SERTIFIKAT

SEMINAR DAN MUSDA PARI KALTIM 2022

1,5 SKP

Diberikan Kepada :

dr. Abdul Mu'ti, Sp.Rad

Atas peran sertanya sebagai :
Pembicara/Panitia/Peserta

"MEWUJUDKAN I-GENERATION YANG SIAP MENYONGSONG IKN MELALUI MUSDA PARI KALTIM 2022 DAN SEMINAR PENATALAKSANAAN CT UROLOGI PADA KASUS HAEMATURIA SERTA SOSIALISASI BALIS ONLINE 2.5"

Yang Diselenggarakan Oleh PARI PENGDA KALIMANTAN TIMUR
Pada Hari/Tanggal : Sabtu-Minggu / 1-2 Oktober 2022

Samarinda, 2 Oktober 2022

Triyono Budi Santosa, S.Tr.Kes.(Rad)
Ketua PARI PENGDA KALTIM

Trivonia Ina Penaten, AMR
Ketua Panitia

SK PP PARI Nomor : KP.02.01/PARI.I/134/VII/2022
Pembicara 1.5 SKP, Panitia 1.5 SKP, Peserta 1.5 SKP

SEMINAR DAN MUSDA PARI KALTIM 2022

"MEWUJUDKAN I-GENERATION YANG SIAP MENYONGSONG IKN MELALUI MUSDA PARI KALTIM 2022 DAN SEMINAR PENATALAKSANAAN CT UROLOGI PADA KASUS HAEMATURIA SERTA SOSIALISASI BALIS ONLINE 2.5"

No	Nama Pembicara	Materi
1	dr. Boyke Soebhali, Sp.U(K)	Haematuria
2	dr. Abdul Mu'ti, Sp.Rad	Pemeriksaan CT Urografi Pada Haematuria
3	Bambang Dwinanto, Dipl.Rad.S.Si	Penatalaksanaan CT Urologi atau Urography Pada Kasus Haematuria
4	Maradi Abdillah, S.Si, M.Eng	Sosialisasi Mekanisme Perizinan melalui Balis 2.5 Terintergerasi dengan Online Single Submission Berbasis Resiko (OSS-RBA) dan kriteria Keberterimaan Persyaratan Izin

PERHIMPUNAN RADIOGRAFER INDONESIA (PARI)
INDONESIAN SOCIETY RADIOGRAPHERS
PENGURUS DAERAH PROVINSI KALIMANTAN TIMUR

Sekretariat : Instalasi RSUD Abdul Wahab Sjahranie Jl. Dr. Sutomo Samarinda – Kalimantan Timur 75123 Telp 0541-738118 Ext 250 Fax : 0541-251584

Perihal : **Permohonan Narasumber**
Lampiran : **1 Lembar**

Kepada Yth.
dr.Abdul Mu'ti, Sp.Rad
Di.
Tempat

Dengan hormat,

Sehubungan dengan akan diadakannya kegiatan seminar regional dengan tema: MEWUJUDKAN I-GENERATION YANG SIAP MENYONGSONG IKN MELALUI MUSDA PARI KALTIM 2022 DAN SEMINAR REGIONAL PENATALAKSANAAN CT UROLOGI PADA KASUS HAEMATURI SERTA SOSIALISASI BALIS ONLINE 2.5 yang akan diselenggarakan pada:

Hari / Tanggal : **Sabtu - Minggu / 01 – 02 Oktober 2022**
Waktu : **09.00 – 23.00 WITA dan 08.00 – 12.00 WITA**
Tempat : **Hotel MID TOWN**
Jl. Hasan Basri No.58, Bandara, Kec. Sungai Pinang, Kota Samarinda, Kalimantan Timur

Maka dengan ini kami selaku panitia memohon kesediaan Bapak untuk dapat menjadi narasumber pada kegiatan seminar regional tersebut. Bersama surat ini kami lampirkan susunan acara.

Demikian surat permohonan ini kami sampaikan, atas perhatian dan kerjasamanya kami ucapkan terimakasih.

Samarinda, 01 Agustus 2022
Ketua Panitia

PANITIA MUSDA PARI KALIMANTAN TIMUR

Trivonia Ina Penaten, AMR
NIR. 6472092205168

PERHIMPUNAN RADIOGRAFER INDONESIA (PARI)
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SUSUNAN ACARA

HARI SABTU, 01 Oktober 2022

No.	Acara	Waktu	Pengisi Acara
1	Registrasi Peserta	07.00 - 09.00	Panitia
2	Pembukaan	09.00 - 09.30	Tarian Selamat Datang Menyanyikan lagu : ✓ Indonesia Raya ✓ Mars PARI ✓ Hymne PARI
3	Sambutan	09.30 - 09.40 09.40 - 09.55 09.55 - 10.15 10.15 - 10.30	1. Ketua Panitia 2. Walikota Samarinda 3. Ketua PARI Pengda KALTIM 4. Ketua Umum PARI Pusat
4	Sponsorship	10.30 - 11.30	Sponsor I
5	Sponsorship	11.30 – 12.00	Sponsor II
6	(ISHOMA) + Makan Slang	12.00 - 13.00	Panitia
7	Materi Ilmiah Urologi	13.00 - 14.00	dr.Boyke Soebhali, Sp.U (K)
8	Sesi Tanya Jawab	14.00 - 14.15	Moderator
9	Materi Ilmiah Gambaran Radiograf CT Urologi	14.15 – 15.15	dr.Abdul Mu'ti, Sp.Rad
10	Sesi Tanya Jawab	15.15 – 15.30	Moderator
11	Coffe Break	15.30 – 15.45	Panitia
12	Materi Ilmiah Teknik Pemeriksaan CT Urologi	15.45 - 16.45	Mr. Bambang Dwinanto, Dipl.Rad.,S.Si
13	Sesi Tanya Jawab	16.45 - 17.00	Moderator
14	Sponsorship	17.00 - 18.00	Sponsor III
15	ISHOMA + Makan Malam	18.00 - 19.00	Panitia
16	Sponsorship	19.00 - 20.00	Sponsor IV
17	MUSDA	20.00 – 21.00	MUSDA
18	Coffee Break	21.00 - 21.15	Panitia
19	Lanjutan MUSDA	21.15 – 23.00	Panitia

Sekretariat : Instalasi RSUD Abdul Wahab Sjahranie Jl. Dr. Sutomo Samarinda – Kalimantan Timur 75123 Telp 0541-738118 Ext 250 Fax : 0541-251584

HARI MINGGU, 02 Oktober 2022

No.	Acara	Waktu	Pengisi Acara
1	Breakfast	07.00 - 08.00	Panitia
2	Sosialisasi Balis Online 2.5	08.00 - 11.00	BAPETEN
3	Pelantikan	11.00 - 12.00	Pengurus PARI PUSAT Penutupan (Foto Bersama)
4	Makan siang + check out	12.00 - Selesai	Panitia

Universitas Mulawarman
Samarinda

CT Urografi pada Hematuria

Abdul Mu'ti

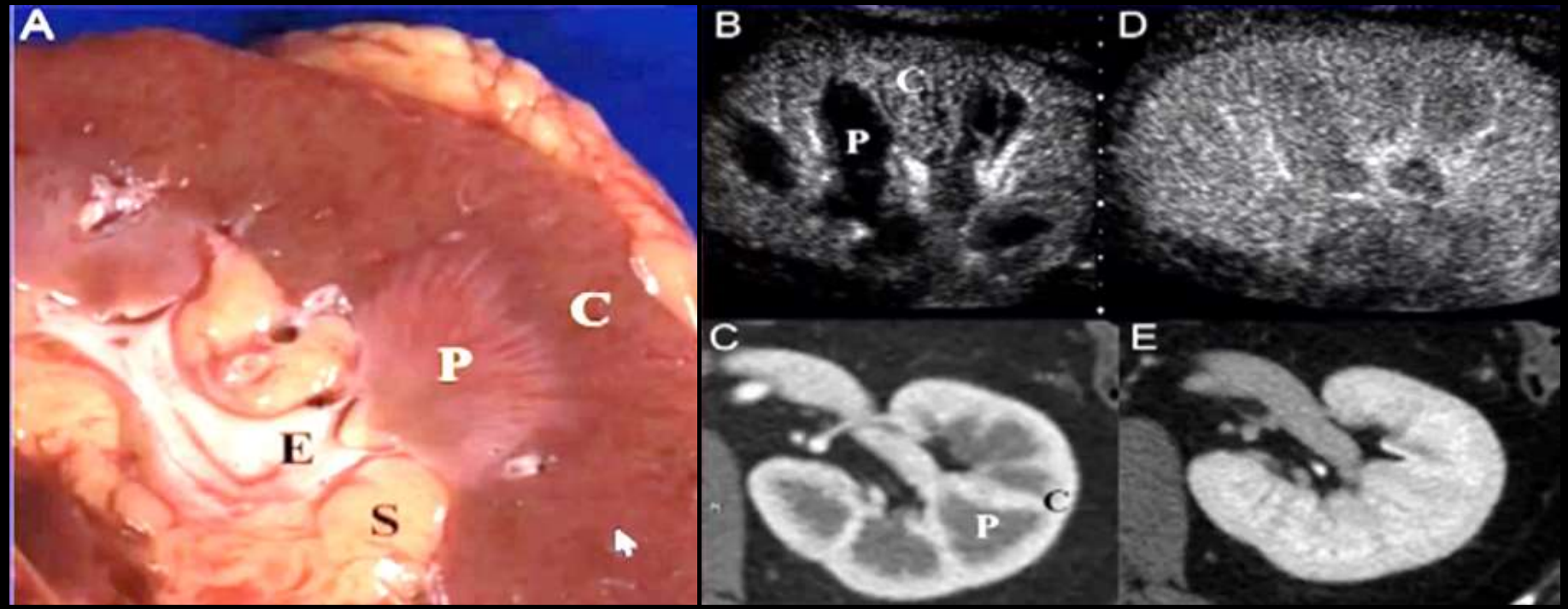
Radiologi, 2022

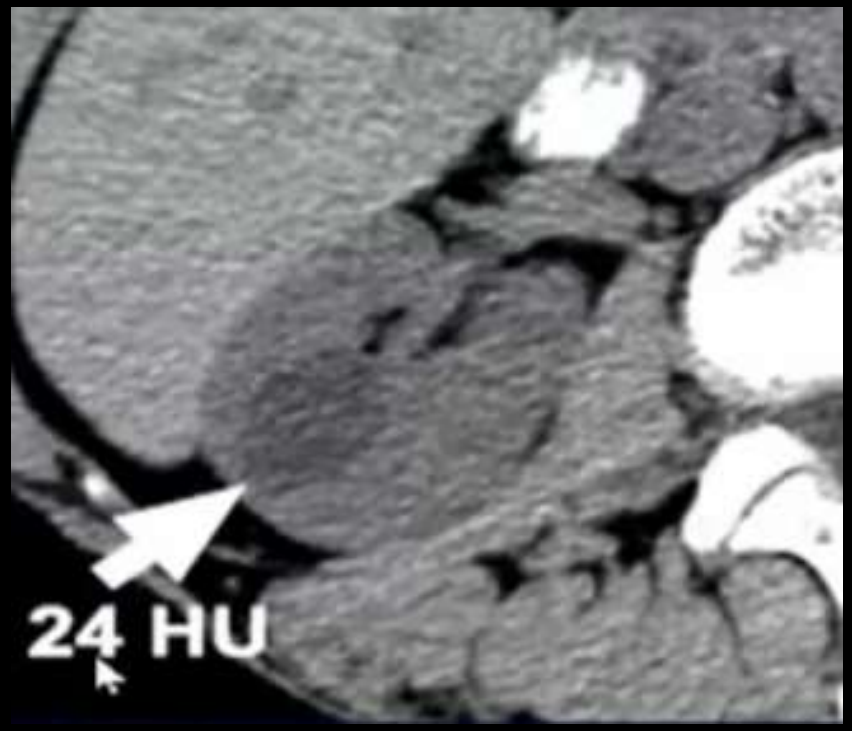
Outline

- Definisi
- Prosedur pemeriksaan
- Aplikasi klinis: hematuria

Definisi

CT urografi adalah pemeriksaan diagnostik melalui prosedur CT scan dengan akuisisi gambar pada fase-fase eksretorik ginjal setelah pemberian kontras IV untuk keperluan imaging pada ginjal, ureter dan bladder (ESUR, 2008)

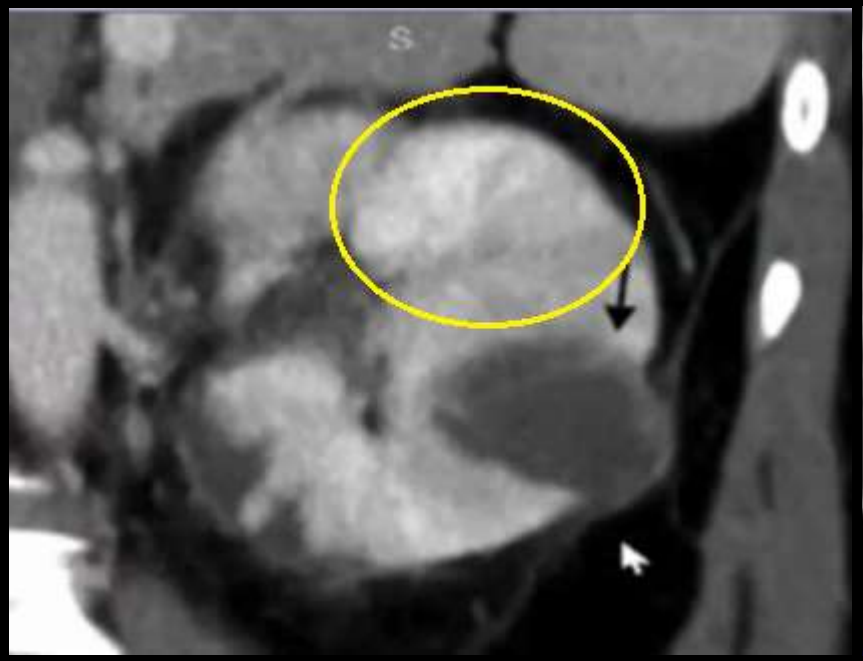




Lesi hipodens

- RCC
- Kista
- Abses

?



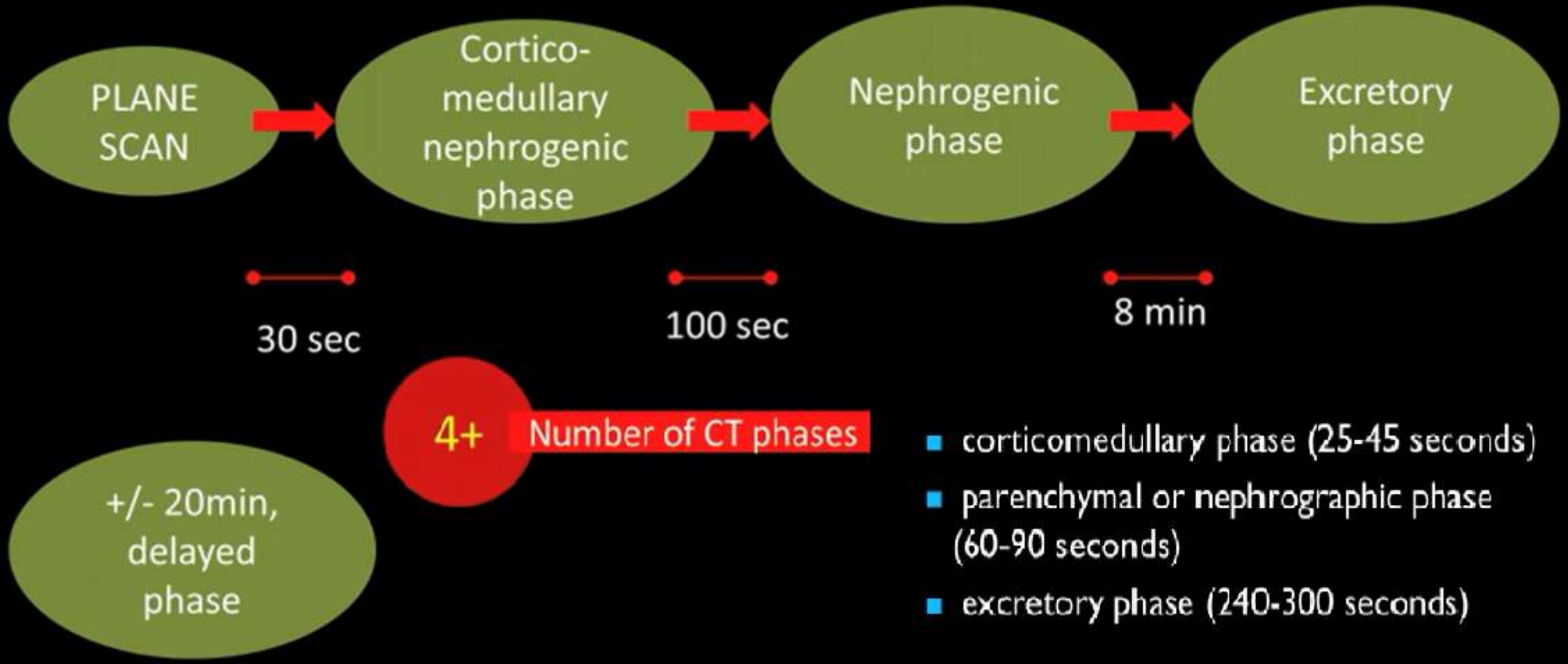
Prosedur

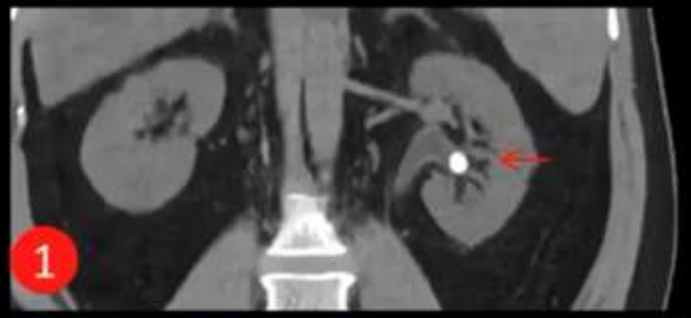
- Protokol scanning thin-slice CT setelah pemberian kontras IV
- Scanning fase non-enhanced, fase nefrogenik, fase pyelogenik, fase eksretorik
- Diagnosis batu saluran kemih, massa ginjal dan tumor urothelial

Scanning Parameters	
Tube voltage (kVp)	140
Tube current (mA)	180–260
Gantry rotation time	0.8 second
Beam Pitch	1.5:1
Detector configuration	2.5 mm
Table feed/rotation	15 mm/rotation
Slice thickness	
Routine study	5 mm (at FWHM)
For renal mass	2.5 mm (at FWHM)
Reconstruction interval	50%

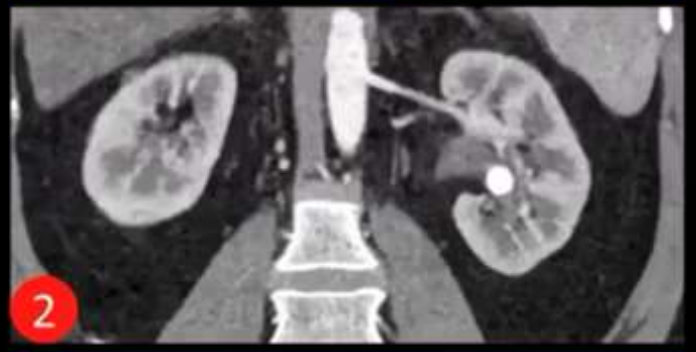
- **Inject nonionic contrast**
  Or LOCM as bolus, 30-60 sec at a rate of 2-4 ml/second
- **Adult 50-100 ml**
- **Pediatric 1ml/kg**

Protokol scanning





Plane CT phase

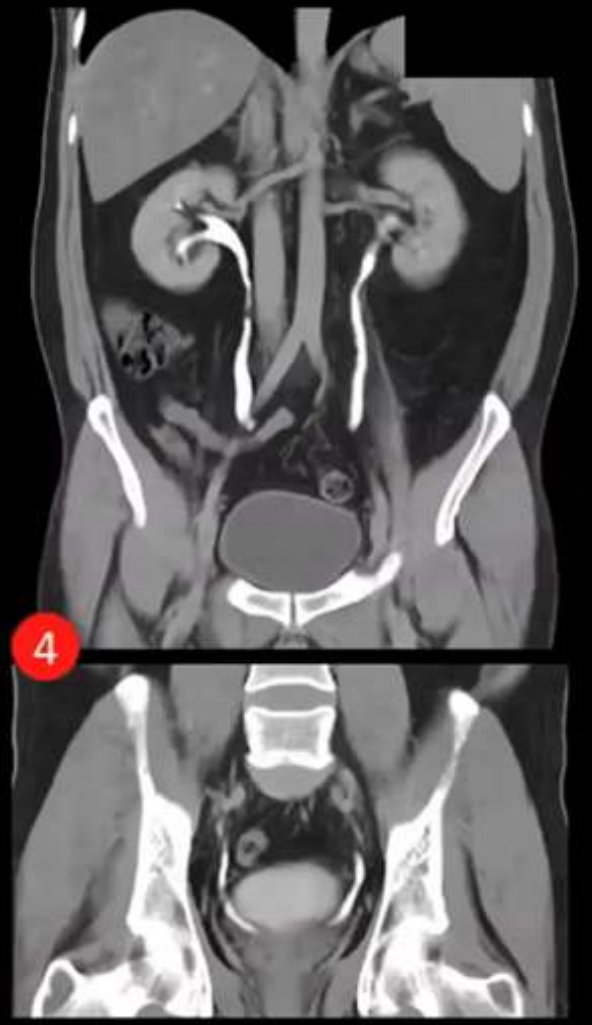


Early cortico-medullary CT-30sec

Homogeneous nephrogenic phase -100sec

Enhancement of renal medulla in cortico-medullary (Fig. 2) and homogeneous nephrogenic phases (Fig. 3)

TOTAL 4 PHASES



Excretory phase images (8min) at two levels showing ureteric opacification.

Protokol bolus kontras

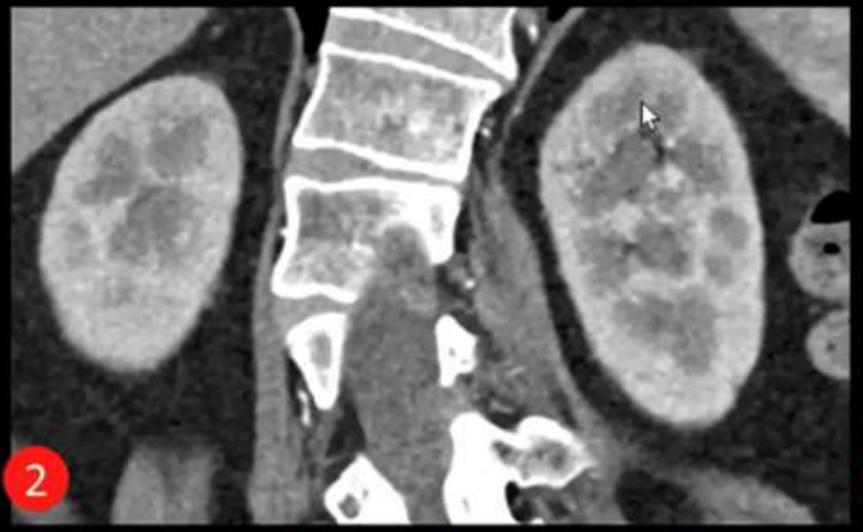
CT urography contrast bolus protocols	
Protocol	**Indication**
Single bolus	Visible hematuria, patients at high risk of upper urinary tract urothelial cell carcinoma
Double bolus	Bladder cancer follow-up
Triple bolus	Assessment of living related kidney donors and patients undergoing percutaneous nephrolithotomy

Single bolus

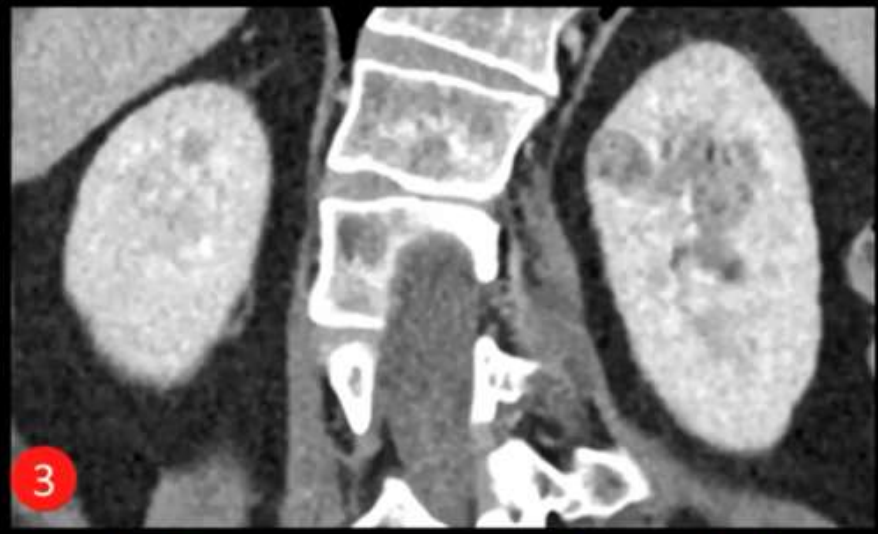
- Terutama utk pasien gejala hematuria yang high risk UUT-UCC, massa ginjal dan batu ginjal
- Terdiri dari 3 seri akuisis gambar:
  - Fase Unenhanced (deteksi batu ginjal/ureter/bladder)
  - Fase ephrographic (deteksi massa ginjal)
  - Fase ekskretorik (deteksi UUT-UCC)

Plane CT phase

Scan depicting how nephrogenic phase is important for diagnosing renal masses, Fig 2 vs Fig 3 showing better depiction of renal angiomyolipoma.



Early cortico-medullary CT-30sec

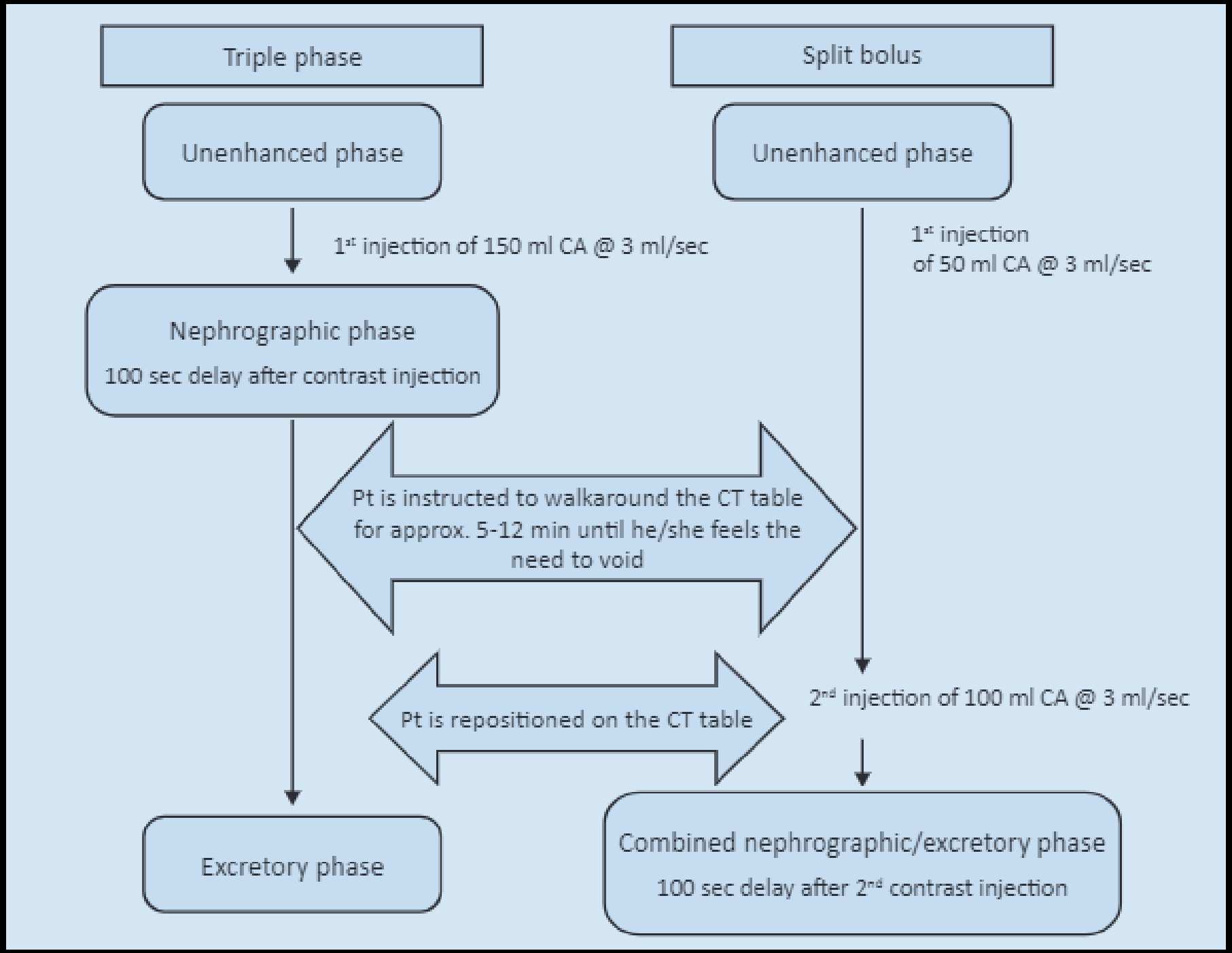


Homogeneous nephrogenic phase -100sec

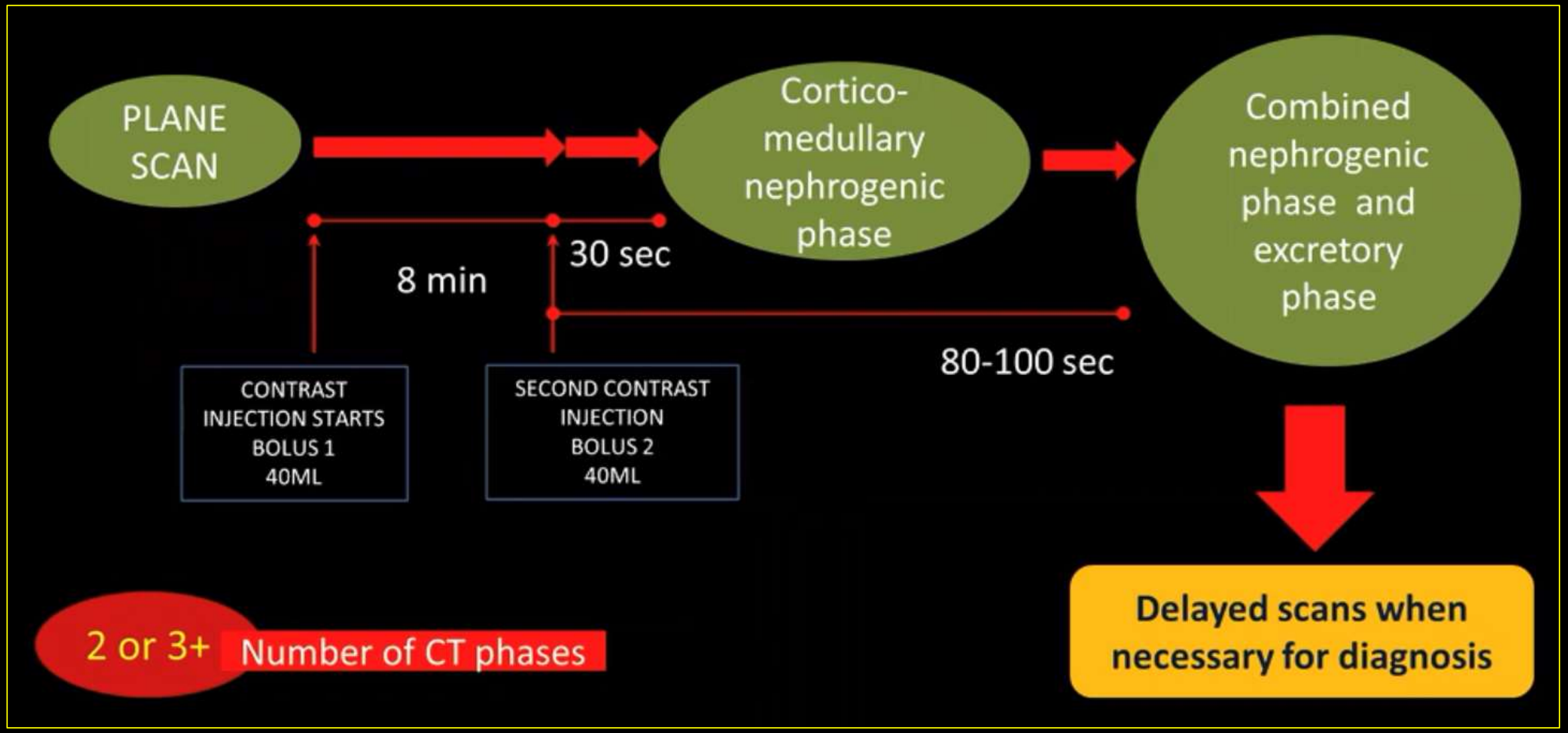
Double bolus

- Less contrast media pada fase nephrographic dan fase ekskretorik:
  - Tumor RCC dan UUT-UCC tidak terlihat begitu jelas
  - Tidak dianjurkan sbg initial-diagnostic
- Low radiation dose:
  - Fase nephrographic dan fase ekskretorik dalam satu kali akuisisi gambar
  - Keperluan follow-up pasien bladder-cancer atau UUT-UCC

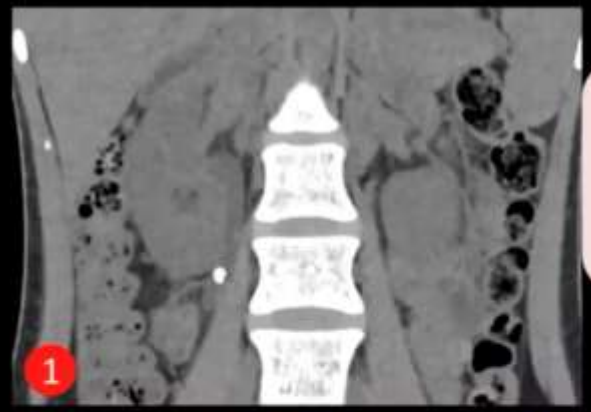
Optimasi prosedur



Split bolus


PLANE SCAN
Cortico-medullary nephrogenic phase
Combined nephrogenic phase and excretory phase
8 min
30 sec
80-100 sec
CONTRAST INJECTION STARTS BOLUS 1 40ML
SECOND CONTRAST INJECTION BOLUS 2 40ML
2 or 3+ Number of CT phases
Delayed scans when necessary for diagnosis

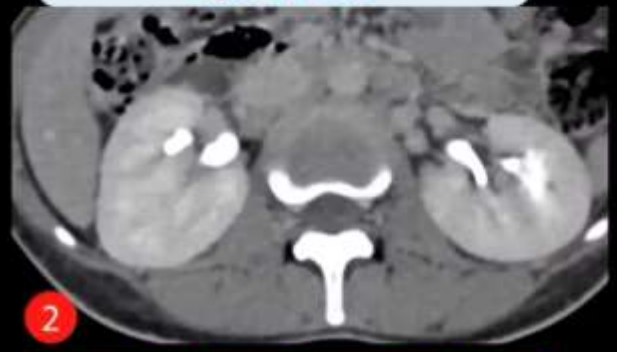
20 year old came with complains of flank pain.
No hematuria



Plane CT phase

Plane CT showing a calculus in right upper ureter

Contrast administration by split bolus



Combined nephrogenic phase (100sec) and excretory phase

Second phase showing complete ureteric opacification

TOTAL 2 PHASES

Combined nephrogenic phase (100sec) and excretory phase, coronal MIP images

NO FOCAL LESIONS, or simple renal cysts +/- HYDRONEPHROSIS

2/3+

PLANE CT

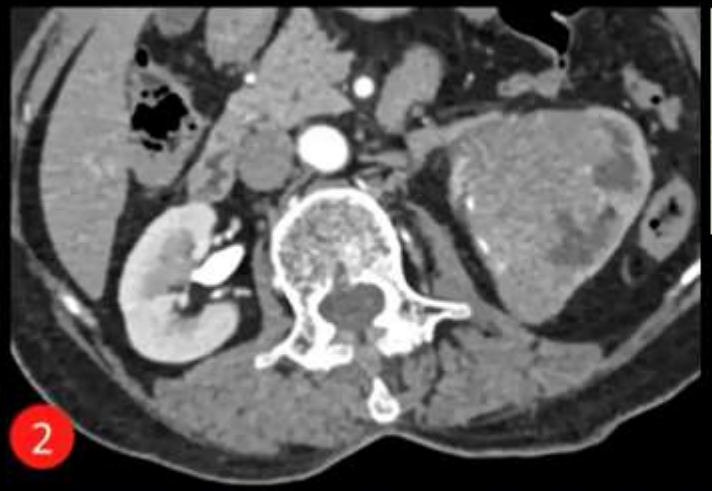
CONTRAST ADMINSTRATION: SPLIT BOLUS (8MIN INTERVAL)

If hematuria present : corticomedullary nephrogenic phase

COMBINED EXCREATORY AND NEPHROGENIC PHASES (80-100SEC)

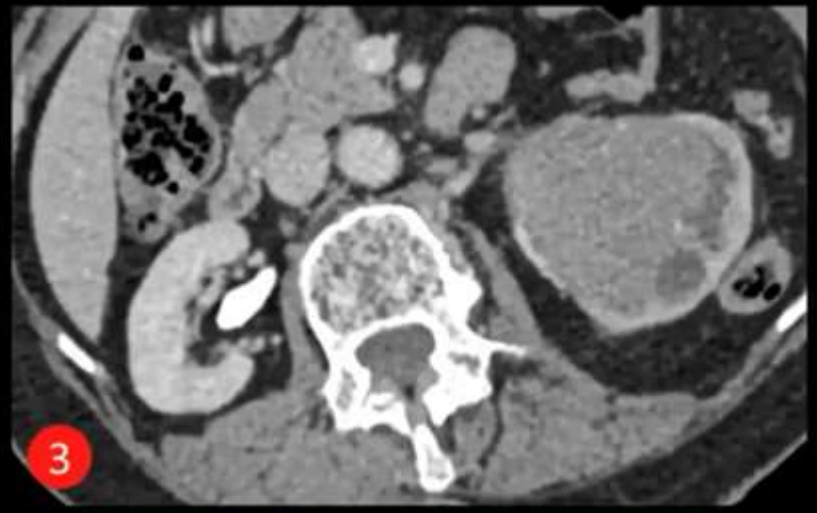
+/-DELAYED AS REQUIRED

Plane CT phase

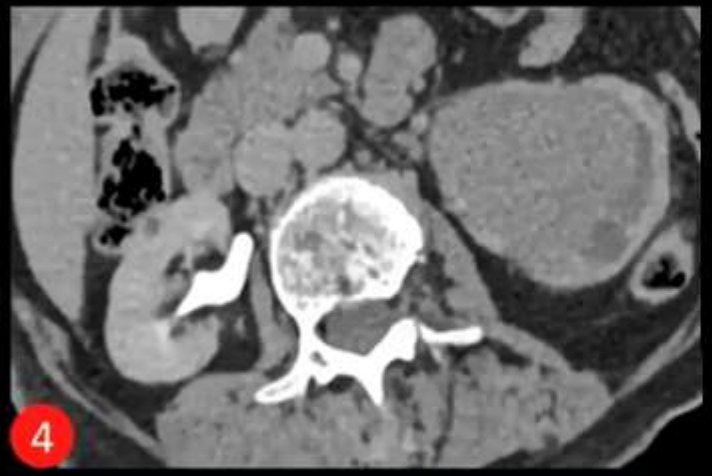


Early cortico-medullary CT-30sec (depicting arterial anatomy

Fig 4: poor excretory function of left kidney



Nephrogenic phase



Delayed phase – 20min

FOCAL LESION LIKE COMPLEX CYSTS, +/- HYDRONEPHROSIS

3+

PLANE CT

CONTRAST ADMINSTRATION: SPLIT BOLUS (8MIN INTERVAL)

EARLY CORTICOMEDULLARY PHASE (30-50 sec)COMBINED EXCREATORY AND NEPHROGENIC PHASES (80-100SEC)

+/-DELAYED AS REQUIRED

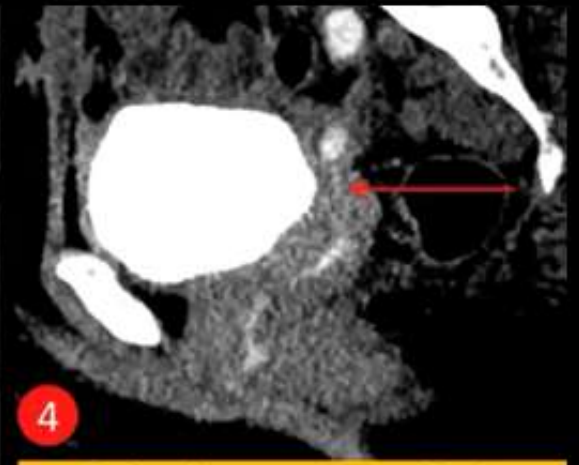
42 year old female with c/o of urine leak per vagina since 1.5 months. post hysterectomy

1 Plane CT phase

Combined nephrogenic+ excreatory and 20min delayed phases : contrast not opacifying right ureter

2
3

4 Delayed scan with opacification of entire ureters



4

Delayed prone scan at 40 min depicting a faint line of contrast tracking from right ureter into vagina – **uretero-vaginal fistula**

4 Abruptly narrowing ureter with no contrast passage distally: stricture

RENAL NEOPLASM/ PT TO BE PLANNED FOR OPERATIVE INTERVENTION, need for better arterial anatomy evaluation

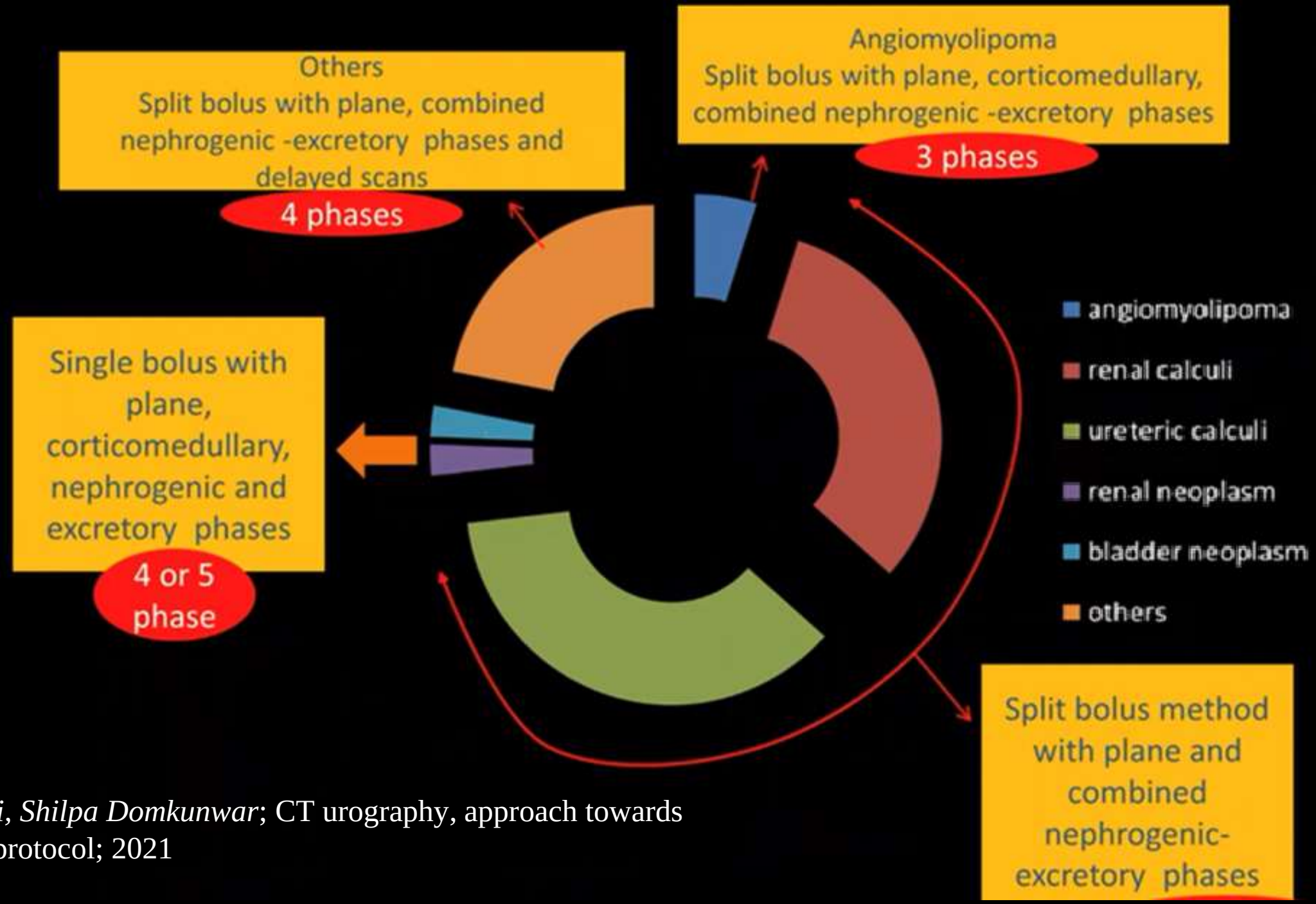
4+

PLANE CT

CONTRAST ADMINSTRATION: SINGLE BOLUS

ARTERIAL (5-10 SEC)AND NEPHROGENIC PHASES (80-100SEC)

EXCREATORY PHASE – 8MIN AND +/- DELAYED PHASES AS REQUIRED

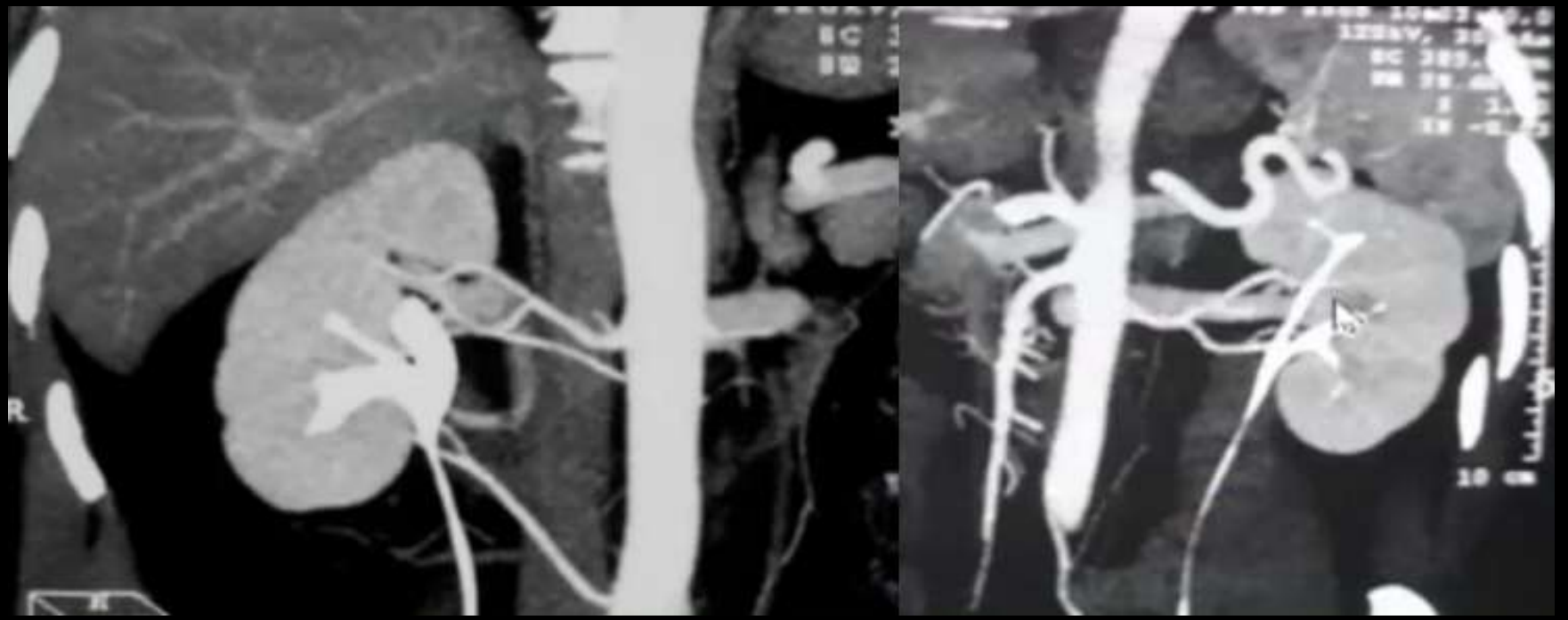


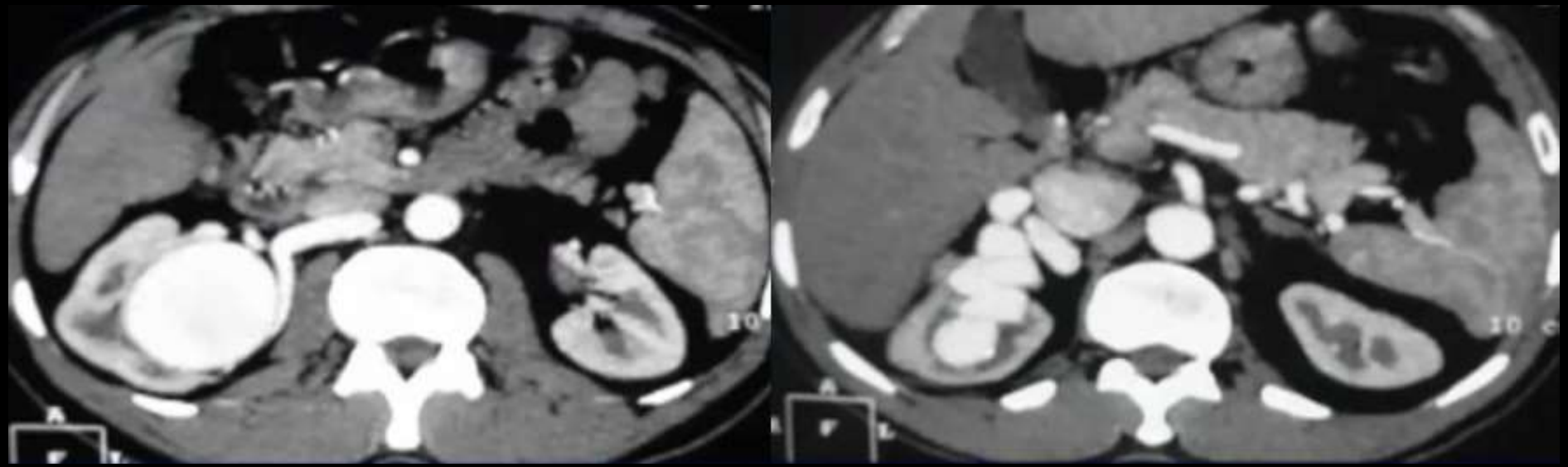
Isha Pasari, Shilpa Domkunwar; CT urography, approach towards optimized protocol; 2021

Triple bolus

- Assessment donor ginjal dan pasien dg percutaneous nephrolithotomy (PCNL)
- Tidak direkomendasi pada klinis hematuria:
  - Berkurang volume kontras pada fase ekskretorik karena bolus splitting
  - Compromise diagnostic accuracy

Triple bolus





Fase arteri

Indikasi CT Urografi

Indications for CT urography

- Hematuria (excluding UTI)
- Staging and follow-up of urothelial tumors
- Iatrogenic ureter and bladder injury
- Trauma to the genitourinary tract
- Investigation of fistulae
- Unexplained hydronephrosis
- Planning for percutaneous nephrolithotomy
- Living related kidney donor assessment
- Recurrent UTI

Differential diagnoses in macroscopic haematuria

- Urinary tract malignancy: kidney, renal pelvis, ureter, bladder, prostate, urethra
- Urinary calculi
- Infections: urinary tract infection, schistosomiasis
- Trauma: penetrating or blunt
- Benign prostatic hyperplasia
- Haemorrhagic cystitis
- Endometriosis
- Nephrological disease: IgA nephropathy, glomerulonephritis
- Postprocedural bleeding—for example, transurethral surgery
- Bleeding disorders, anticoagulation therapy
- Arteriovenous malformation/angiomyolipoma

Malignancy

- Kemungkinan malignancy pada pasien dg macroscopic-hematuria tinggi hingga 10-28% kasus
- Kemungkinan didapatkan microscopic-hematuria sebesar pada 0,2% kasus TCC, 1% kasus RCC dan 3,7% bladder cancer

Renal Cell Carcinoma: Presentation

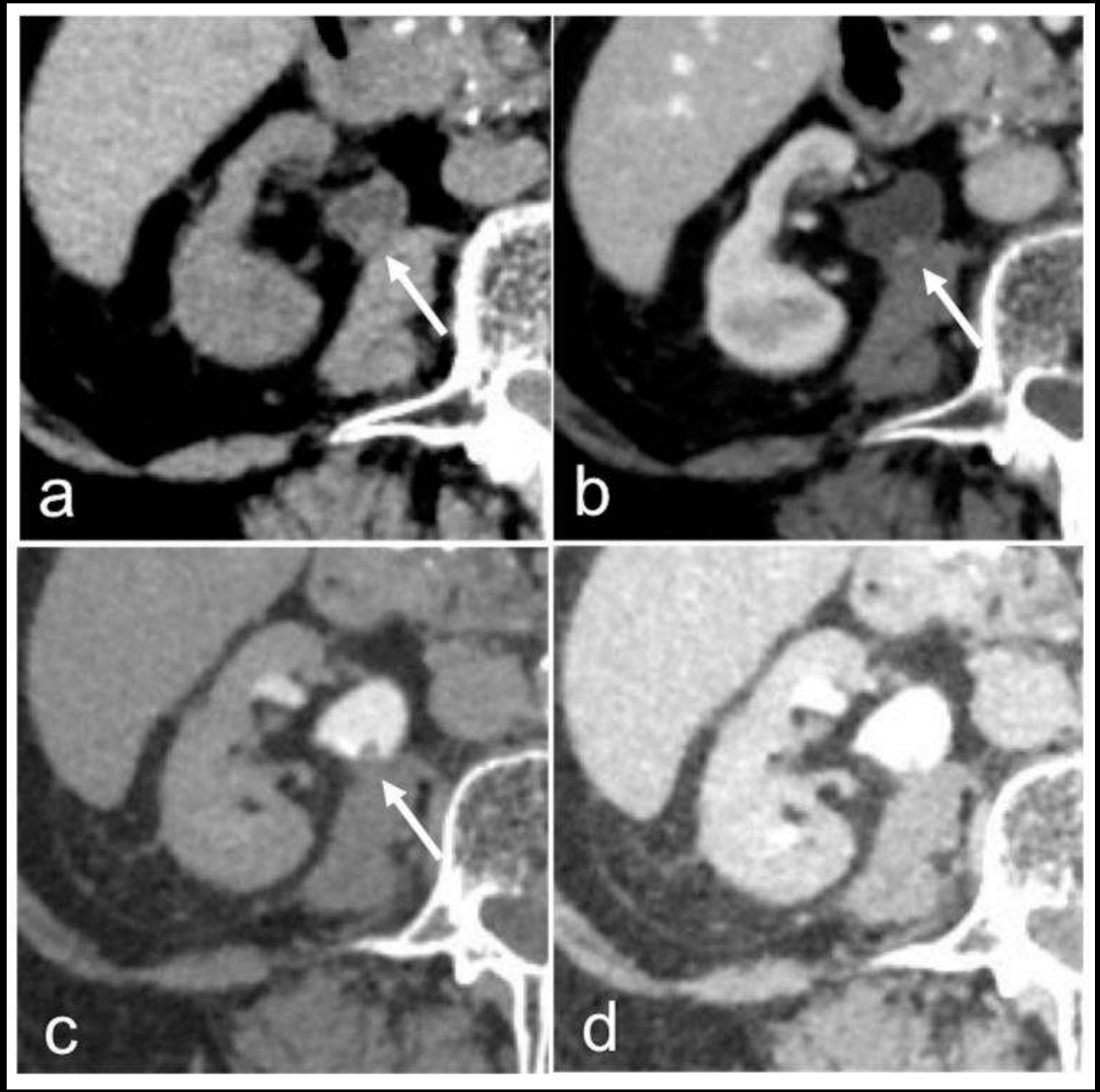
- Hematuria (40%)
- Flank pain (40%)
- Palpable mass in flank or abdomen (25%)
- Weight loss (33%)
- Fever (20%)
- Hypercalcemia (5%)

CT Urografi pada Tumor upper urinary tract

- Initial evaluation: highest diagnosctic accuracy, mendeteksi tumor ukuran kecil (sekitar 5 mm) yang terlihat sebagai urothelial wall thickening
- TNM staging: perluasan periureterik, organ utuh (stage T1/T2), local-invasive (stage T3/T4), distant-metastasis
- Deteksi tumor synchronous/metachronous
- Post treatment follow up

CT Findings

- Lesi soft tissue; bisa terdapat kalsifikasi intralesi/superficial bentuk granular/linear/punctate
- Early enhancement post-kontras (berbeda dg clotting yg non-enhanced)
- Fase ekskretorik tampak filling-defect atau luminal-narrowing

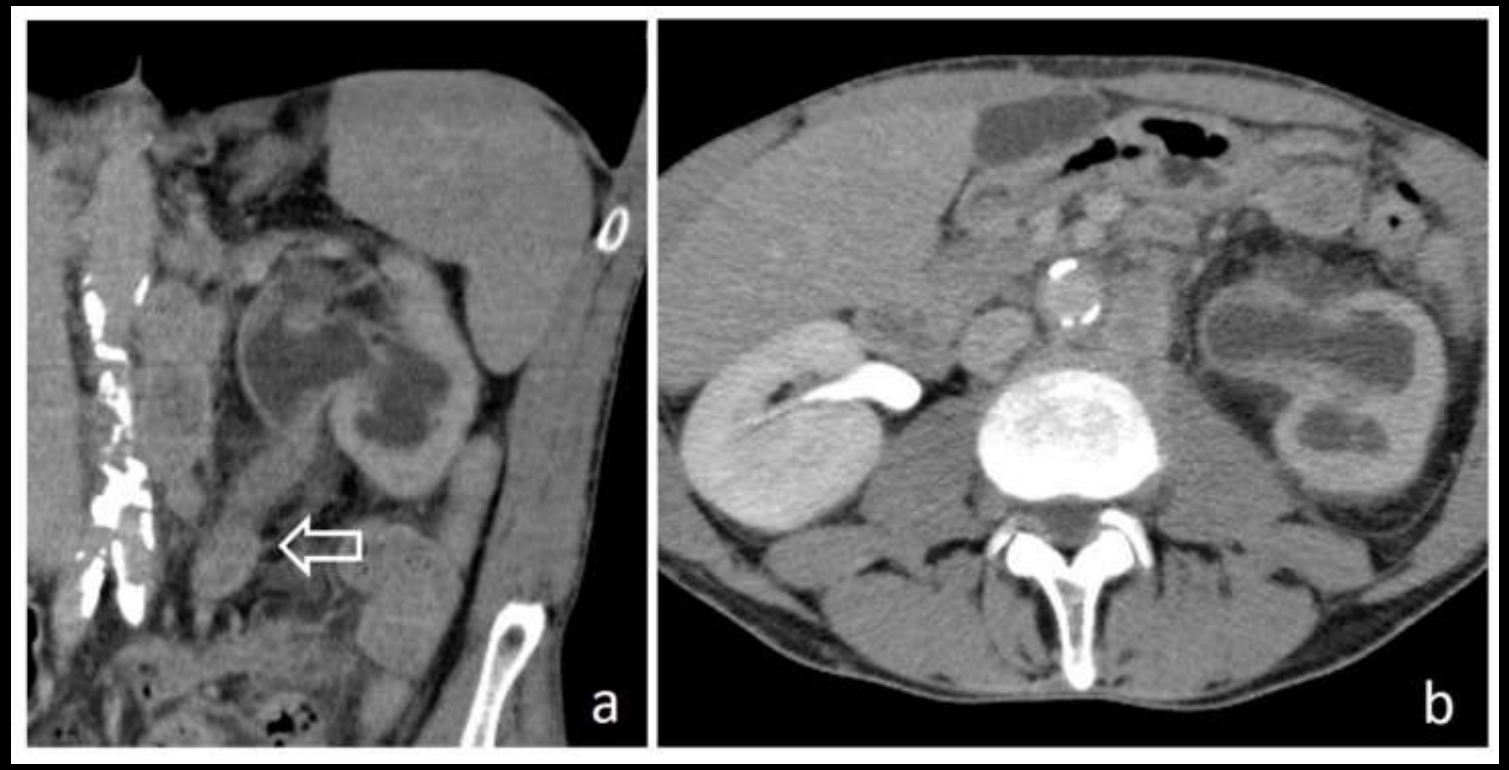


CT Findings

- Tumor mengenai calyceal-system: fase ekskretorik tampak missing-calyx oleh lesi solid yg disebut “oncocalyx”
- Dilatasi calyx dilation dan tidak tampak urine-opacification yang disebut “phantom calyx” jika tumor berada di infundibular-neck

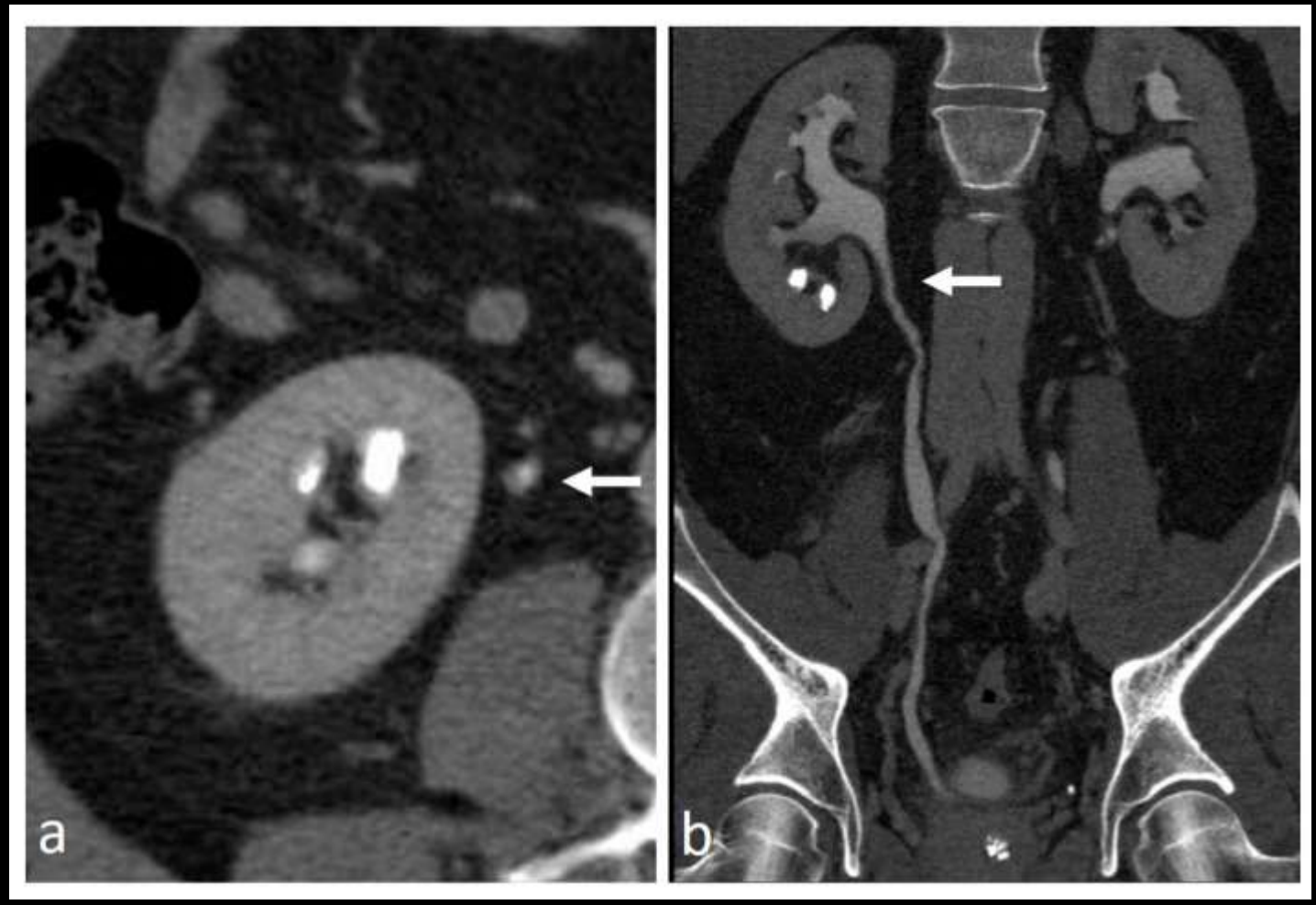
CT Findings

- Tumor mengenai ureter: oklusi lumen dan hydronephrosis → hipoperfusi parenkim ginjal
- Massa solid di ureter: fungsi nephrogenic menurun dan delayed fungsi ekskresi



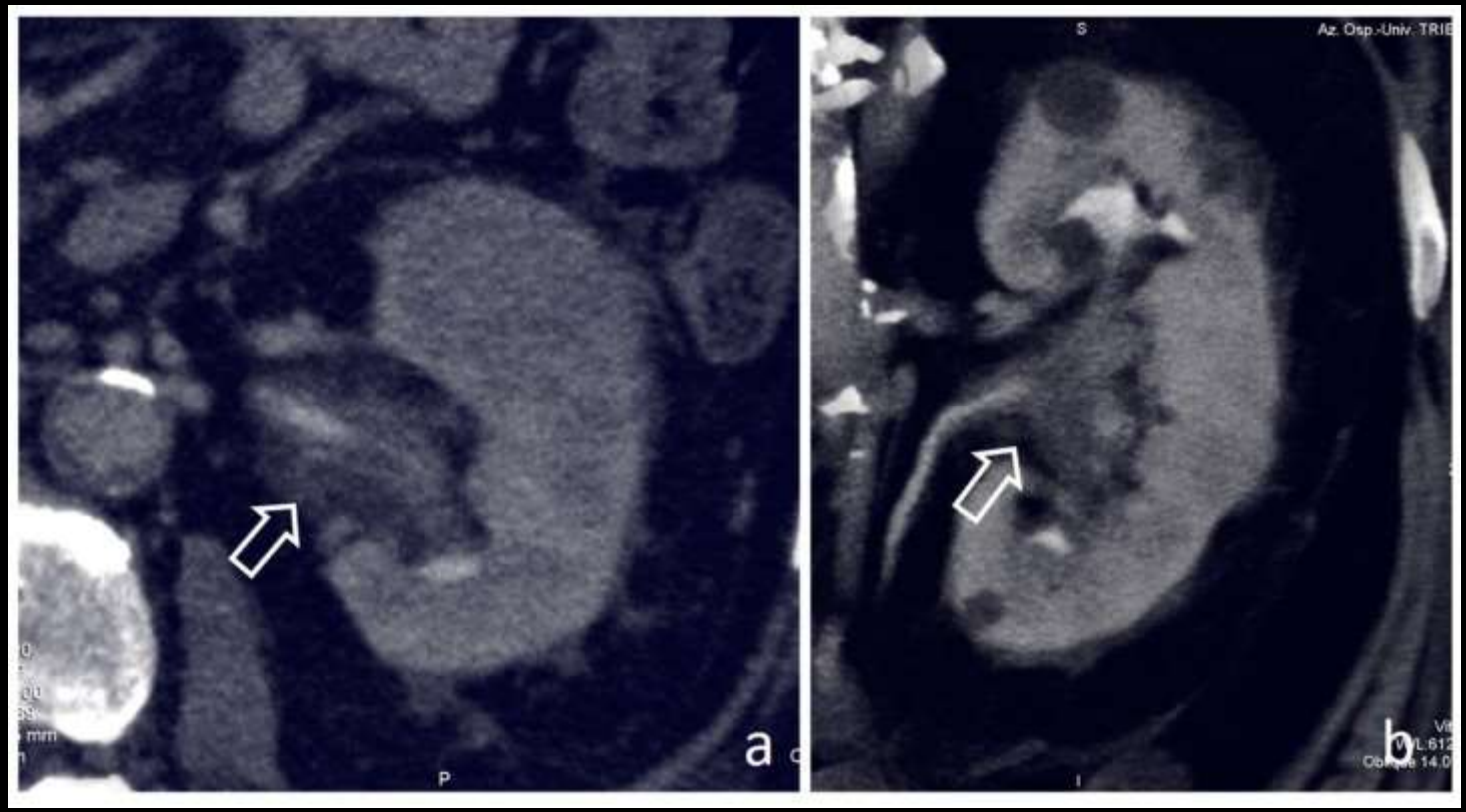
CT Findings

- Flat-lesions: concentric/eccentric pyelocaliceal/ureteral wall-thickening



CT Findings

- Infiltrative pattern: attenuasi dan fat-stranding periureteral dan renal sinus fat



CT Findings

- Tumor parenkim ginjal:
  - Fase corticomedullary tampak early-enhancement dibandingkan renal-medulla
  - Fase nephrographic tampak hypoenhancement (sulit dibedakan dengan berkurangnya gambaran nephrographic jaringan sekitar)
  - Infiltrasi tumor: kidney-enlargement dengan kontur intak

Renal cell carcinoma

Bladder cancer

- Initial evaluation: highest diagnosctic accuracy: 91% (in detection) dan 35–55% (in staging), mendeteksi tumor ukuran kecil (sekitar 5 mm) yang terlihat sebagai urothelial wall thickening
- TNM staging: perluasan periureterik, organ utuh (stage T1/T2), local-invasive (stage T3/T4), distant-metastasis
- Deteksi tumor synchronous/metachronous
- Post treatment follow up

CT Findings

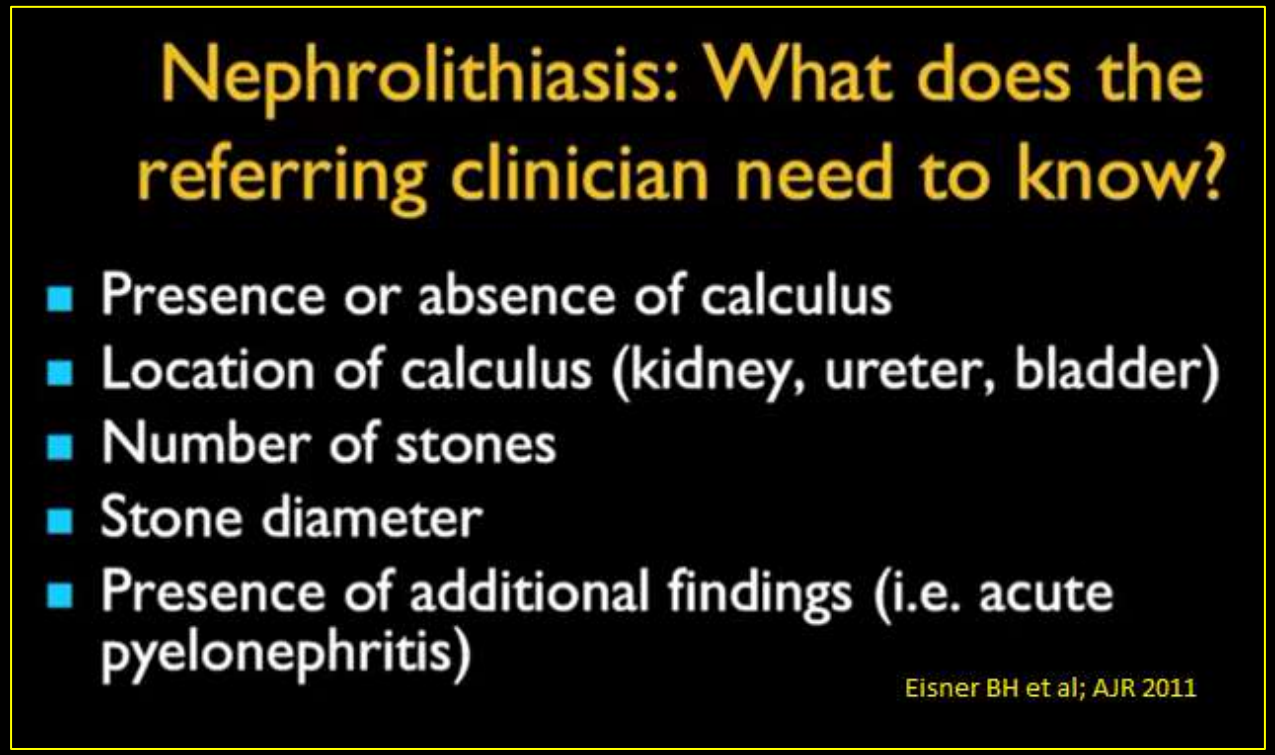
- Tampak lesi polypoid intraluminal, atau massa nodular, atau localized wall thickening
- Variable-degrees enhancement post-kontras

Bladder cancer

Batu saluran kemih

- Gejala klinis terbanyak: kolik renal (20,4%) dan obstruksi intestinal (13,7%)
- Diagnosis urolithiasis terbanyak dengan CT scan (49%)
- Rencana tindakan dipengaruhi 42% setelah CT scan
- Hospital discharge 25,3% setelah CT scan

(Abujudeh HH, Thrall JH et al, AJR 2011)



Batu ureter

Infeksi saluran kemih

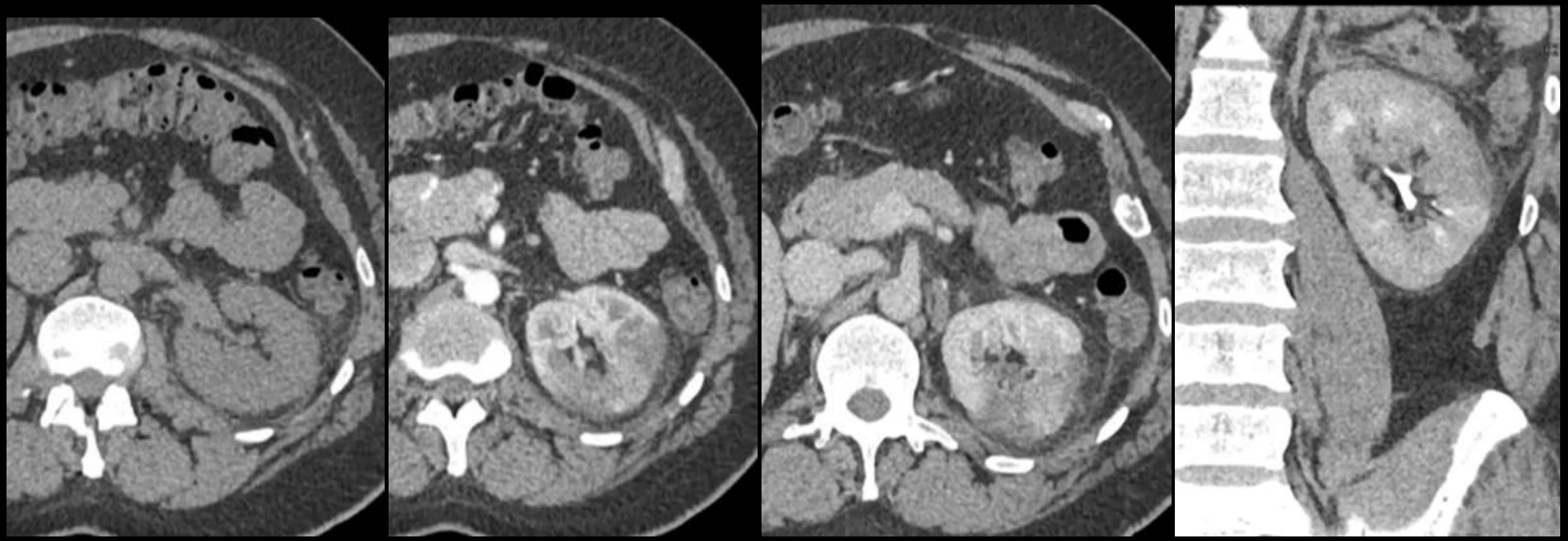
CT Findings in Renal Infection

- alteration in renal contour
- alteration in parenchymal attenuation (decreased)
- alteration in contrast enhancement (decreased)
- decreased rate of contrast excretion
- perinephric abnormalities

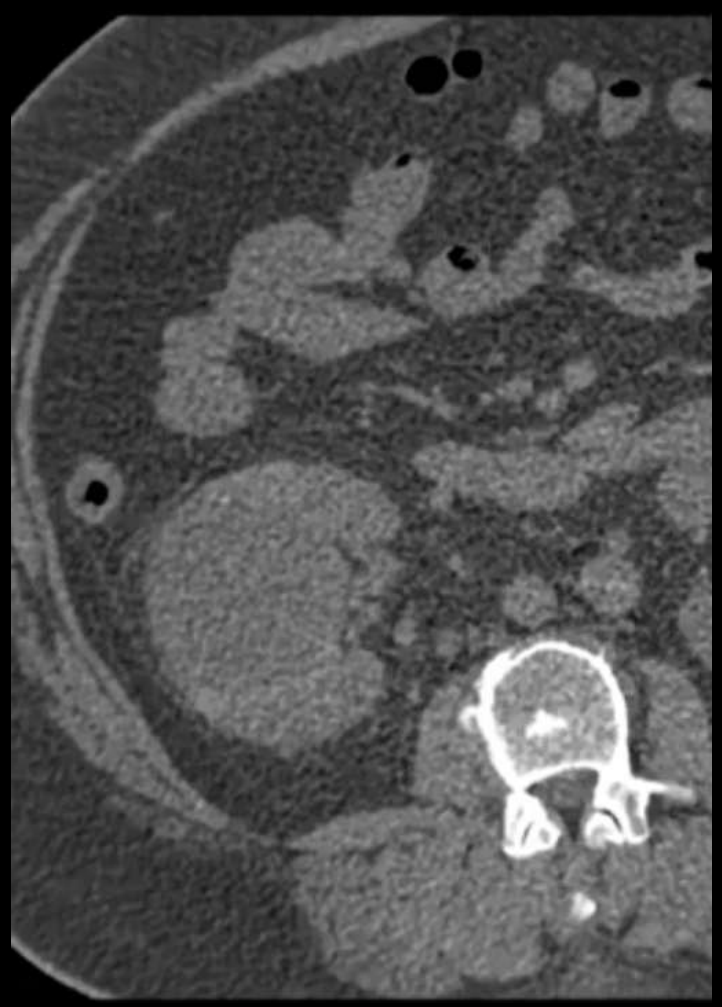
Renal Abscess: CT Findings

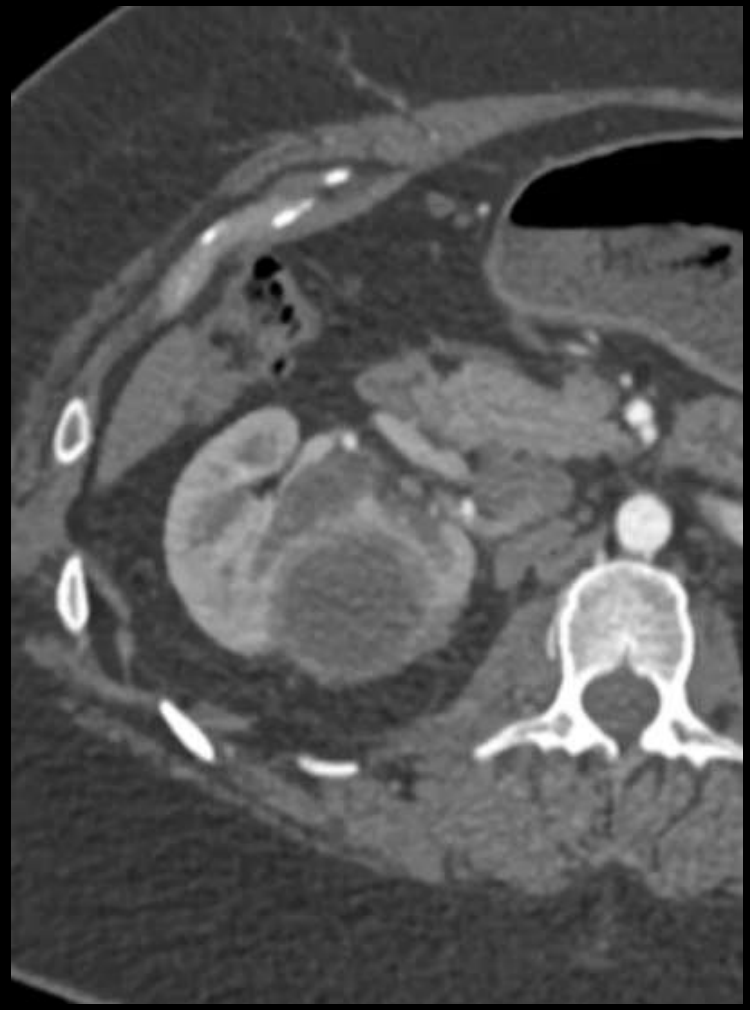
- focal low density mass
- often cystic with thickened irregular walls
- thickening of Gerota's fascia
- perinephric extension
- may be single or multiple
- usually unilateral in location

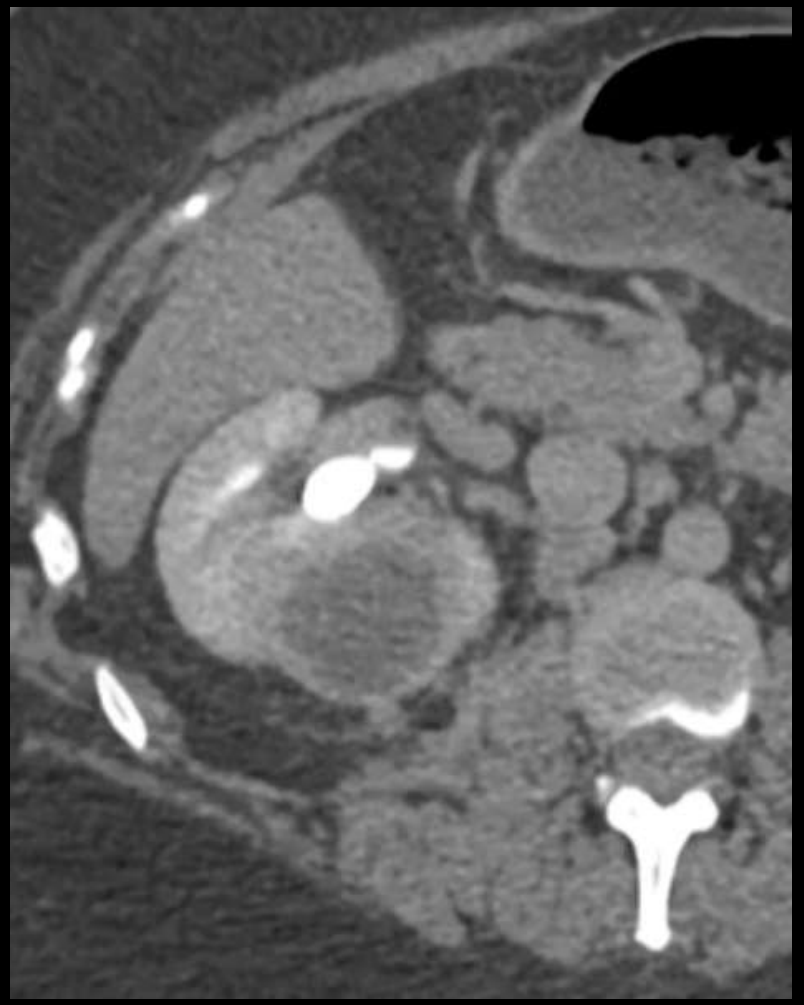
Pyelonefritis akut



Abses ginjal





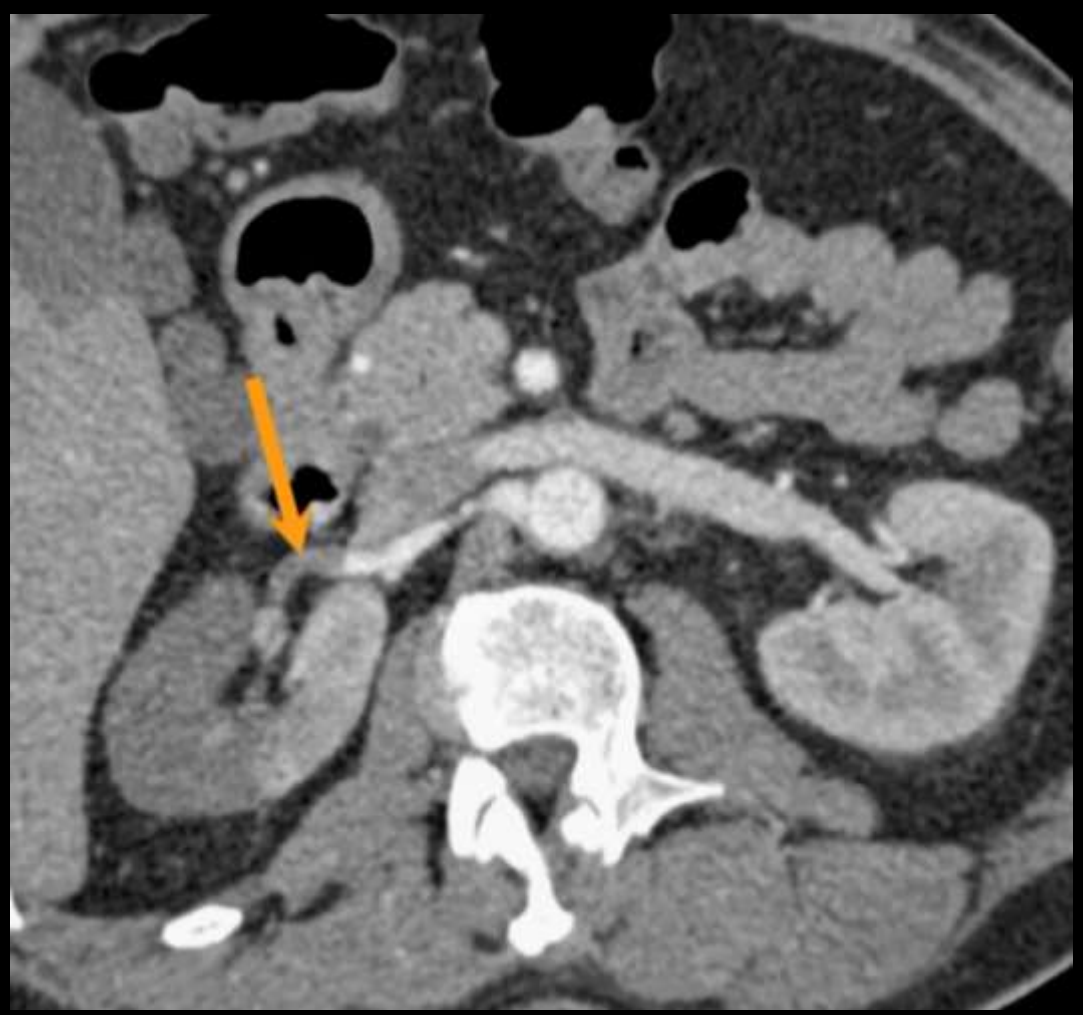


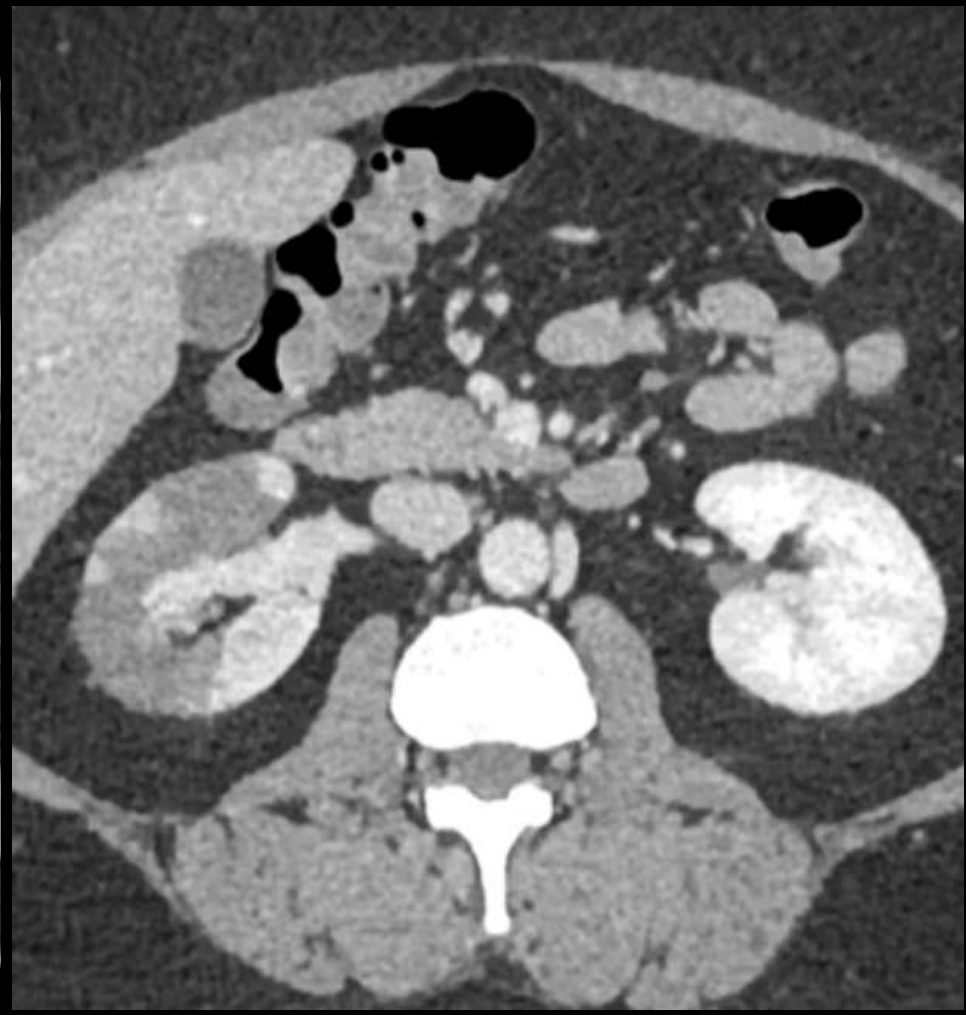
Infark ginjal

Renal Infarction: CT Findings

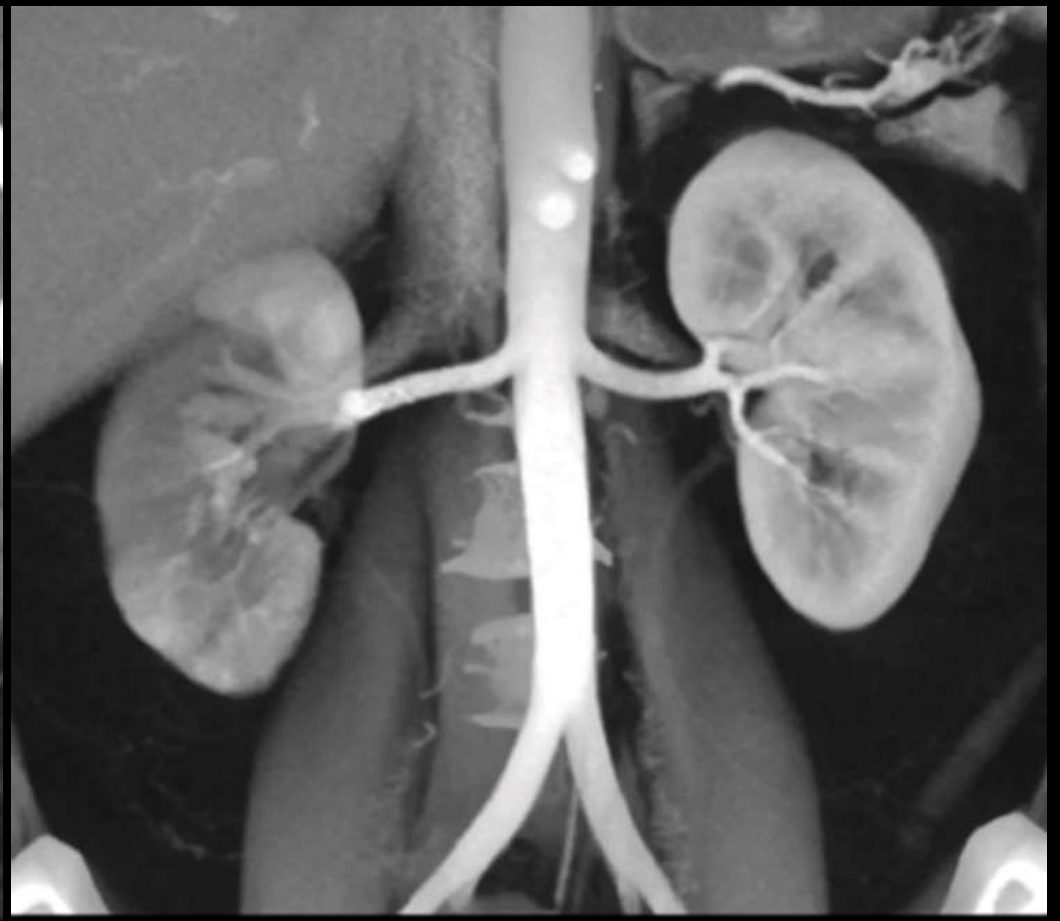
- Focal vs global involvement
- Usually due to arterial occlusion sudden in onset
- May be unilateral or bilateral depending on the etiology
- Cortical rim sign may be seen with global infarction
- Chronic renal infarction may be seen as a small kidney

Infark ginjal

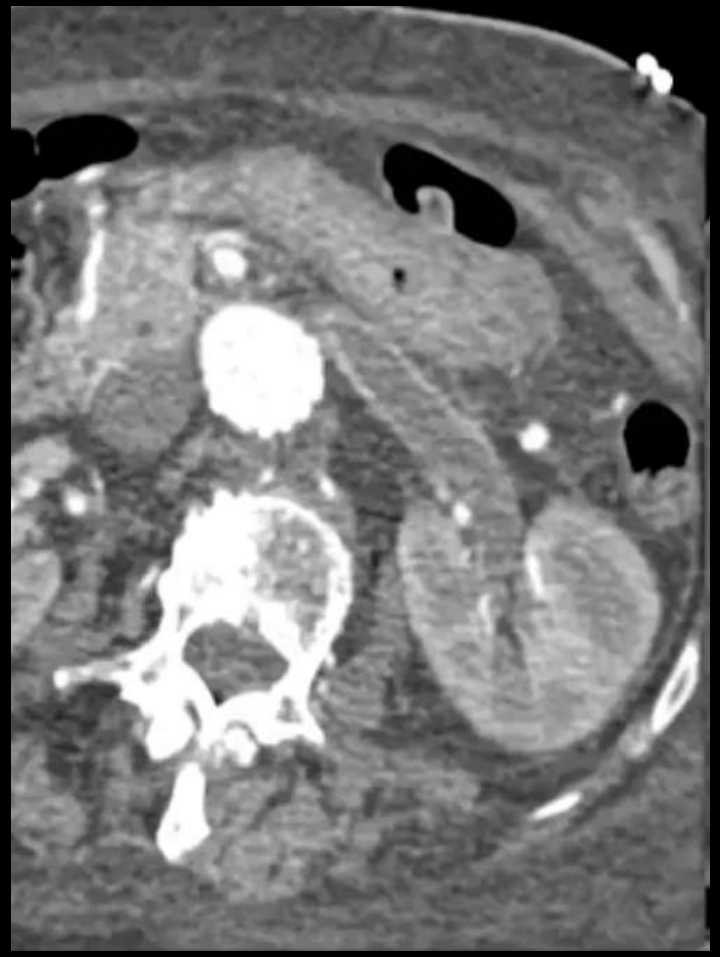


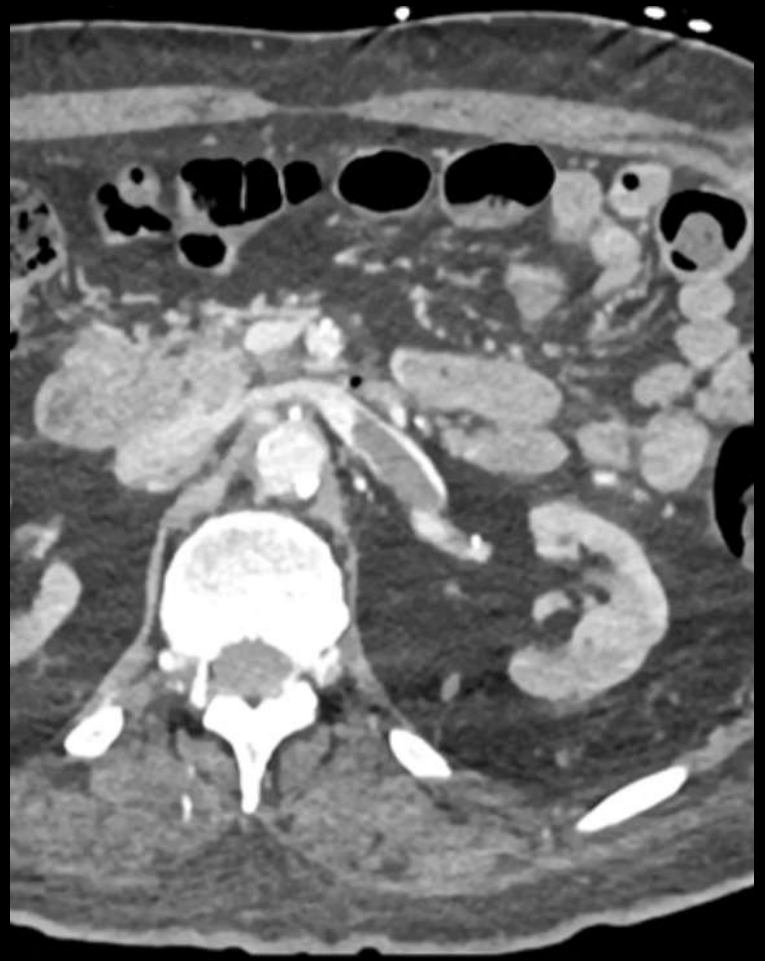


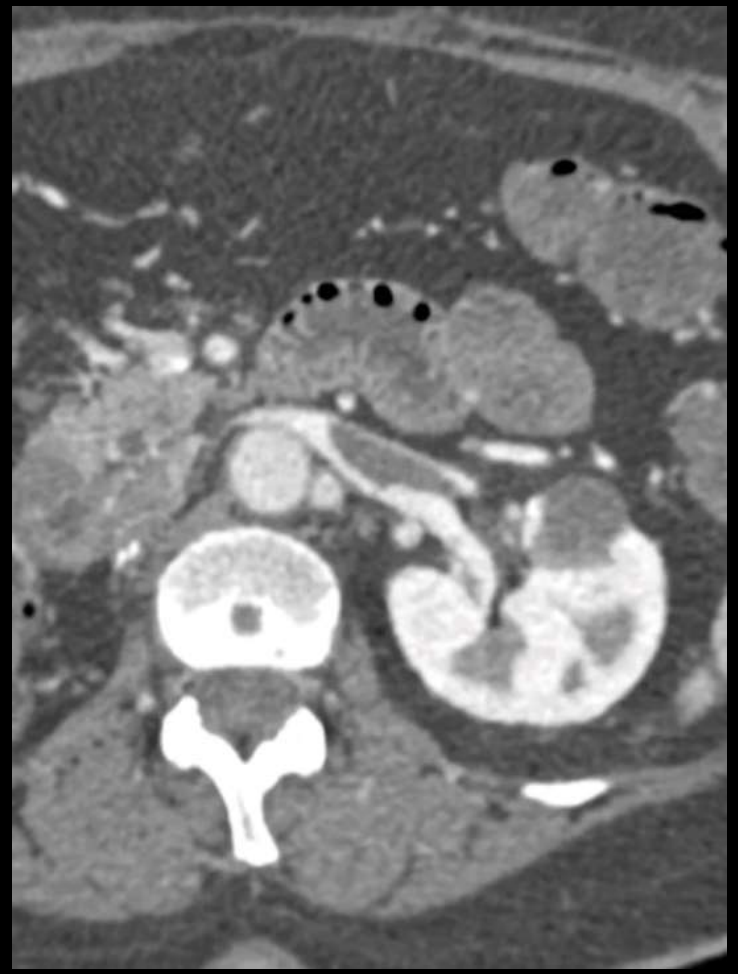
Infark ginjal



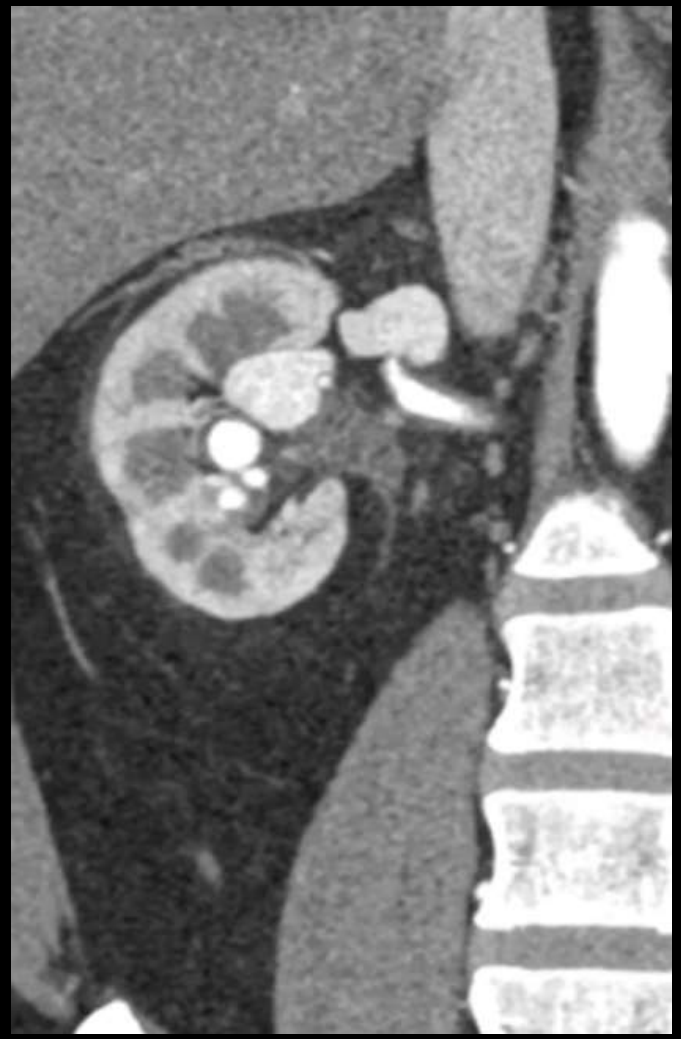
Thrombosis vena renalis



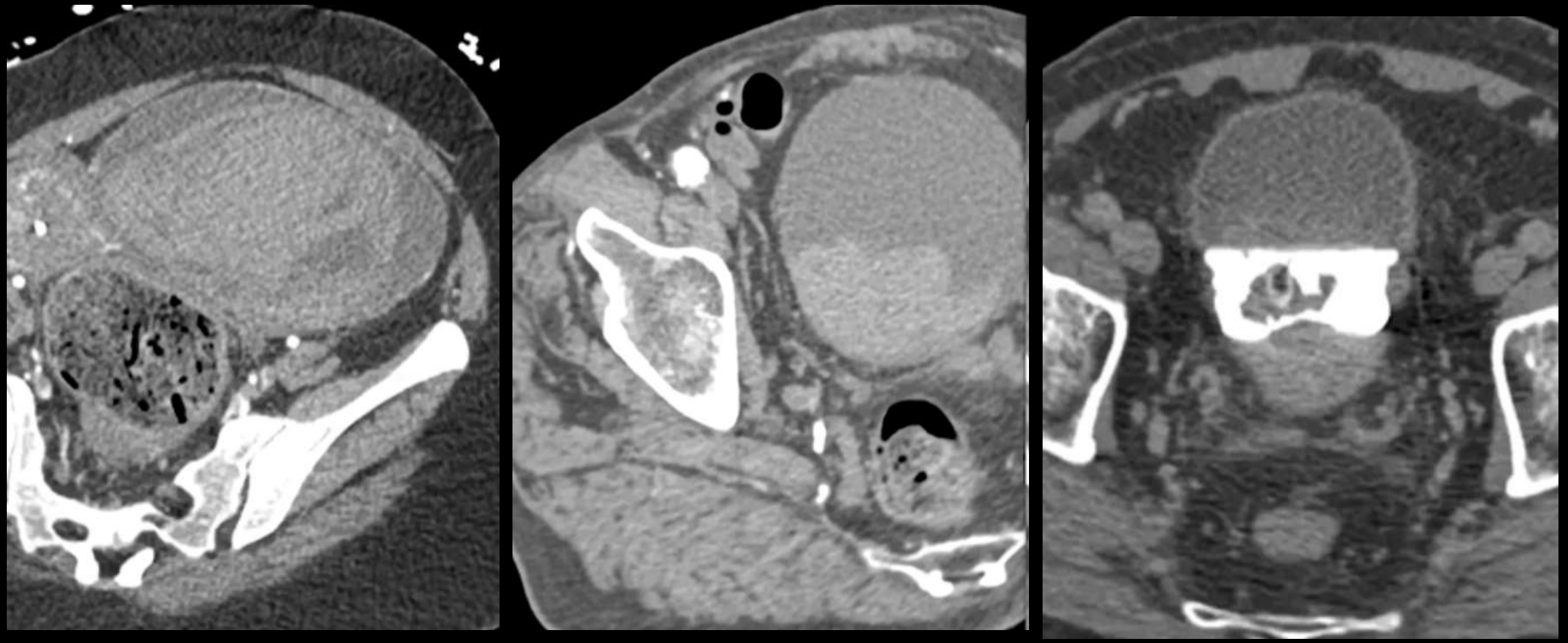




AVM



Blood clotting



Universitas Mulawarman
Samarinda