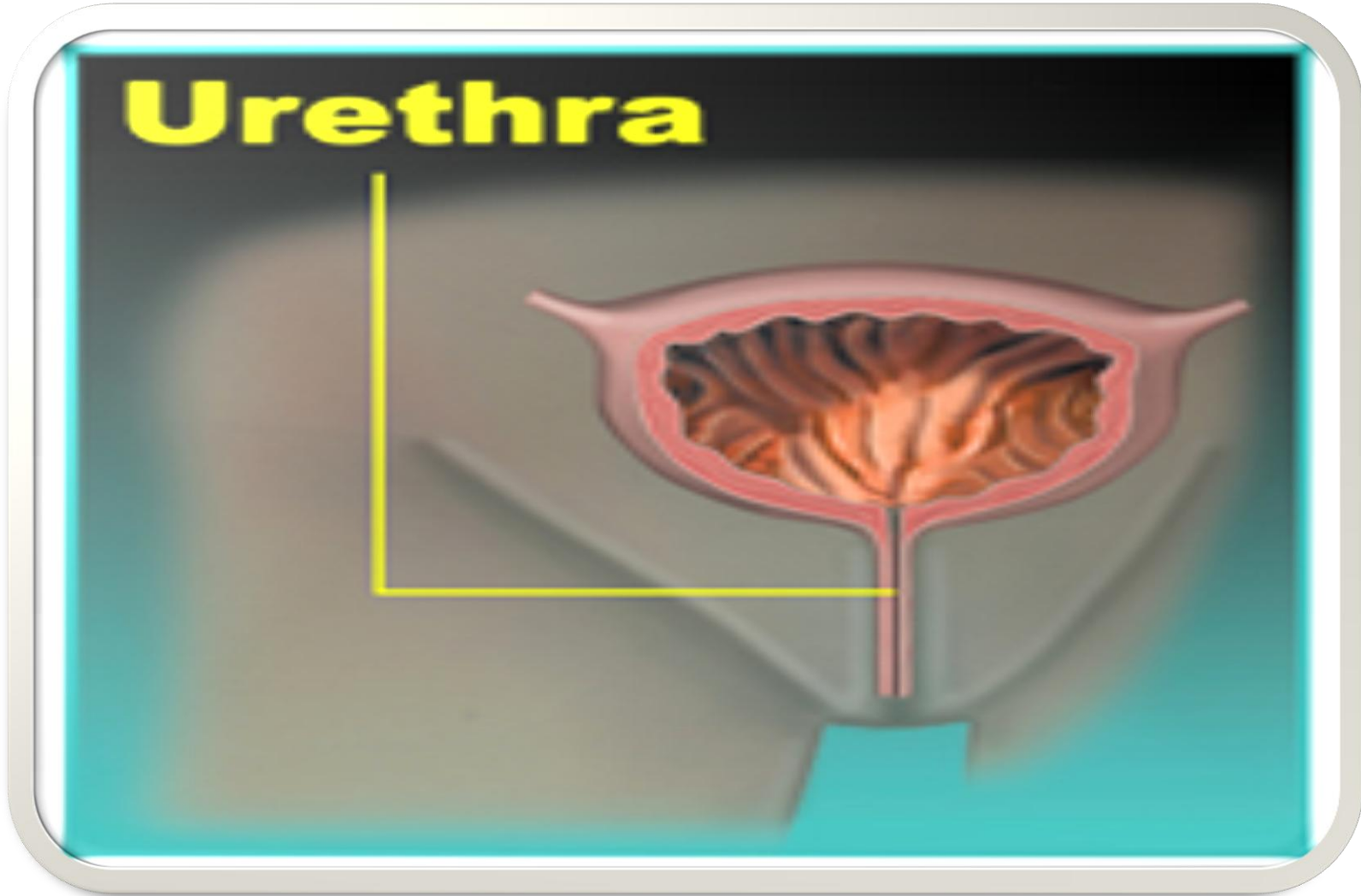


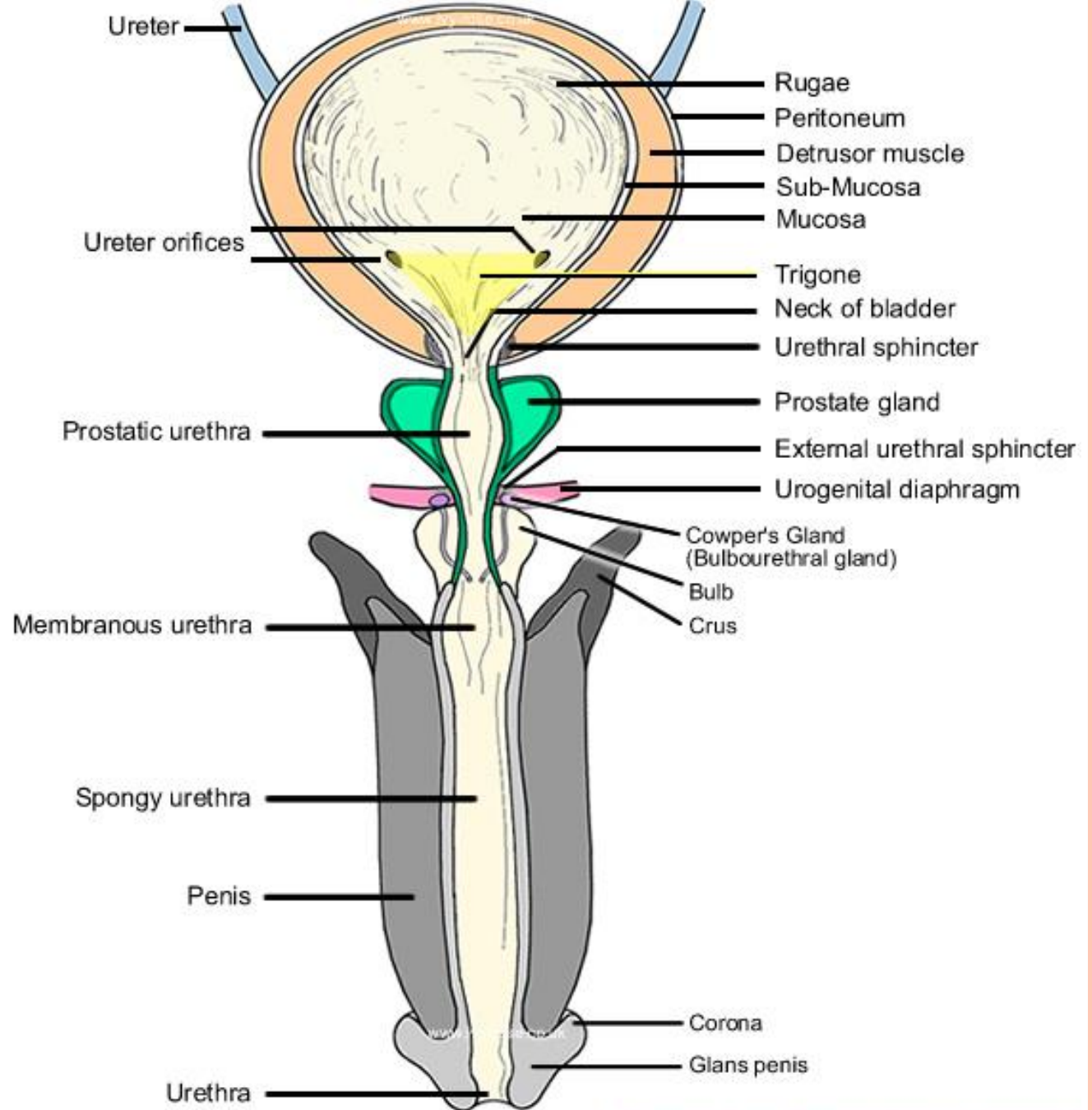
# URETHRA

- ❖ Suatu saluran yang menghubungkan dasar vesica urinaria dengan dunia luar.
- ❖ Pria : urethra menembus kelenjar prostat dan terletak sepanjang penis. Panjang : 18-22 cm.
- ❖ Wanita : urethra ada di antara symphysis pubis dengan vagina. Panjang : 3-4 cm.

# URETHRA PADA WANITA



# URETHRA PADA PRIA



# PROSES BUANG AIR KECIL

Urine terus menerus diproduksi oleh ginjal ; melalui **peristaltik ureter, tekanan hidrostatis dan gravitasi**, urine didorong masuk ke dalam kandung kemih.

Bila jumlah urine  $> 200$  cc

reseptor peregangan pada dinding kandung kemih terangsang

impuls terbentuk dan masuk ke dalam sacrum medulla spinalis

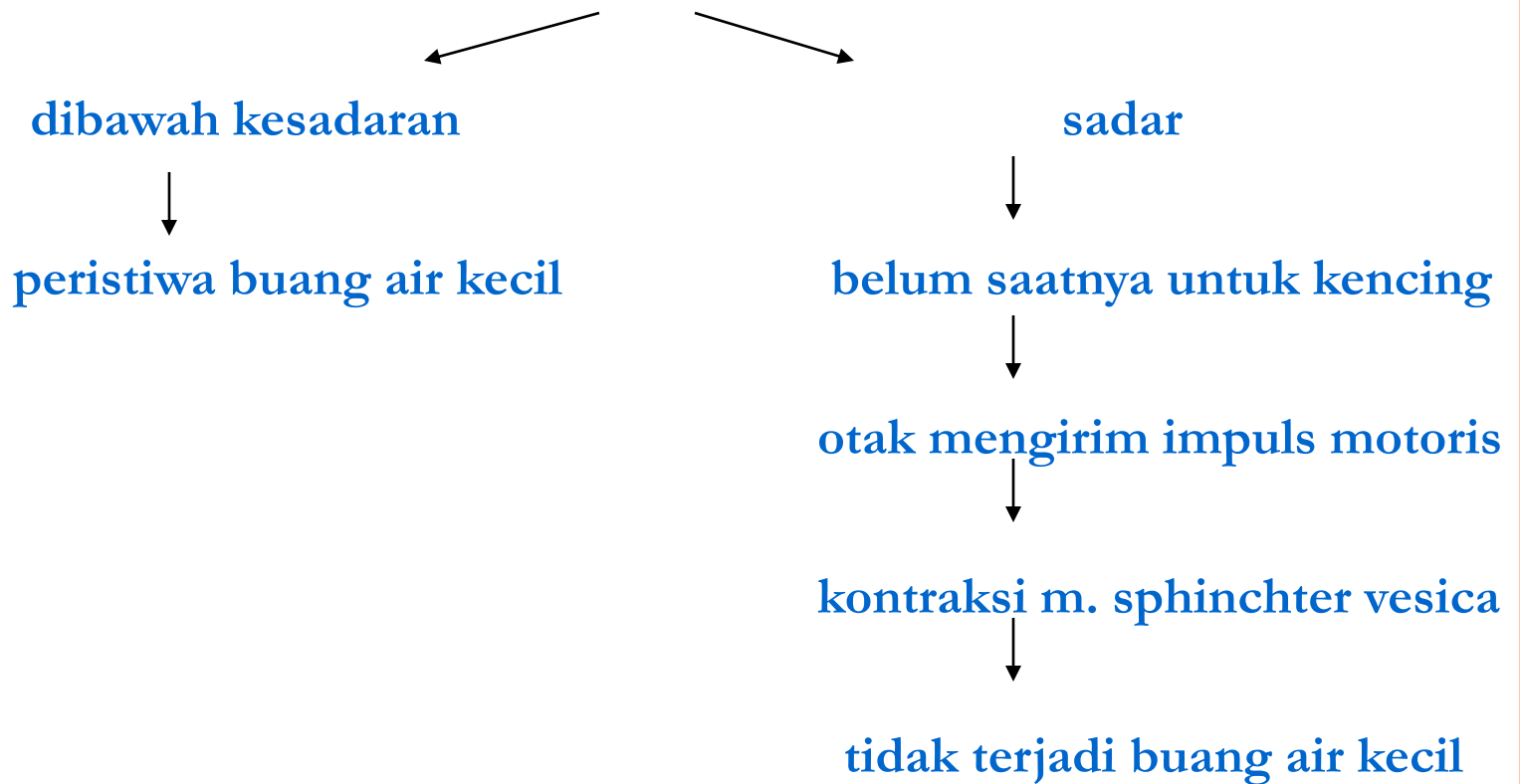
Impuls dapat naik ke otak

Kesadaran ingin kencing

impuls dapat diteruskan ke se-sel preganglionik parasimpatis

timbul refleks dan m. destrusor berkontraksi, m. sphincter vesica interna berelaksasi

## m. sphinter externa berelaksasi



- Kontraksi dari otot-otot dinding perut yang berada dibawah kesadaran (mengedan), meningkatkan tekanan di dalam rongga perut akan membantu proses buang air kecil
- Bayi dan orang tua sering buang air kecil



# ***Kelainan-Kelainan Klinik***

**Urolithiasis**

**Pyelonephritis**

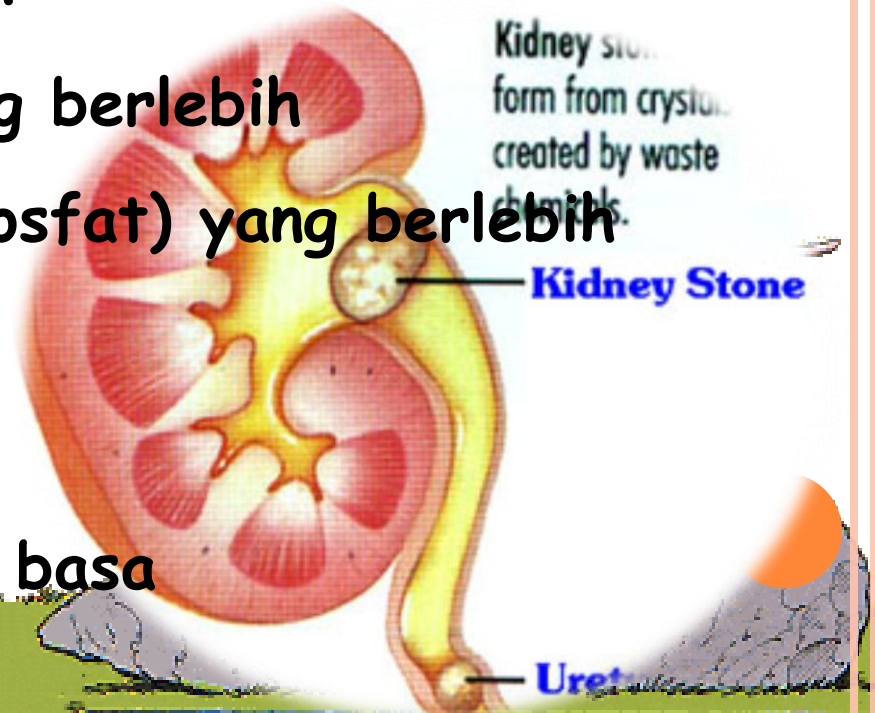
**Glomerulonephritis**

**Gagal Ginjal dan Cuci Darah**



# *UROLITHIASIS (BATU SALURAN KEMIH)*

- Analisis kimiawi menunjukkan sebagian besar batu terdiri dari *Calcium Oksalat*, batu urat, fosfat, dan *cystine*.
- Penyebab terbentuk batu :
  - Parathyroid hormon yang berlebih
  - Konsumsi mineral (Ca, fosfat) yang berlebih
  - Sedikit minum
  - Kekurangan GCI
  - Urine terlalu asam atau basa



# GEJALA :

BATU YANG MENYUMBAT SALURAN KEMIH MENIMBULKAN

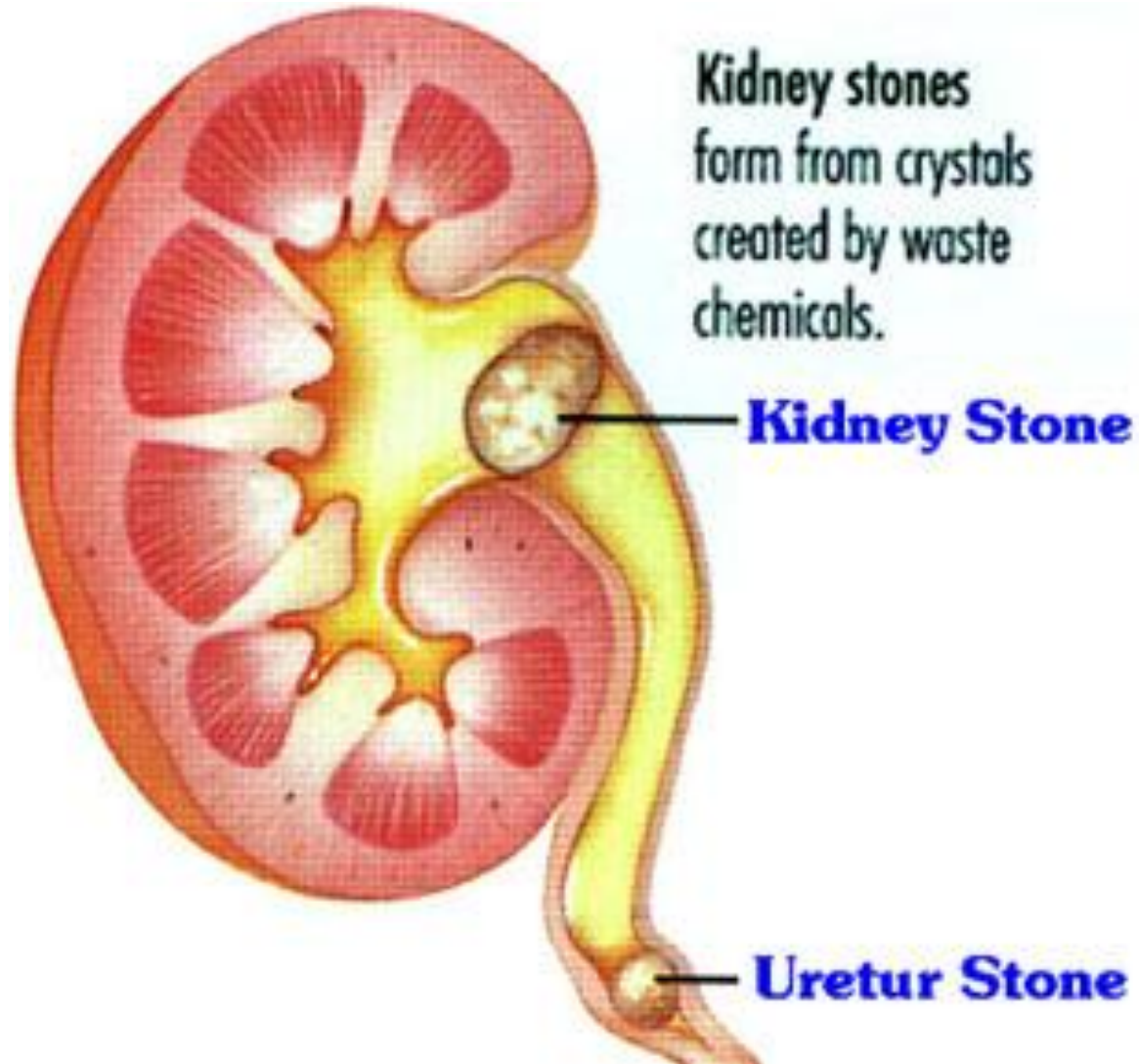
- Sakit yang menyebar dari pinggang ke selangkang.
- Sakit di bawah perut bagian bawah.
- Terdapat darah dalam urine.
- Infeksi + penyumbatan + batu ginjal = kerusakan ginjal.
- Buang air seni perih, panas dan sering → gejala urethritis, cystitis.

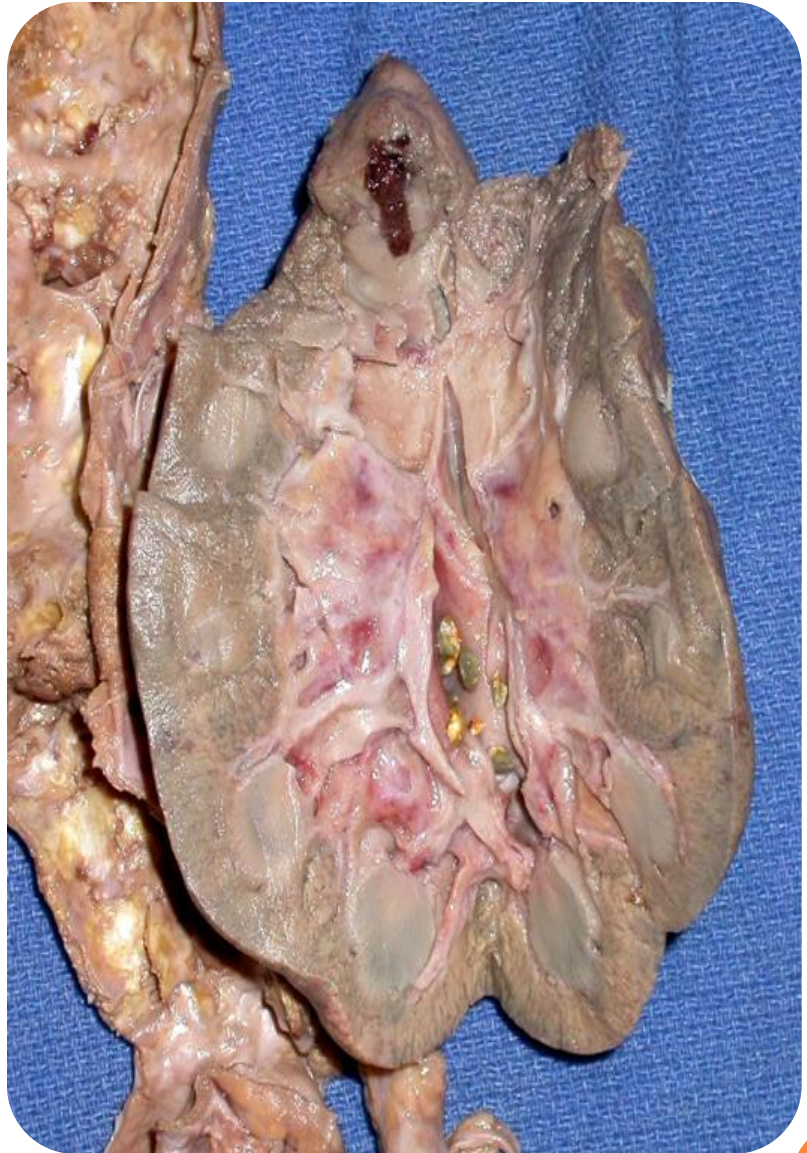


# PENGOBATAN DAN PENCEGAHAN

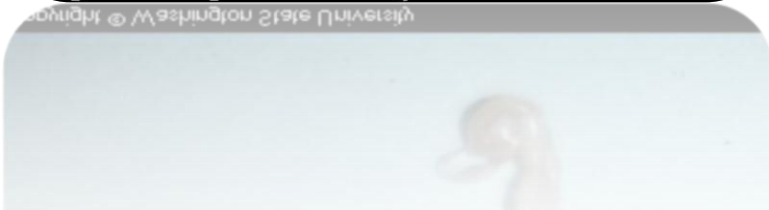
- × Operasi
- × Antibiotika (infeksi)
- × Tanpa operasi →  
dengan gelombang  
ultrasound, ESWL

- ▶ Banyak minum air
- ▶ Mengurangi makanan yang banyak mengandung calcium.
- ▶ Tergantung jenis batu :
  - Batu oksalat :  
mengurangi makanan (bayam, coklat, kacang, pedas, teh)
  - Batu urat :  
mengurangi makanan yang tinggi purin.





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# PYELONEPHRITIS

Peradangan pyelum dan nephron ginjal oleh *E.coli*

Penunjang :

- Penyumbatan aliran air kemih

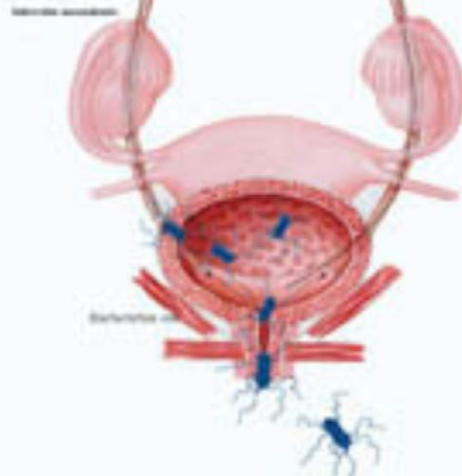
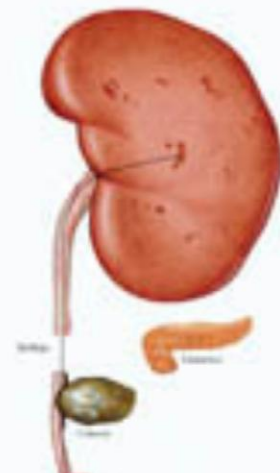
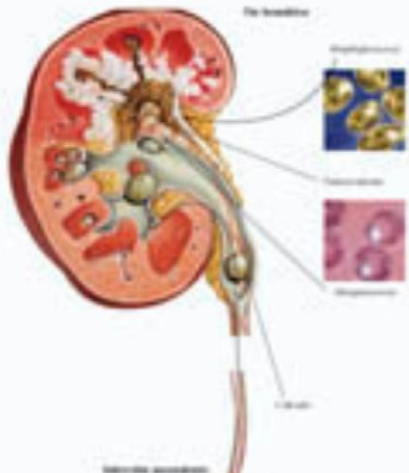
Infeksi menjalar dari kandung kemih sampai ginjal

Merusak sel-sel ginjal → gagal ginjal



# PYELONEPHRITIS

Pyelonephritis is a bacterial infection of the kidney. It is a type of urinary tract infection (UTI) that affects the upper urinary tract, including the kidneys and the ureters. The infection is caused by bacteria that enter the urinary tract through the urethra and travel up to the kidneys. Pyelonephritis can be acute or chronic. Acute pyelonephritis is a sudden onset of infection, while chronic pyelonephritis is a long-term, recurring infection. Symptoms of pyelonephritis include pain in the back or side, fever, chills, and urinary symptoms such as frequent urination, urgency, and pain during urination. If left untreated, pyelonephritis can lead to serious complications, including kidney damage and sepsis. Treatment typically involves antibiotics and pain relievers. In severe cases, hospitalization and intravenous antibiotics may be necessary.



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# GLOMERULONEPHRITIS

- ✿ Peradangan glomerulus
- ✿ Terjadi setelah infeksi *Betastreptococcus*

## ✿ Gejala :

- Terdapat protein dalam urine  
(proteinuria)
- Darah dalam urine (hematuria)
- Oedema kaki
- Hypertensi



"They say your head gets all funny when 'Sin' is near."

Maybe what you saw was some kind of dream?"

"Our world is crying."

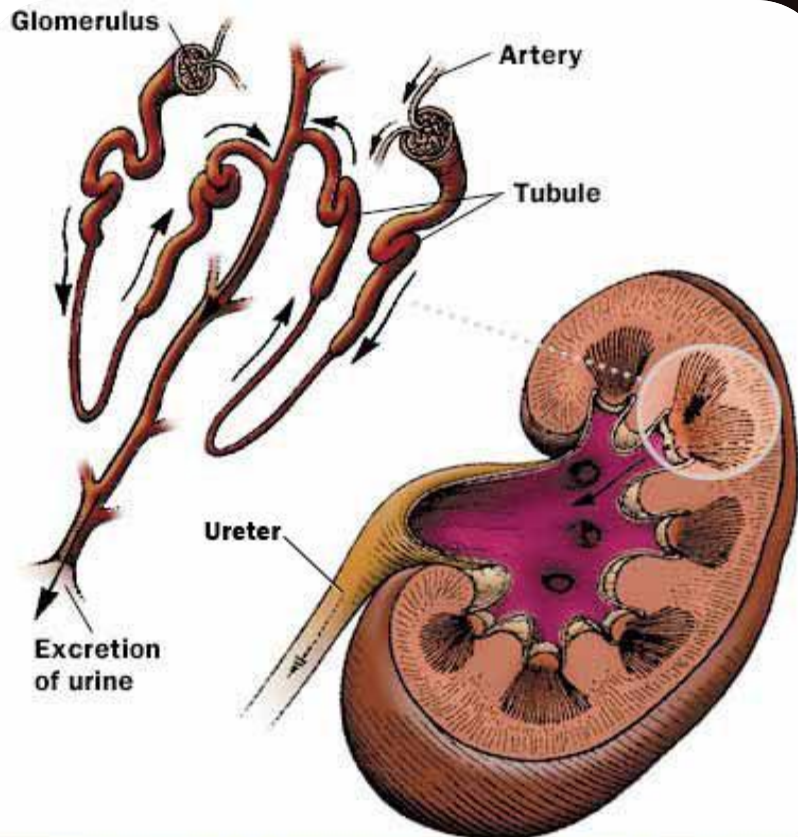
'Sin'-- a trespasser, a scourge upon our land. It falls only to rise again,  
bringing chaos and destruction."

"It's tough when your father is famous."

"Only the Summoners' "Last Summoning" can defeat 'Sin'."

"Trying to escape from reality... Trying, and failing."







# GAGAL GINJAL (*RENAL FAILURE*) DAN CUCI DARAH (*DIALISA*)

## ● *Gagal ginjal :*

- ***Akut*** ; disebabkan berhentinya kerja ginjal karena :
  - a. Aliran darah ke ginjal berhenti
  - b. Glomerulonephritis, sel-sel ginjal kena racun, dll
  - c. Batu atau tumor yang menyumbat saluran kemih
- ***Kronis*** ; disebabkan oleh : Pyelonephritis, batu ginjal, kelainan bawaan ginjal, dll

### A. BILA 75% NEPHRON RUSAK

- HOMEOPSTATIS MASIH DAPAT BERLANGSUNG
- PENDERITA MASIH BISA HIDUP NORMAL TAPI TIDAK DAPAT KERJA BERAT.

### B. BILA 75-90% NEPHRON RUSAK

- KADAR UREUM DARAH MENINGKAT
- GEJALA : LESU, BANYAK BUANG AIR KECIL MALAM HARI, PUSING, HYPERTENSI.

### C. BILA >90% NEPHRON RUSAK

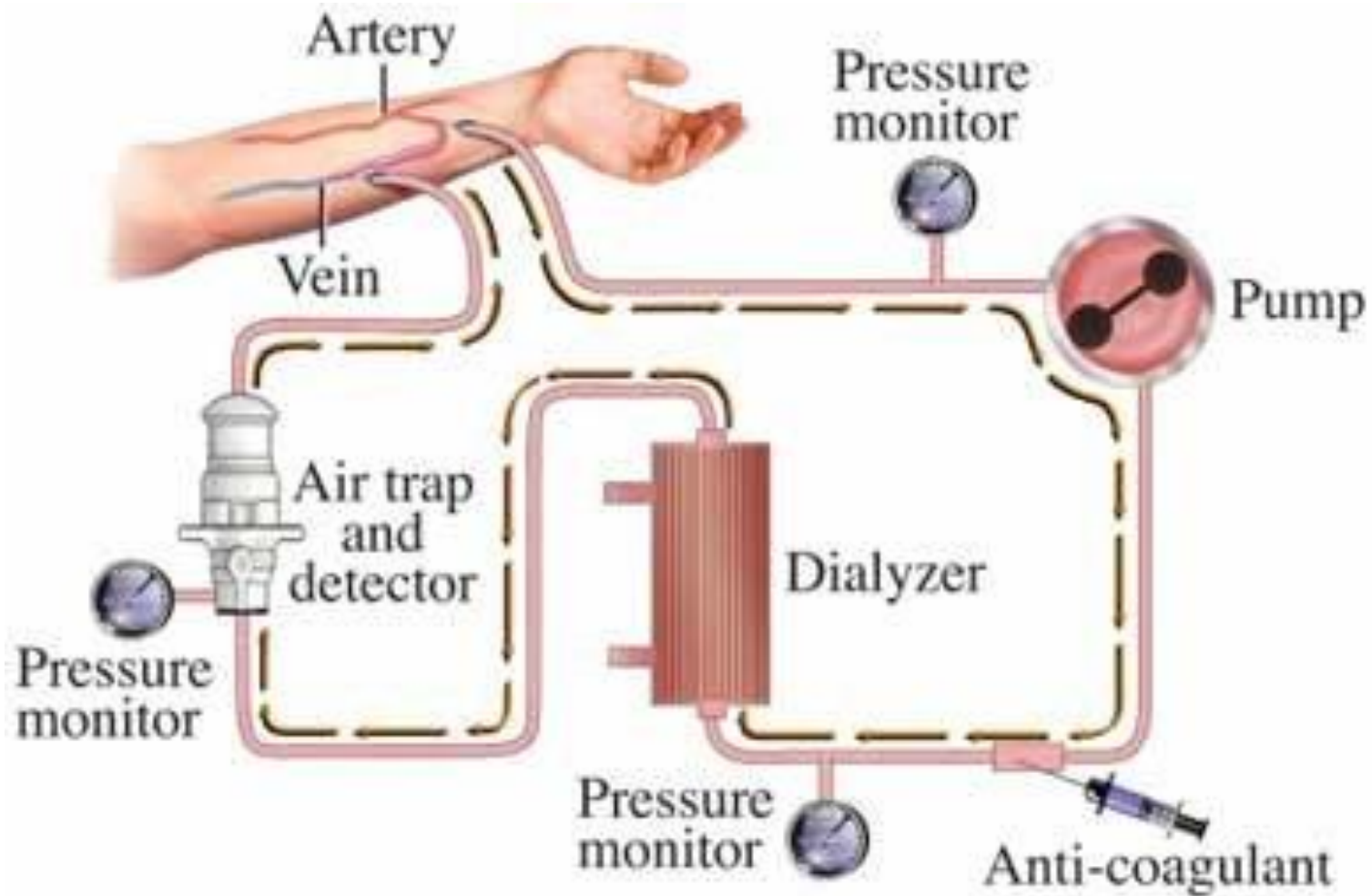
- GFR SANGAT MENURUN
- TIMBUL ORIGURIA, UREMIA, DAN OEDEMA
- KADAR  $K^+$  DARAH MENINGKAT

ANEMIA TERJADI KARENA BERKURANG PRODUKSI ERYTHROPOETIN.  
HYPERTENSI TERJADI KARENA ANGIOSTENSIN BERLEBIH.  
PADA PENDERITA GAGAL GINJAL TOTAL DILAKUKAN *DIALISA DARAH*.





# DIALISA DARAH





THANK'S  
WASSALAMUALIKUM

