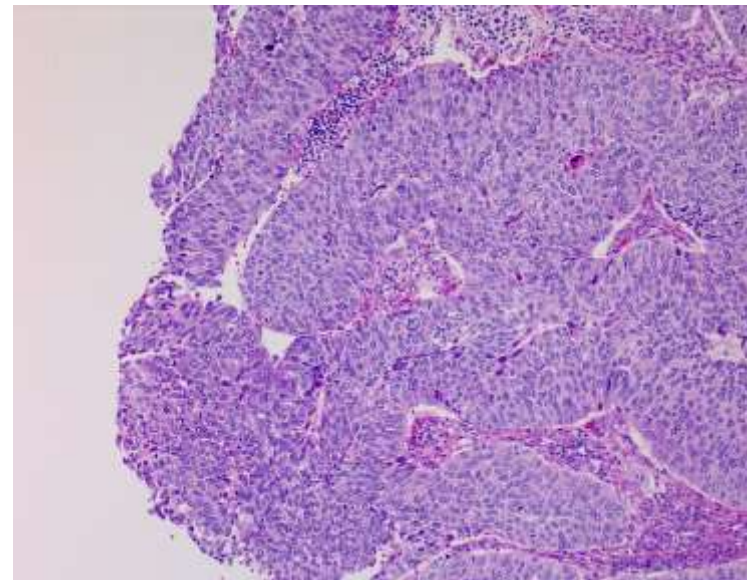
Low grade:

- Papillae lined by multilayered epithelium with frequent branching
- Mild anisocytosis and nuclear atypia



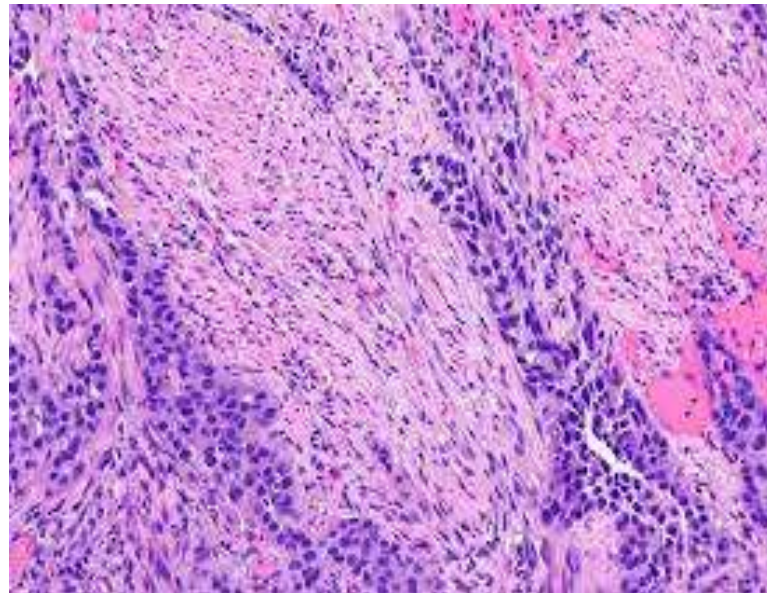
High grade:

- Moderate to marked cytologic pleomorphism
- Mitotic figures are frequent



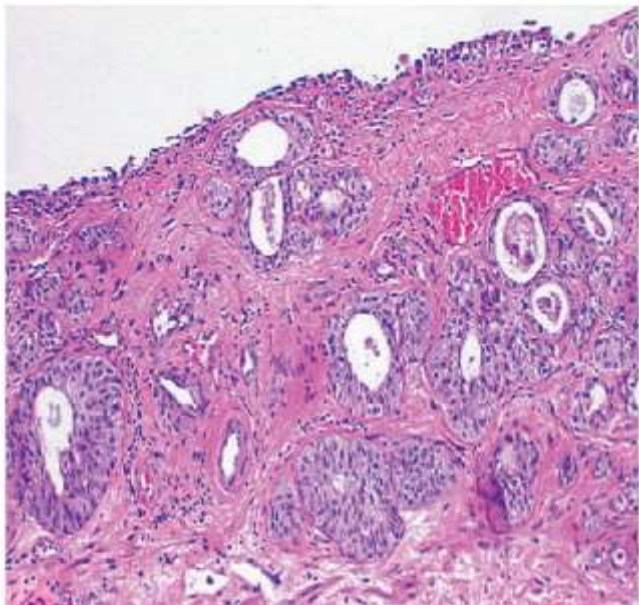
Invasive urothelial carcinoma

- Defined as urothelial tumor that invades beyond the basement membrane
- Irregular infiltration to level of muscularis propria is diagnosis of malignancy



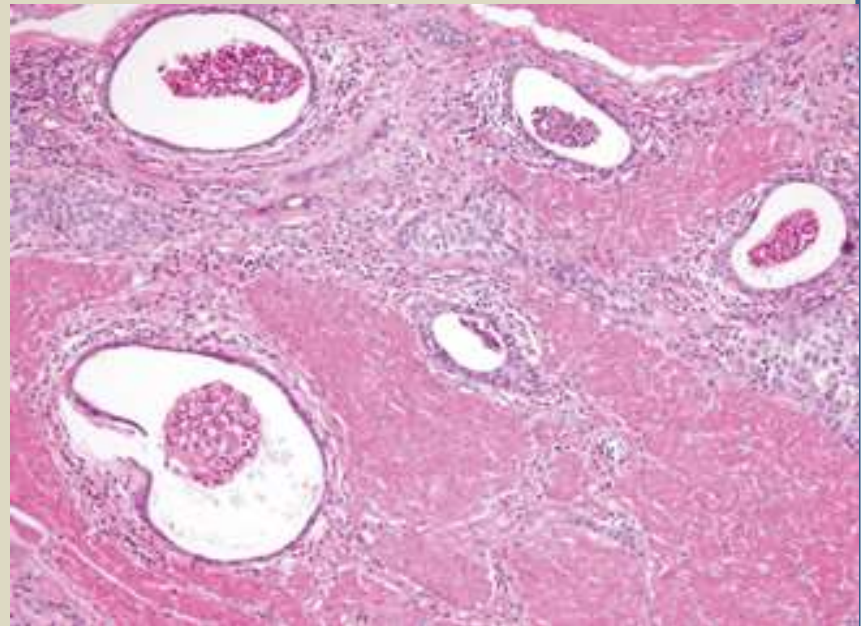
NESTED VARIANT

- Deceptively bland
- Irregular distribution of bland urothelial cells in suburothelial tissues
- Worse prognosis



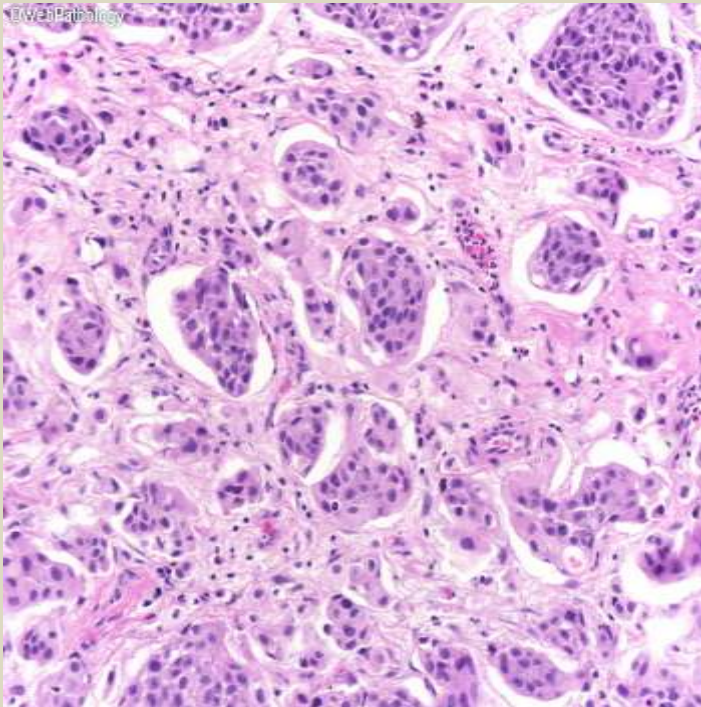
MICROCYSTIC VARIANT

- UC with striking cystic pattern in which the cysts contain necrotic material or pale pink secretions
- Favourable prognosis



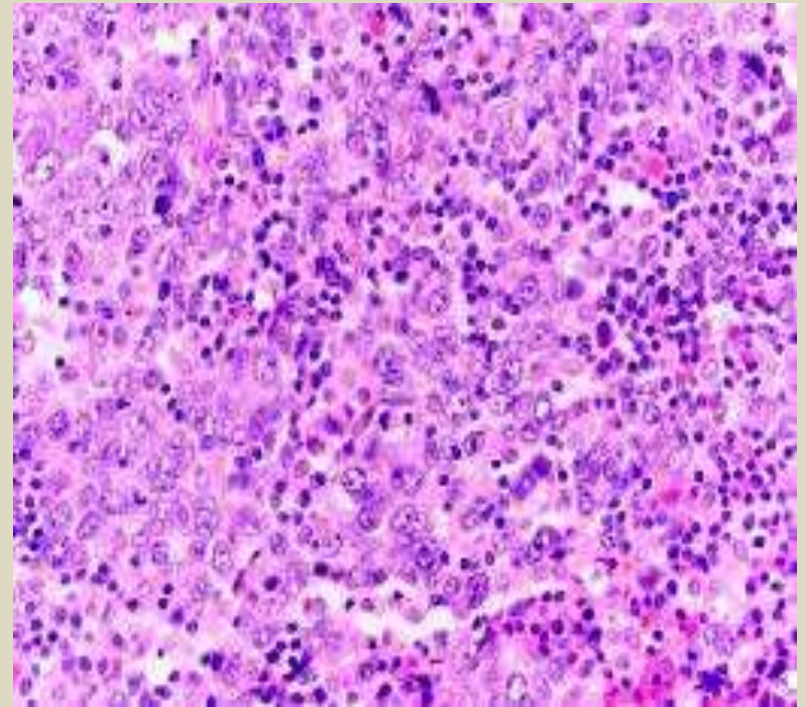
MICROPAPILLARY VARIANT

- Characterized by back to back retraction spaces and multiple epithelial aggregates in a single retraction space
- Favourable prognosis



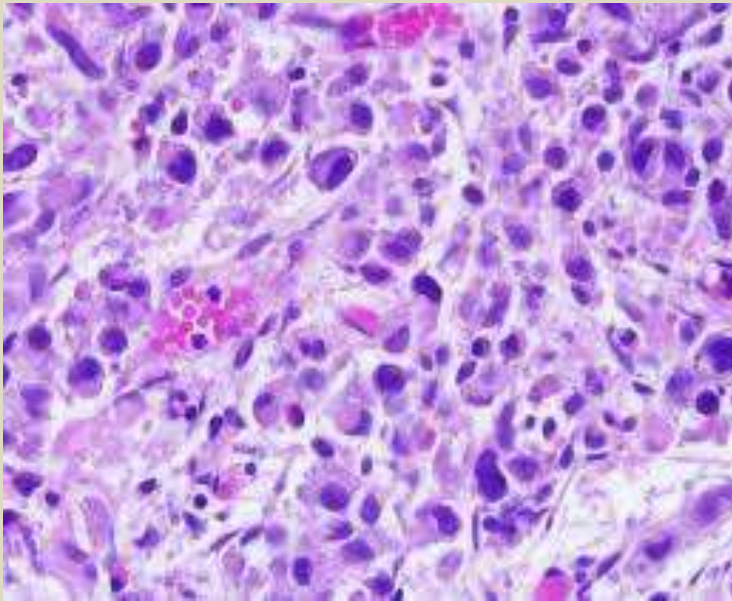
LYMPHOEPITHELIOMA LIKE VARIANT

- Appearance that of a non keratinising carcinoma associated with heavy inflammatory infiltrate
 - Favourable prognosis



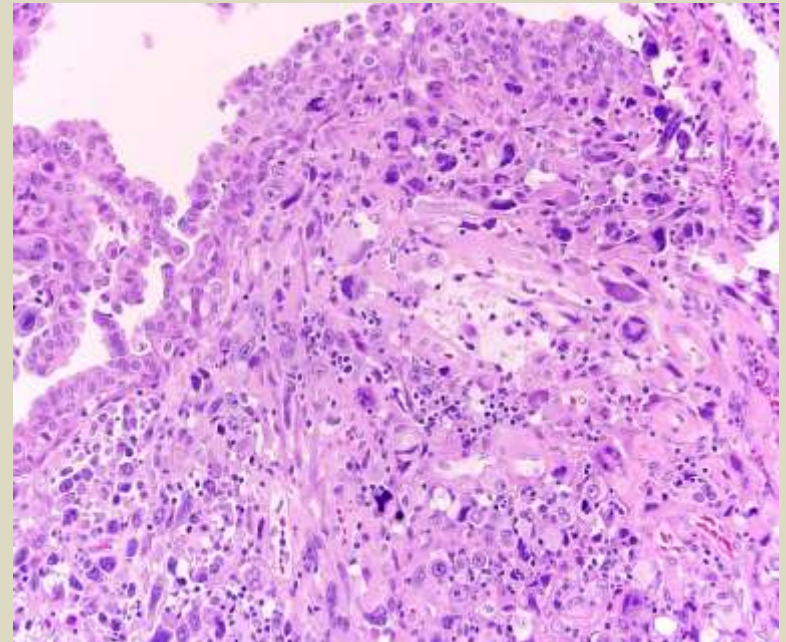
PLASMACYTOID **VARIANT**

- Monomorphic round neoplastic cells are discohesive, grow singly or in clusters
- Poor prognosis



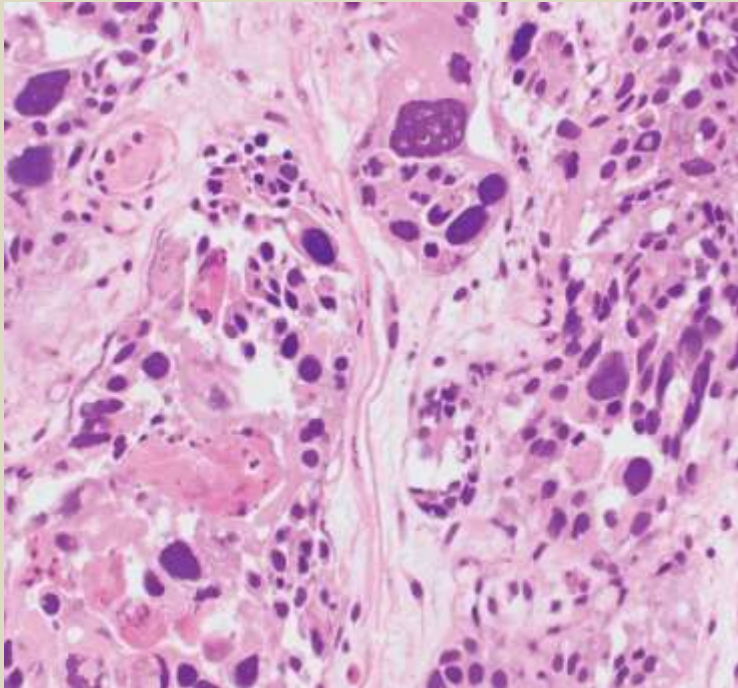
SARCOMATOID **VARIANT**

- High grade neoplasm of the bladder in which a malignant epithelial component coexist with areas having spindled sarcoma like appearance
- Poor prognosis



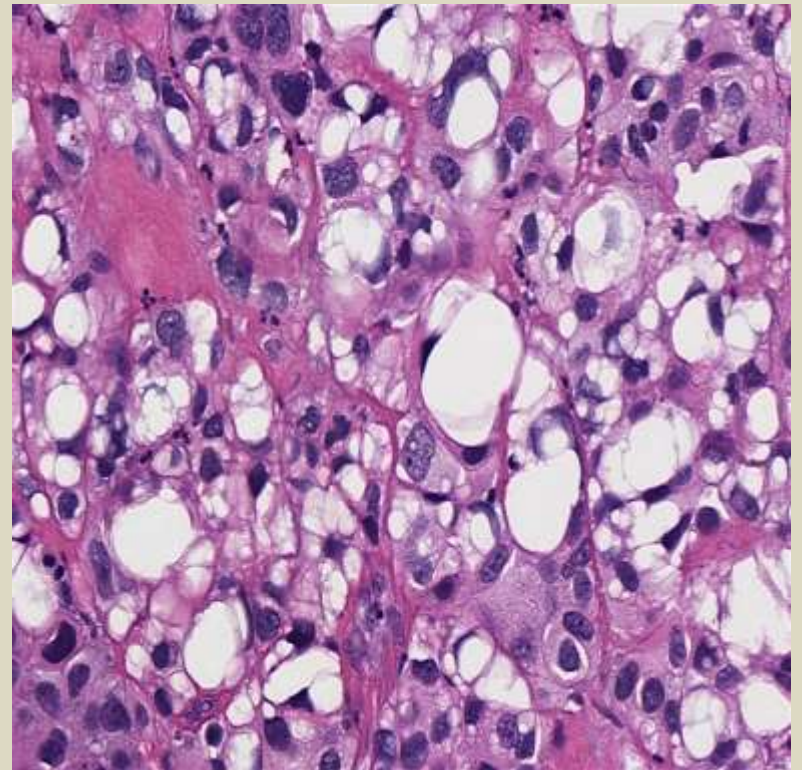
GIANT CELL VARIANT

- Biphasic appearance of the tumor, consisting of sheets and nodules of mononuclear cells and scattered osteoclast like giant cells, poor prognosis



LIPID CELL VARIANT

- It consists of infiltrating nests of epithelioid cells with abundant vacuolated cytoplasm
 - Presents at higher stage
 - Poor prognosis



CASE NO:4

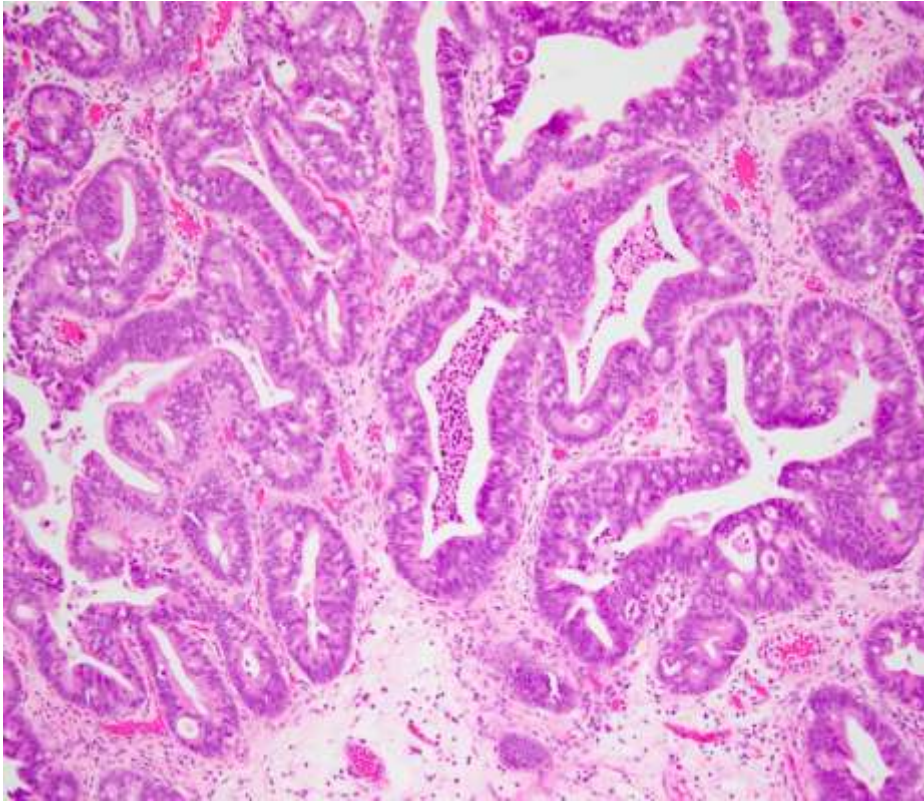
Clinical history:

- A 30 year old male patient came with the complaints of pain abdomen, hematuria since 5 days
- Associated with increased frequency of micturition
- H/o of similar complaints in his grand father

INVESTIGATIONS:

- **CECT** shows a large 3.4x3.7x3.4cm sized polypoidal intraluminal lesion noted in right anterior fundal region of bladder

Microscopy:



Neoplastic glands are lined by pleomorphic mucin producing pseudostratified columnar epithelium with central necrosis

DIAGNOSIS

**ADENOCARCINOMA OF BLADDER (ENTERIC
TYPE)**

Adenocarcinoma of bladder

- Adenocarcinoma is a malignant neoplasm derived from the urothelium with histologically pure glandular phenotype
- Bladder adenocarcinomas constitute 2% of the malignant tumors of the bladder

Etiology:

- Long standing intestinal metaplasia particularly in patients with bladder exostrophy
- Chronic irritation and obstruction
- Non functioning bladder
- schistosomiasis

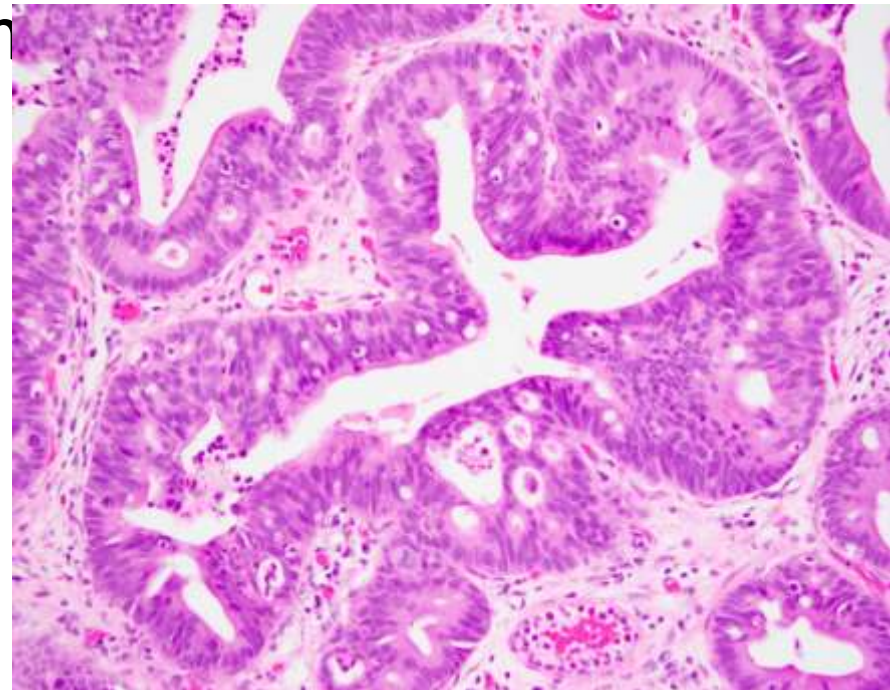
- Hematuria is most common symptom and associated with irritative voiding symptoms
- Mucusuria occurs in some patients
- Grossly cases appear as fungating masses that ulcerate the mucosa and invade the bladder wall

Adenocarcinoma variants:

1. Enteric
2. Mucinous
3. Mixed

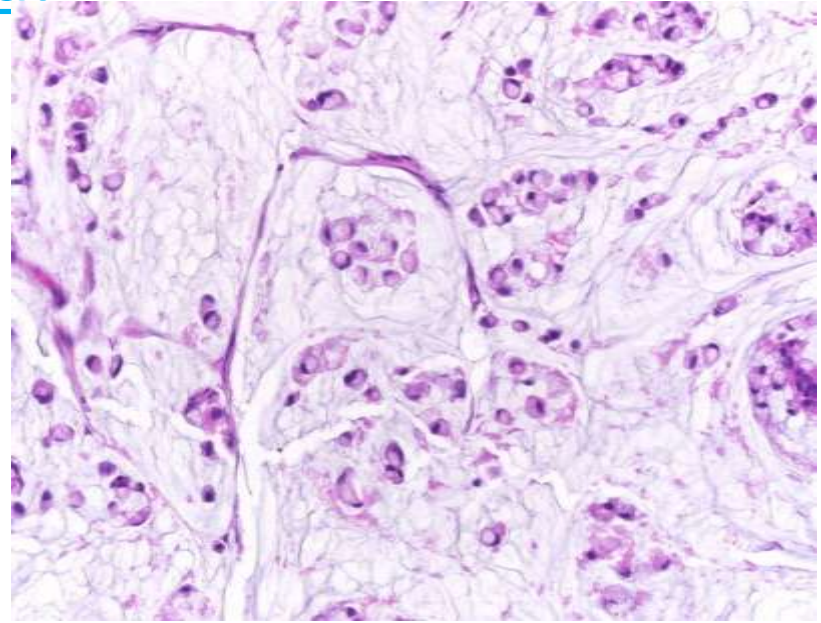
1.Enteric adenocarcinoma:

- Glands are lined by
Pseudostratified
mucin secreting epithelium
with various degrees of
pleomorphism and with
central necrosis



2. Mucinous adenocarcinoma:

The tumor cells form nests floating in abundant extracellular mucin



3. Mixed adenocarcinoma:

Tumors with mixture of enteric and mucinous patterns

Prognosis:

- Overall prognosis for primary adenocarcinoma of the urinary tract has been *poor*

CASE NO:5

CLINICAL HISTORY:

A 34 years male complaints of lower abdominal pain since 5 days, radiating to back

- H/O alcohol intake present

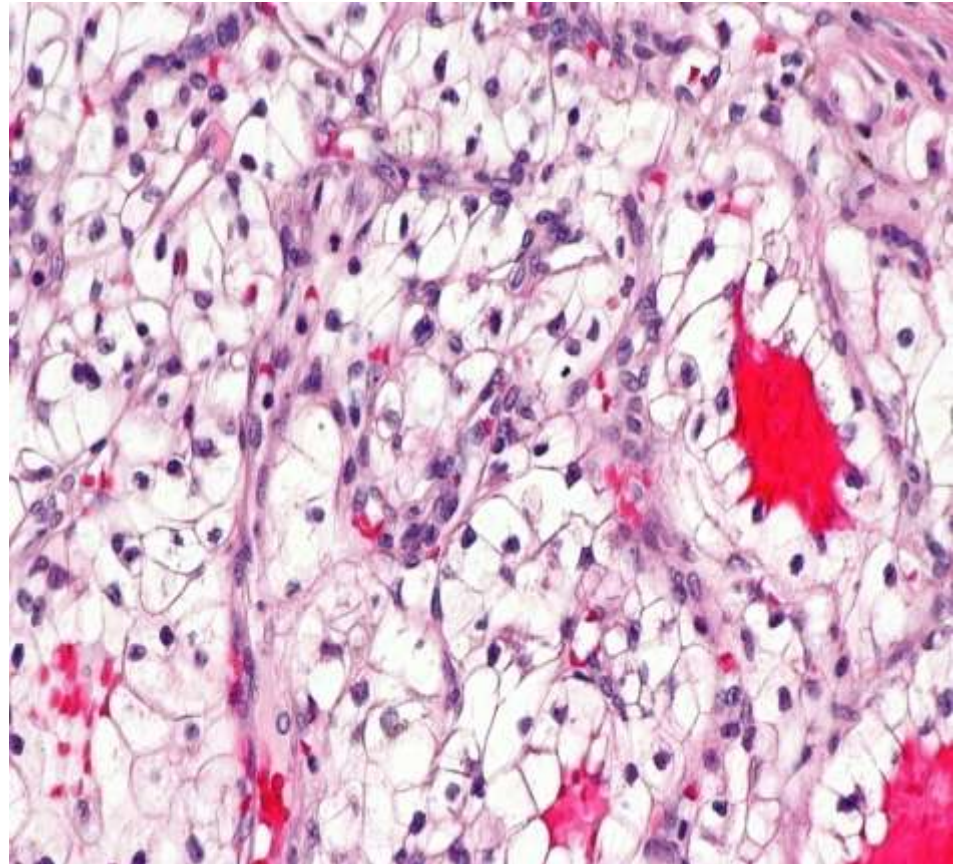
Investigations:

CECT abdomen:

- A well defined heterogenous lesion of approximately 2.1x2.1cms in upper pole of left kidney



GROSS



MICROSCOPY

DIAGNOSIS

RENAL CELL CARCINOMA –CLEAR CELL VARIANT

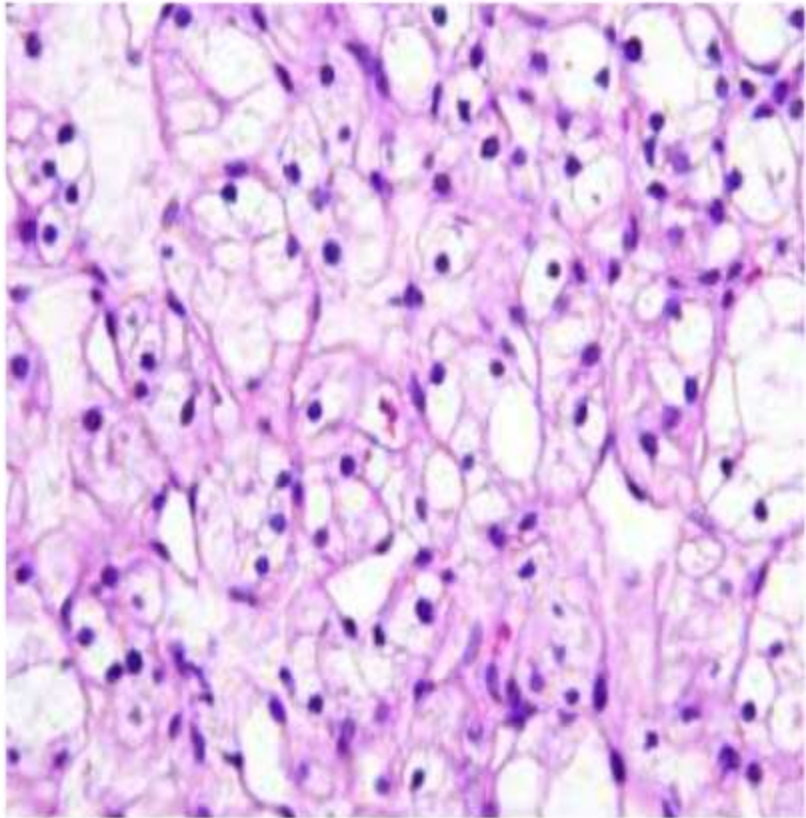
RENAL CELL CARCINOMA

RISK FACTORS:

1. Tobacco smoking
2. Obesity
3. Hypertension
4. Acquired cystic kidney disease
5. Occupational exposure
6. Genetic susceptibility

CLASSIFICATION OF RENAL CELL CARCINOMA

1. Clear cell Rcc
2. Papillary Rcc
3. Clear cell papillary Rcc
4. Chromophobe Rcc
5. Collecting duct carcinoma
6. Renal medullary carcinoma
7. Spindle cell carcinoma
8. Succinate dehydrogenase deficient Rcc
9. Acquired cystic disease associated Rcc

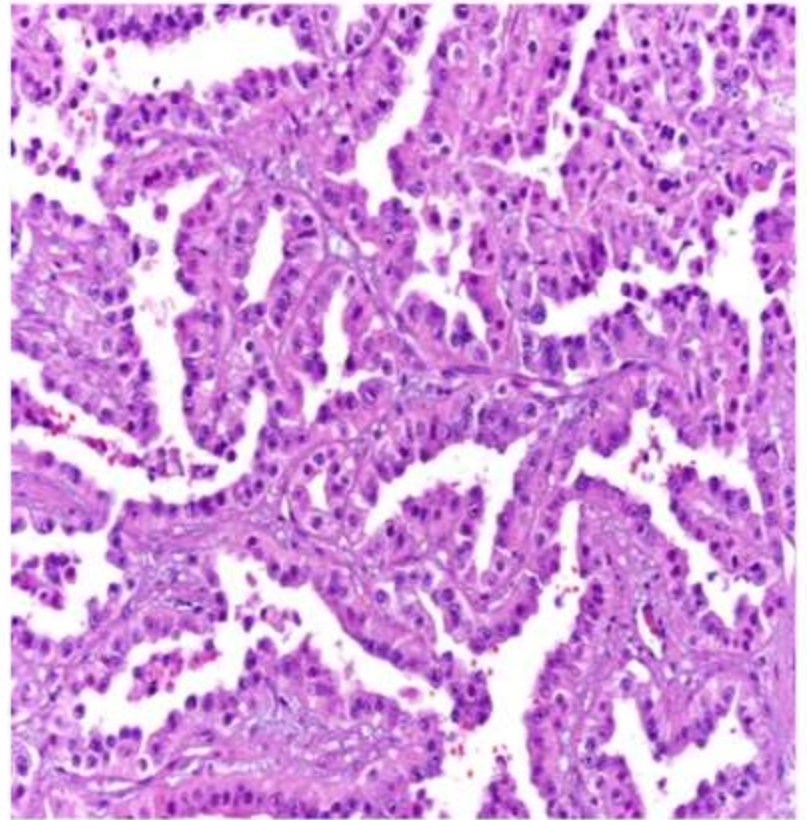


Clear cell carcinoma

POOR PROGNOSIS

Differential diagnosis:

1. Chromophobe Rcc
2. Papillary Rcc
3. Clear cell papillary Rcc

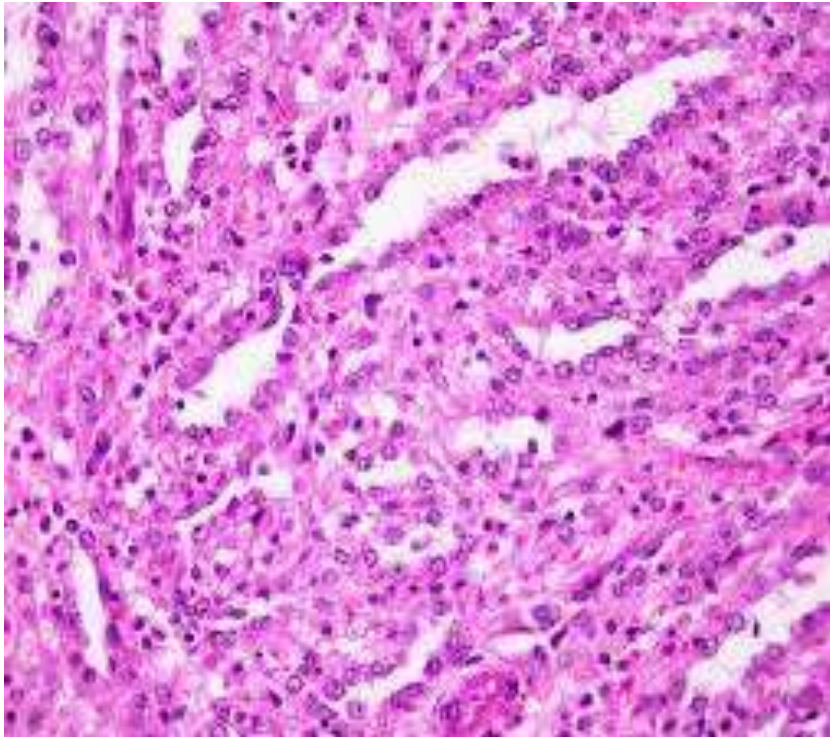


Papillary renal cell carcinoma

BETTER PROGNOSIS

Differential diagnosis:

Papillary adenoma

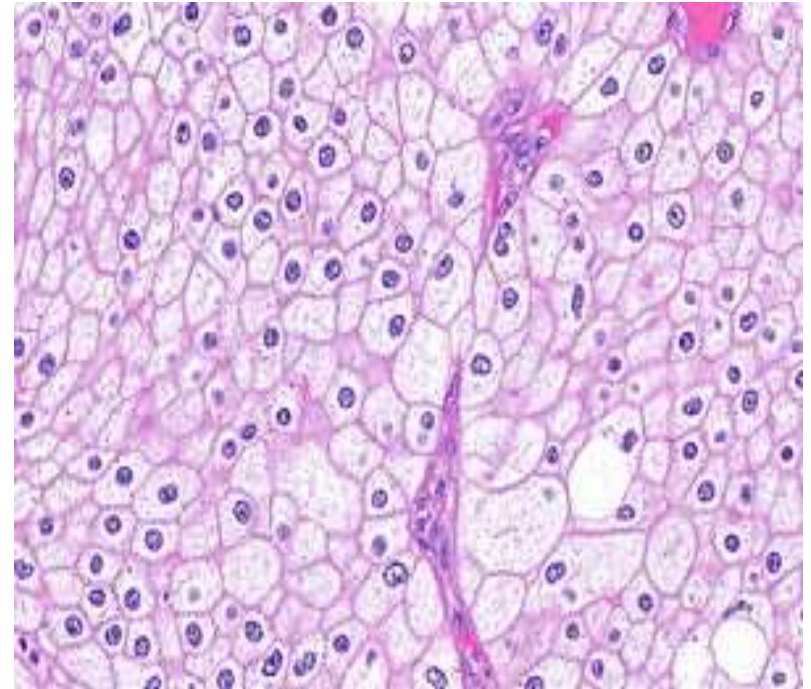


COLLECTING DUCT CARCINOMA

POOR PROGNOSIS

Differential diagnosis:

1. Papillary rcc
2. Renal medullary carcinoma

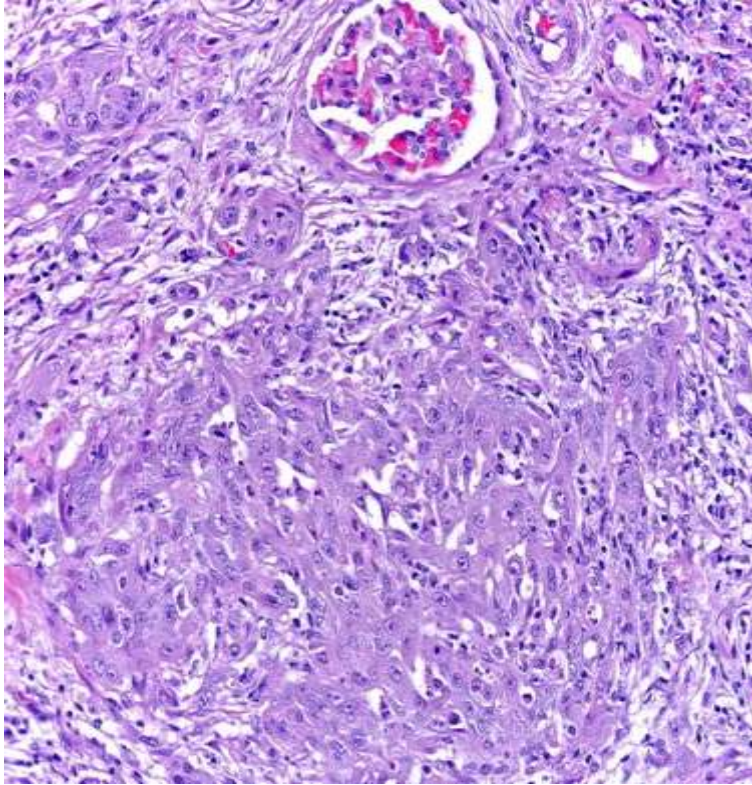


CHROMOPHOBE CARCINOMA

**BETTER PROGNOSIS THAN CLEAR CELL
CARCINOMA**

Differential diagnosis

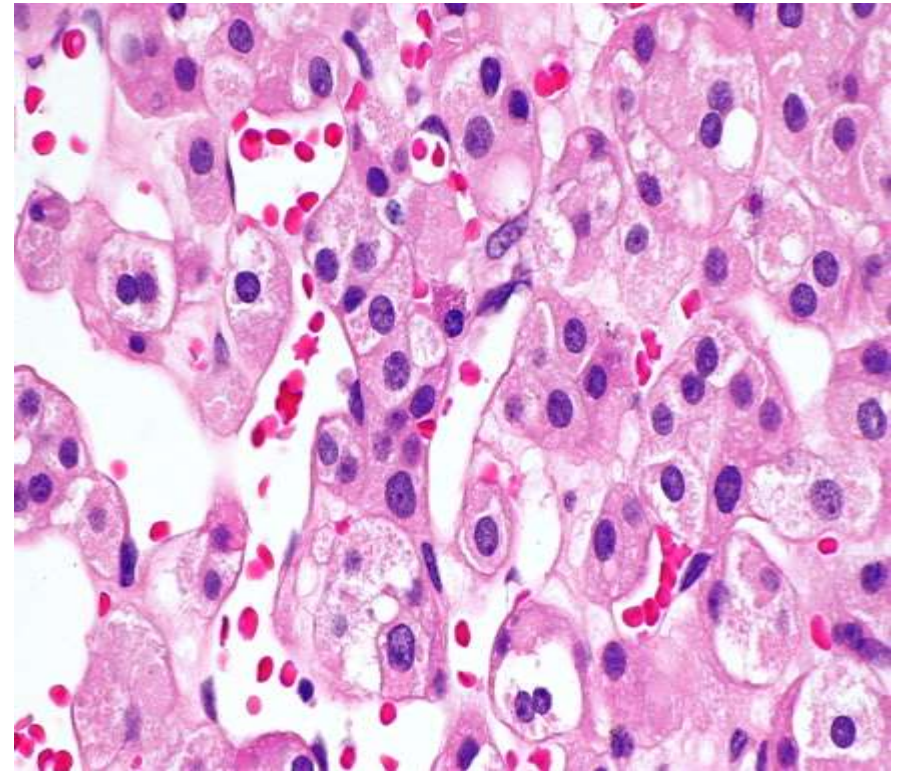
- Clear cell renal cell carcinoma



RENAL MEDULLARY CARCINOMA

Differential diagnosis

- Collecting duct carcinoma



SUCCINATE DEHYDROGENASE DEFICIENT RCC

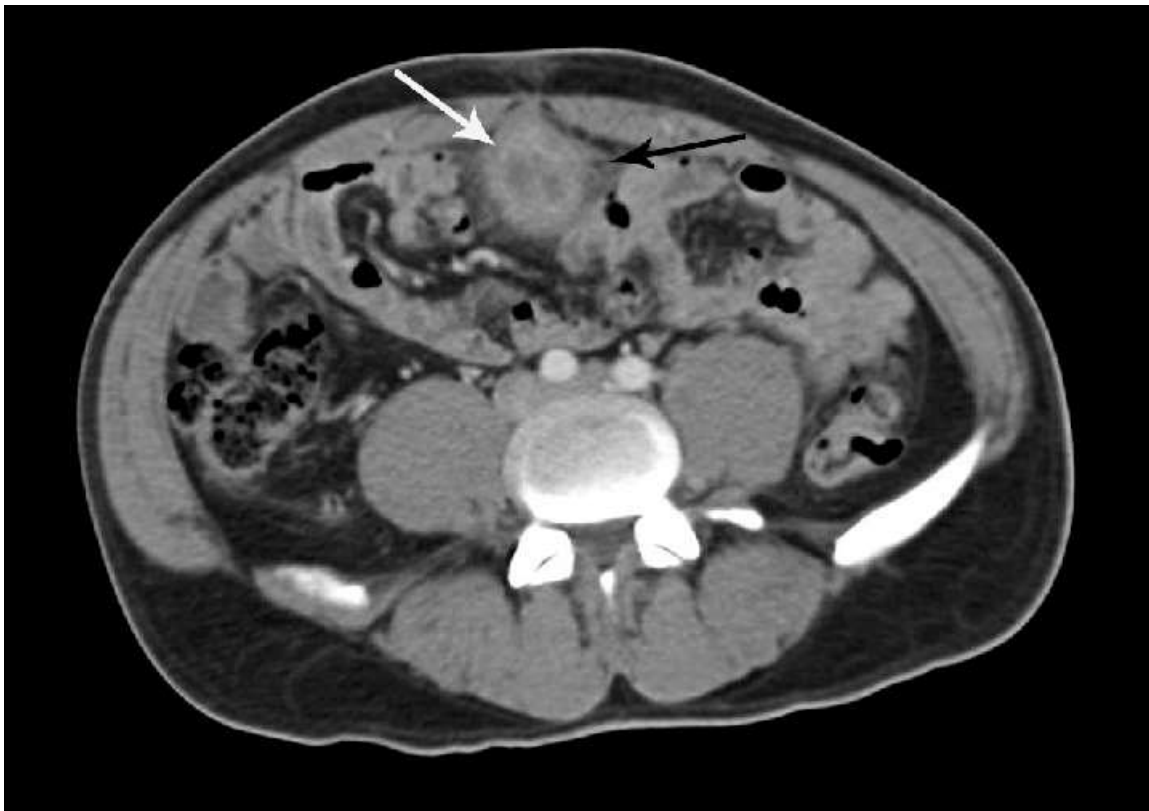
FAVOURABLE PROGNOSIS

CASE NO :6

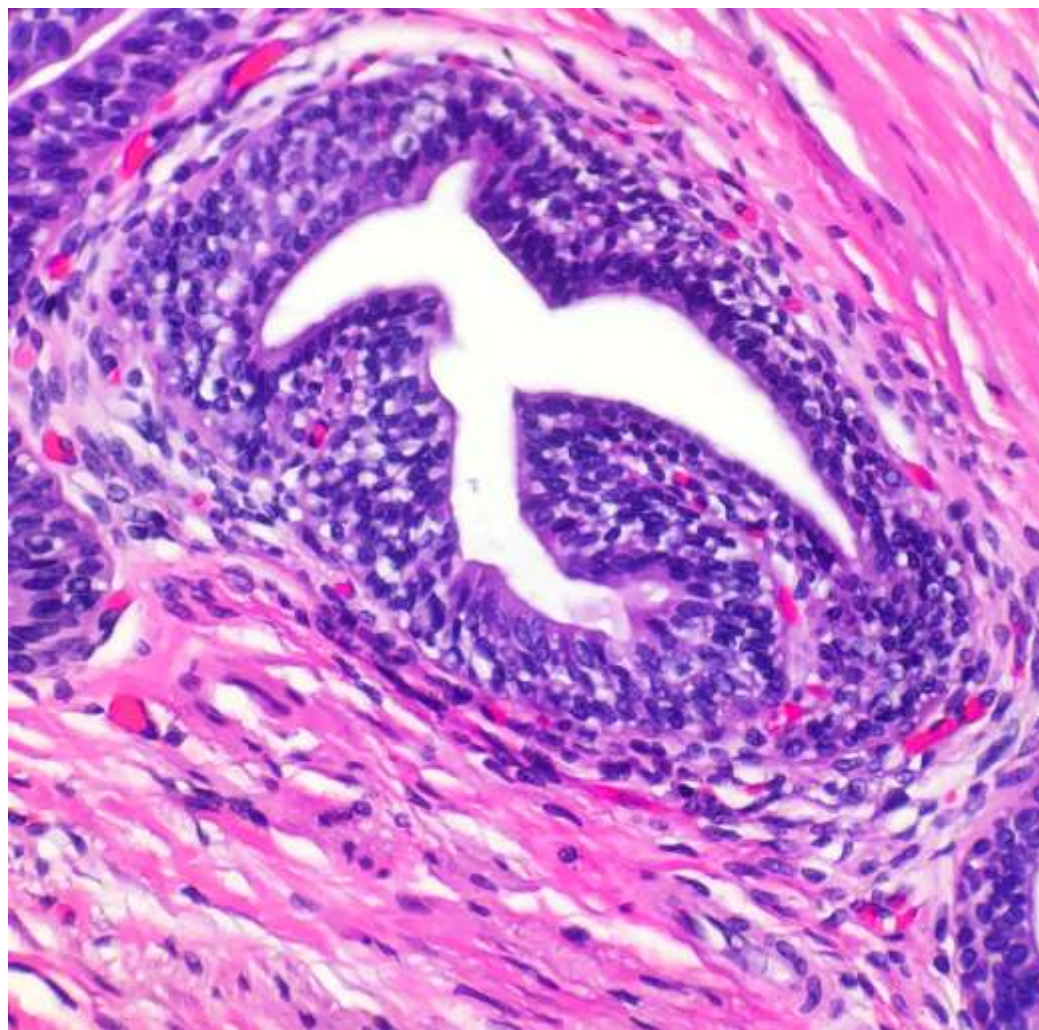
CASE HISTORY:

- A 11 years female complaints of lower abdominal pain, swelling below the umbilicus on and off since 11 months
- On examination a ill defined soft palpable lump noted infraumbilically

- CT abdomen shows a tubular structure measuring 5.4cm in length extending from superior aspect of urinary bladder to umbilicus –PATENT URACHUS



GROSS AND MICROSCOPY

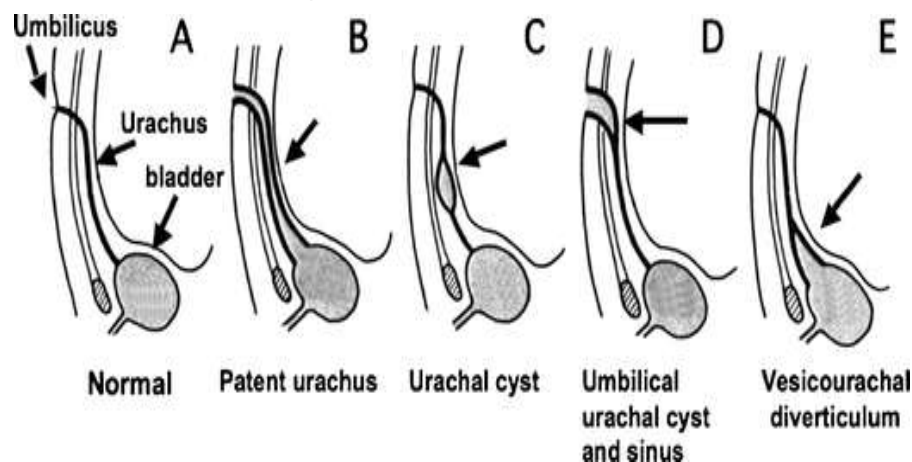


DIAGNOSIS

URACHAL CYST

URACHAL CYST

- Urachal cyst is a sinus remaining from the allantois during embryogenesis
- It is a cyst occurs in the remnants between the umbilicus and bladder
- Clinically important when infected, dilated or neoplastic



- Lined by flattened atrophic urothelial epithelium
- These cysts are surrounded by a thin layer of fibro muscular tissue

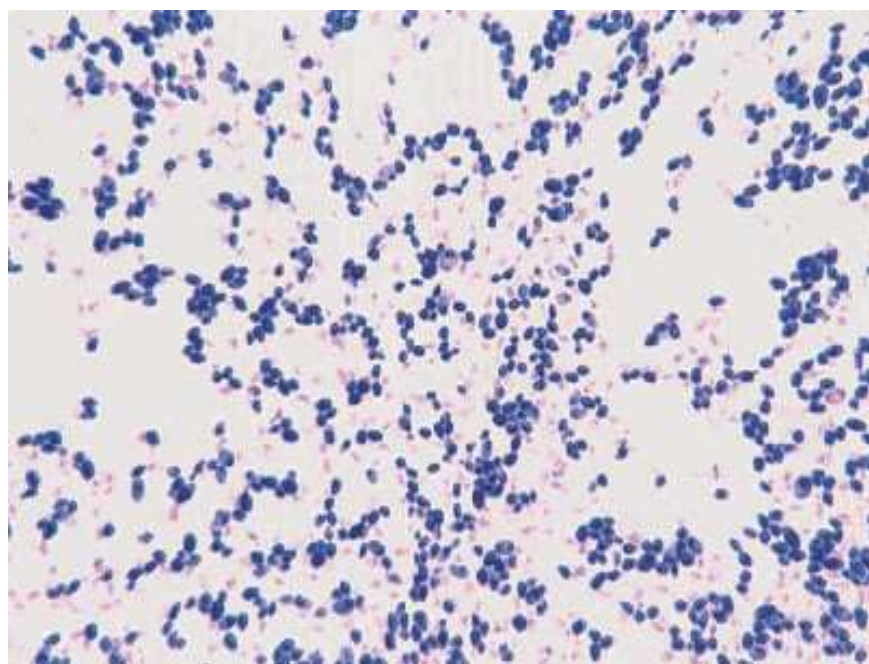
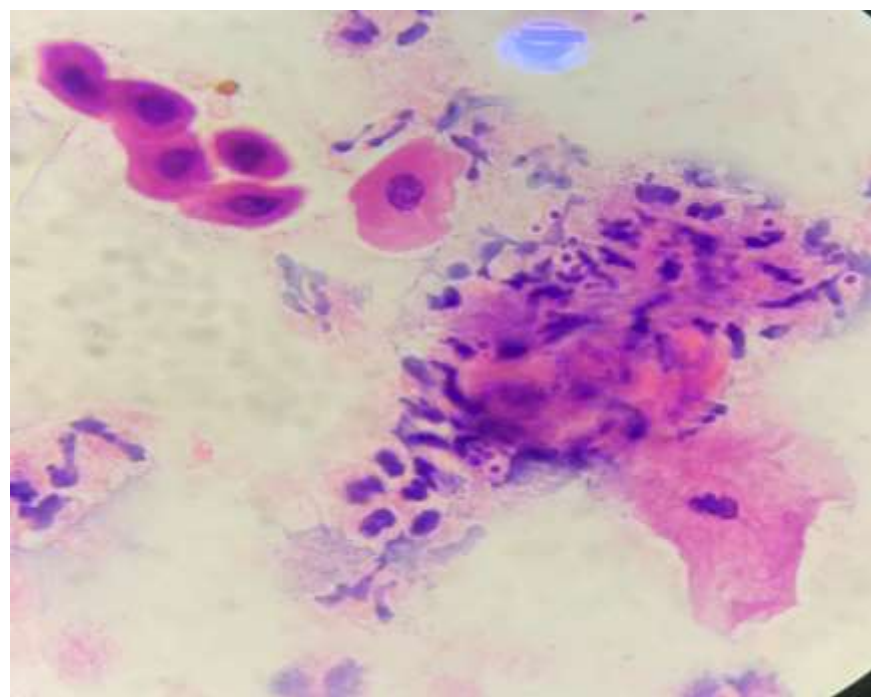
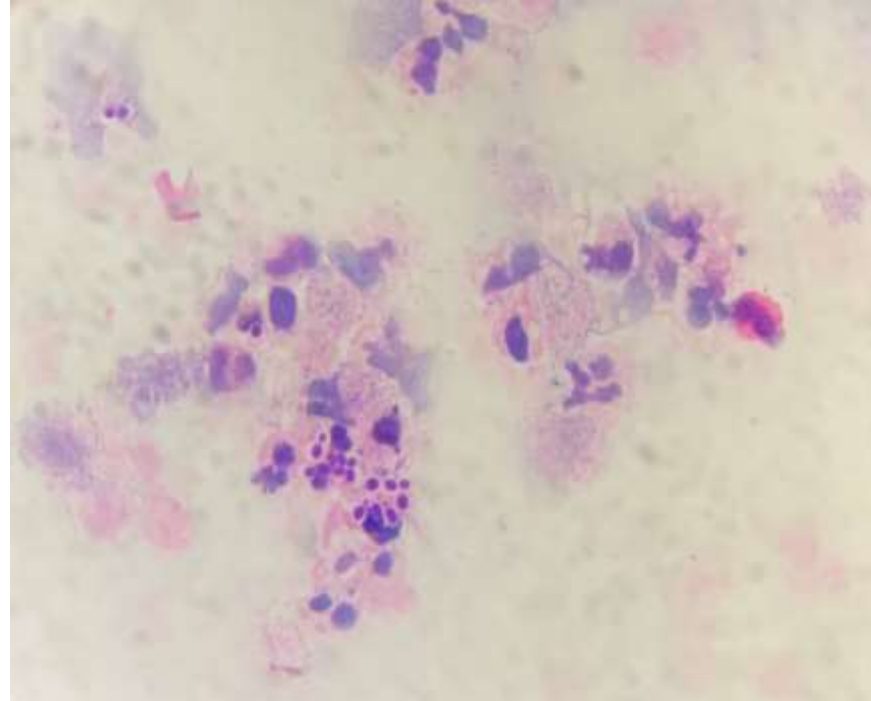
DIFFERENTIAL DIAGNOSIS:

1. Omphalitis
2. Patent omphalomesenteric duct

CASE NO:7

Case history:

- A 80 year old male patient complaints of burning micturition since 1 month
- k/c/o diabetic since many years
- O/E the urine is turbid



DIAGNOSIS

CANDIDURIA



*Thank
you*