

Ülemise urotrakti arenguanomaaliad

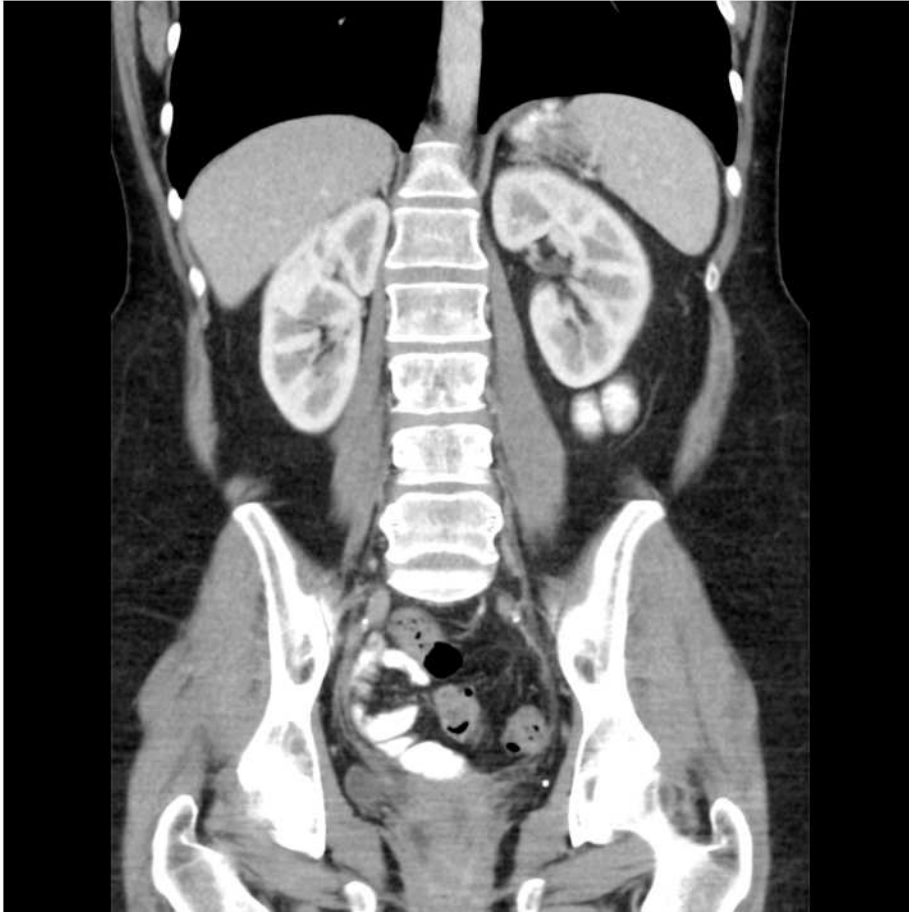
Veniamin Vassiljev
Radioloogia III aasta resident

Ülemise urotrakti arenguanomaaliad

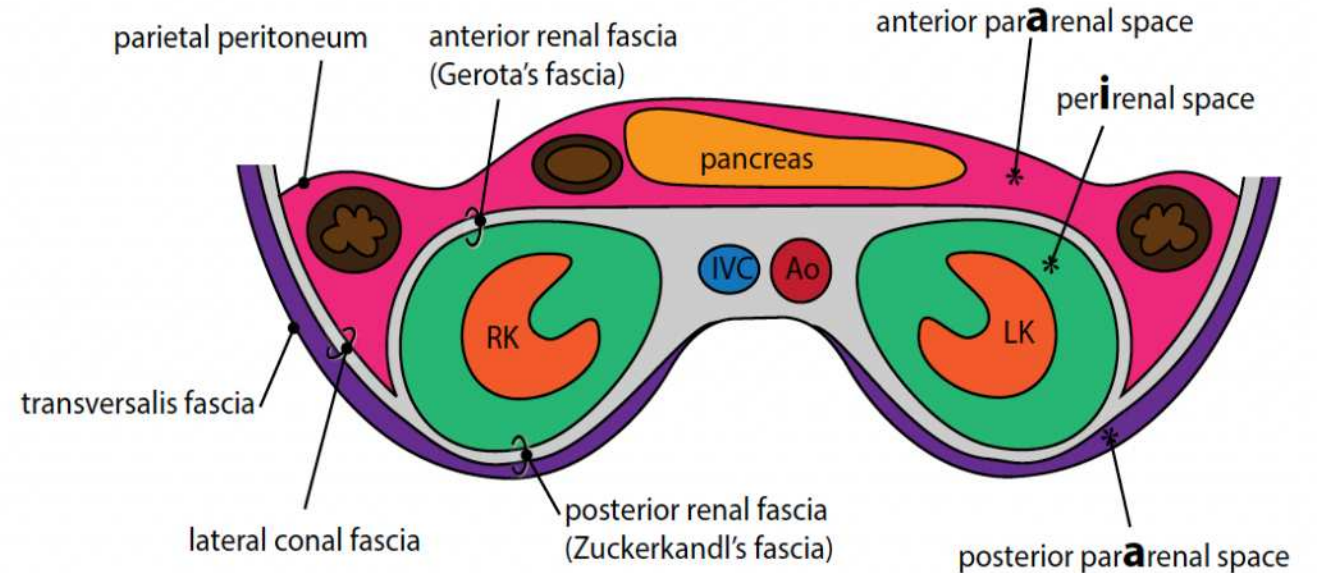
- Inimesel kõige sagedamini esinevad kaasasündinud arenguanomaaliad
- Esinevad 1-3% elanikkonnast
- Moodustavad 50% kõigist kaasasündinud arenguanomaaliatest
- Väga sageli esinevad koos suguelundite väärarengutega (ühine embrüoloogiline päritolu)
- 2/3 patsientidel esinevad arenguanomaaliad teistes organsüsteemides

Anatoomia

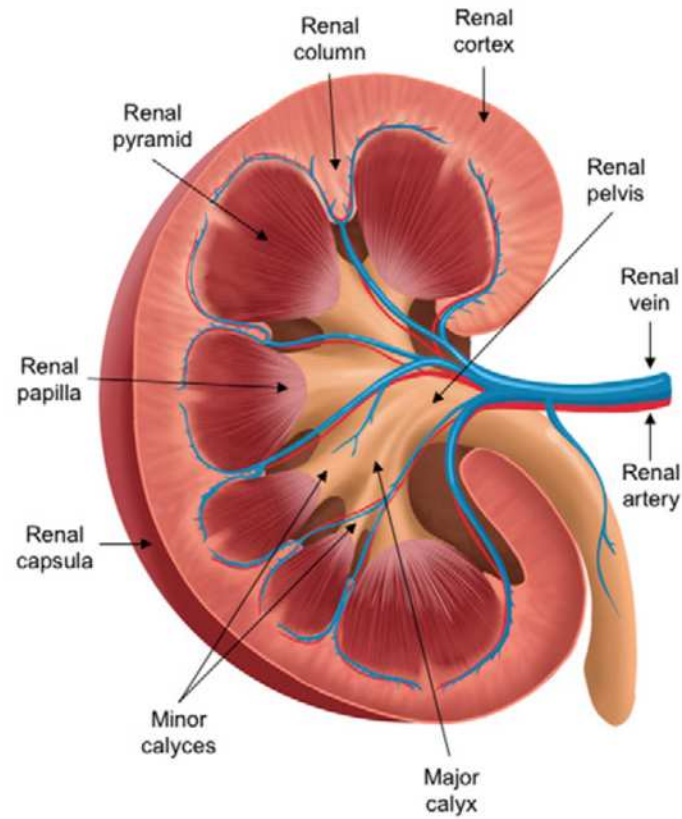
- Neer on oakujuline paariline retroperitoneaalne kuseloomeelund
- Paiknevad m. quadratus lumborum peal Th12-L3 lülihekade kõrgusel
- Parem neer maksa tõttu 1-2 cm madalamal
- Pikimõõt u 10-12 cm ning laius 3-5 cm



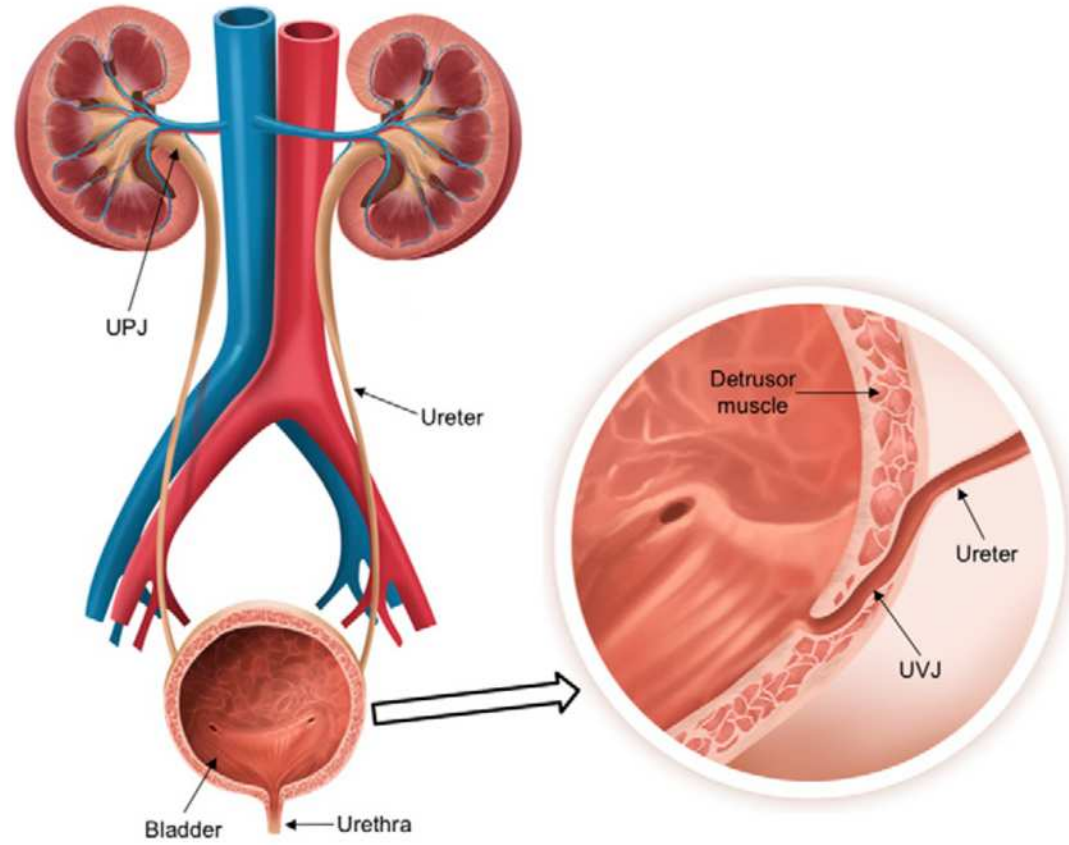
3 compartments of the retroperitoneum



Anatoomia



a.



b.

Kusejuha

- 25-30 cm pikkune
- Läbimõõt 3-5 mm

Klassifikatsioon

Classification of Congenital Anomalies of the Upper Urinary Tract

Type of Renal Anomaly	Key Features
Renal form	
Structural	
Persistent fetal lobulation	Smooth indentations of the renal outline between the pyramids
Hypertrophied column of Bertin	Hypertrophied cortical tissue projecting into the renal sinus
Dromedary hump	Focal bulge on the lateral contour of the left kidney
Fusion	
Horseshoe kidney	Fusion across the midline of two distinct functioning kidneys
Pancake kidney	Complete fusion of both kidneys in the pelvic cavity
Renal position	
Renal malrotation	Abnormal position of the kidneys in relation to the hilum
Ectopic kidney	Abnormal kidney location: simple ectopia or crossed ectopia
Crossed renal ectopia	Kidney is located on the opposite side and its ureter has normal insertion
Renal number	
Renal agenesis	Complete absence of one or both renal tissue
Supernumerary kidney	Accessory organ (typically one additional kidney)
Development of the urinary collecting system	
Pyelocaliceal diverticulum	Cystic dilatation of renal pelvis or calyces
Megacalycosis	Enlargement of the renal calices without renal pelvis dilatation
UPJO	Obstruction of the normal flow of urine in the UPJ
Duplex collecting system	Two separate pyelocaliceal systems: complete or incomplete
Megaureter	Ureteral dilatation with or without pyelocaliceal dilatation
Ectopic ureter	Ureter with an insertion beyond the bladder trigone
Ureterocele	Cystic dilatation of the intravesical segment of the distal ureter

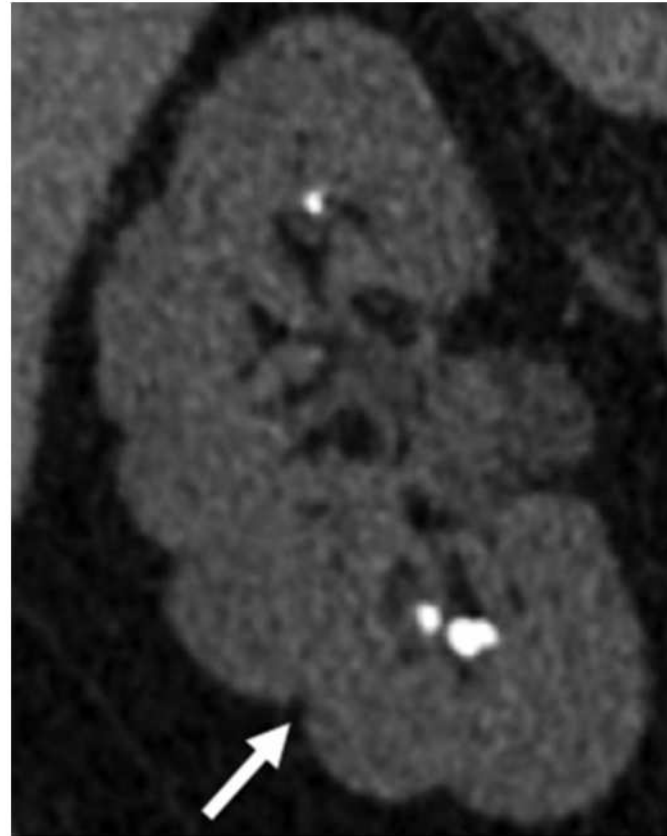
Note.—UPJ = ureteropelvic junction, UPJO = ureteropelvic junction obstruction.

Neeruvormi anomaaliad

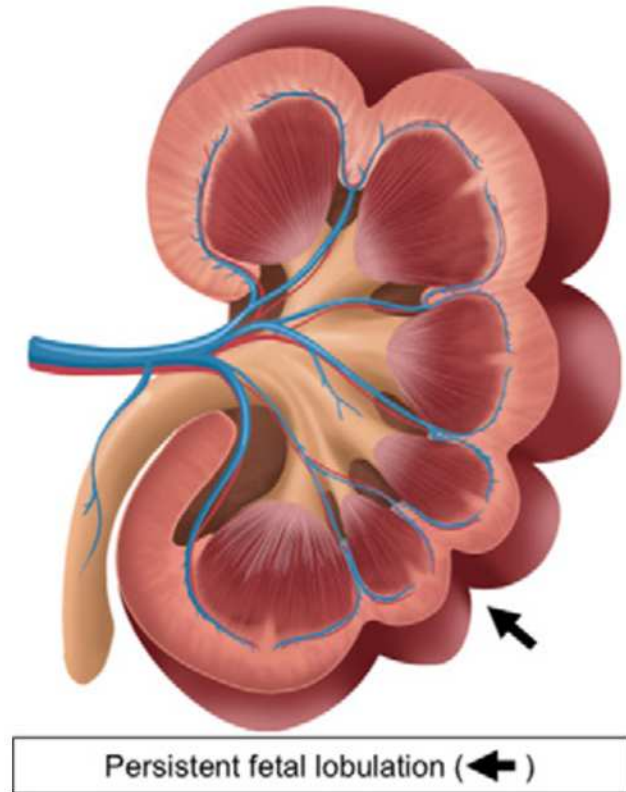
Struktuurianomaaliad

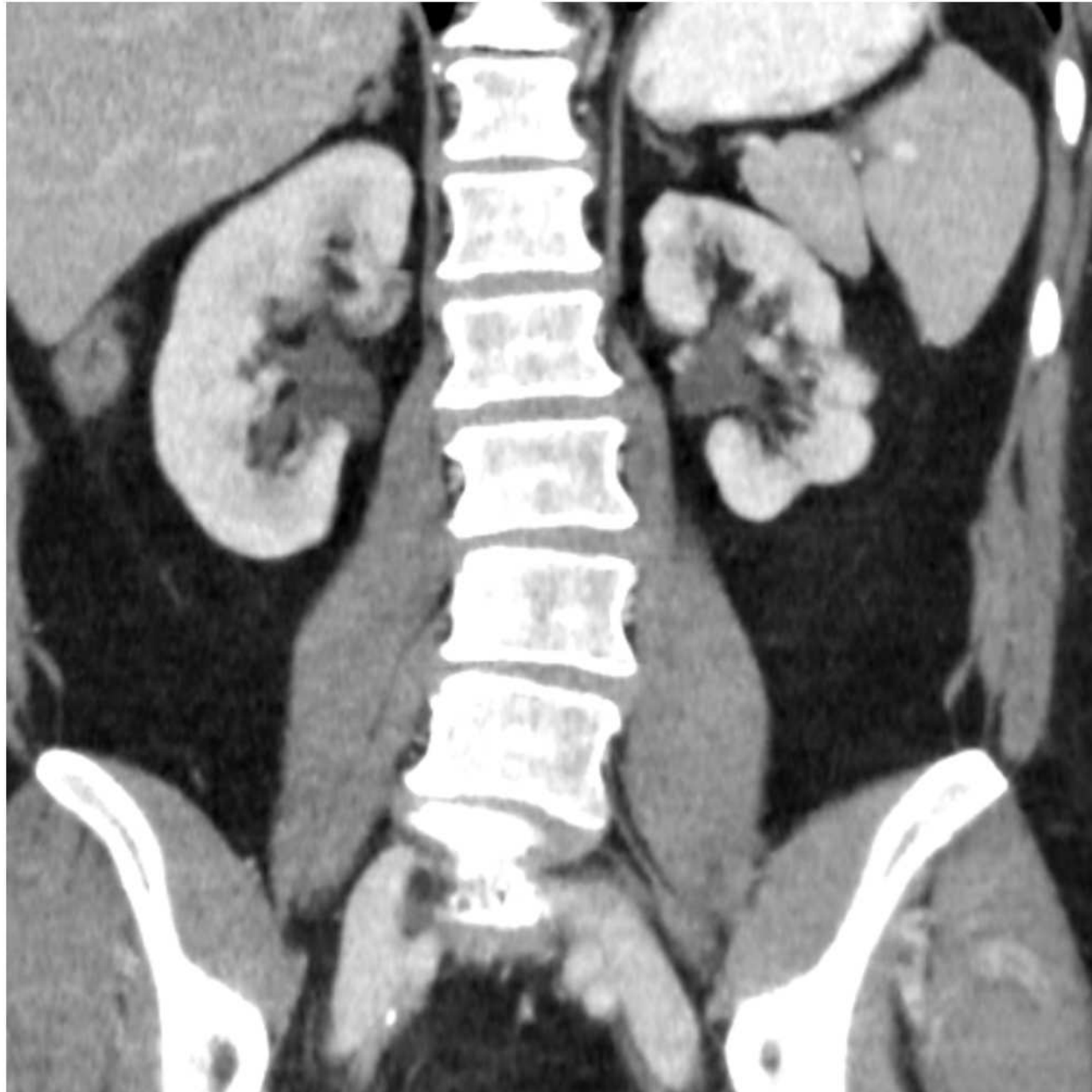
- Püsiv lobulaarsus
- U 4% elanikkonnast
- ei oma kliinilist tähtsust
- Dif. Dgn-lt:

Neeru armistumine – ebakorrapäraseid sissetõmbed, kortkesi õhenemine



N 36 a.





Neeru armistumine

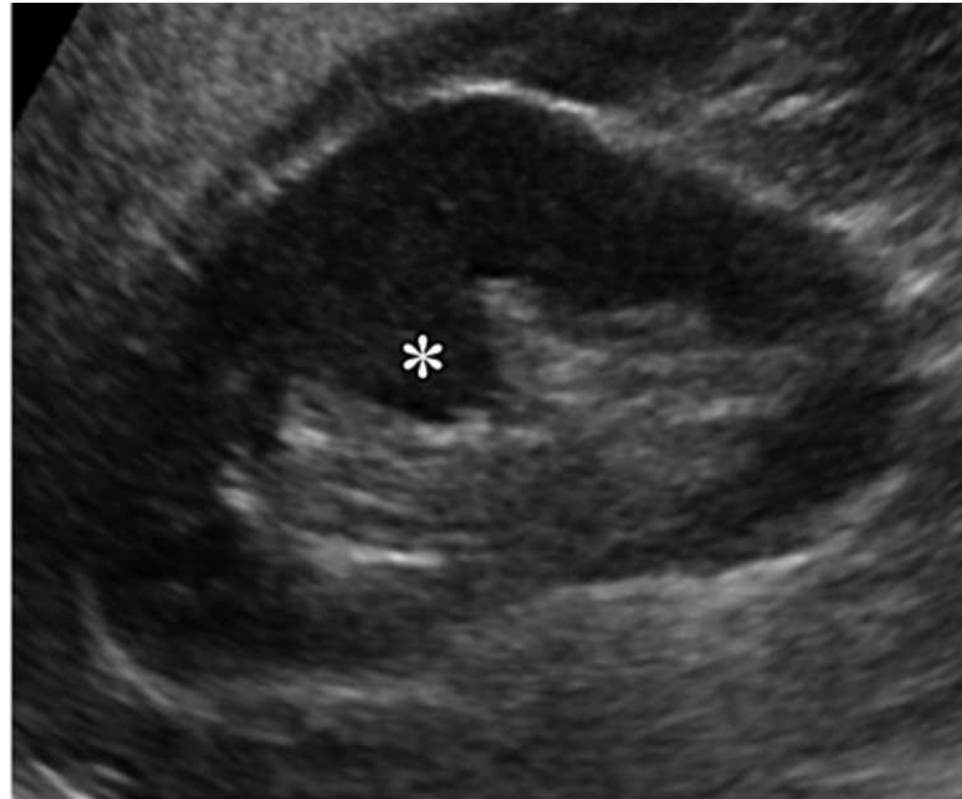
N 55 a. Krooniline püelonefriit

Case courtesy of Dr Roberto Schubert,
Radiopaedia.org, rID: 16345

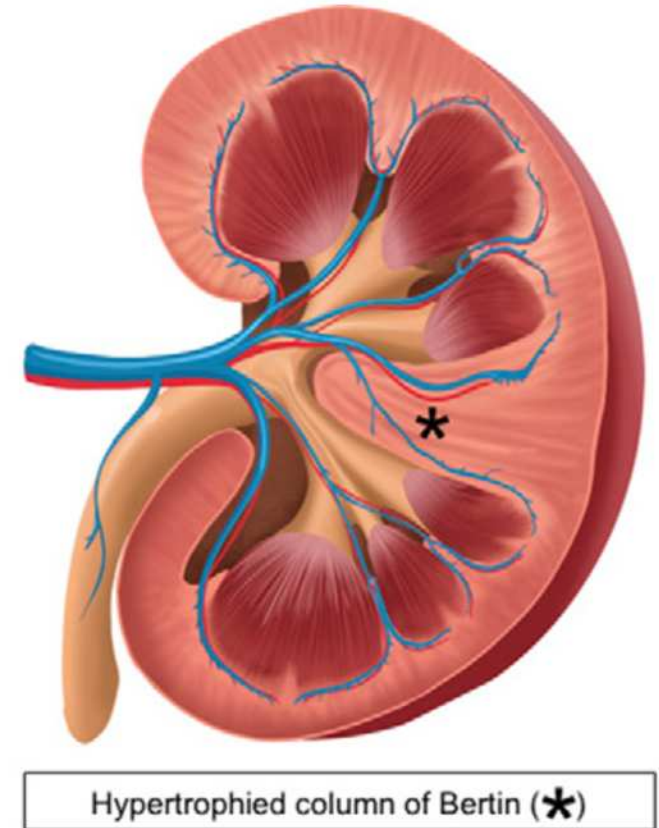
Neeruvormi anomaaliad

Struktuurianomaaliad

- Hüpertrofeerunud Bertini sammas ehk fokaalne kortikaalne hüperplaasia
- Tavaliselt paikneb neeru keskosas
- U 50% elanikkonnast
- Ei oma kliinilist tähtsust



N 30a.



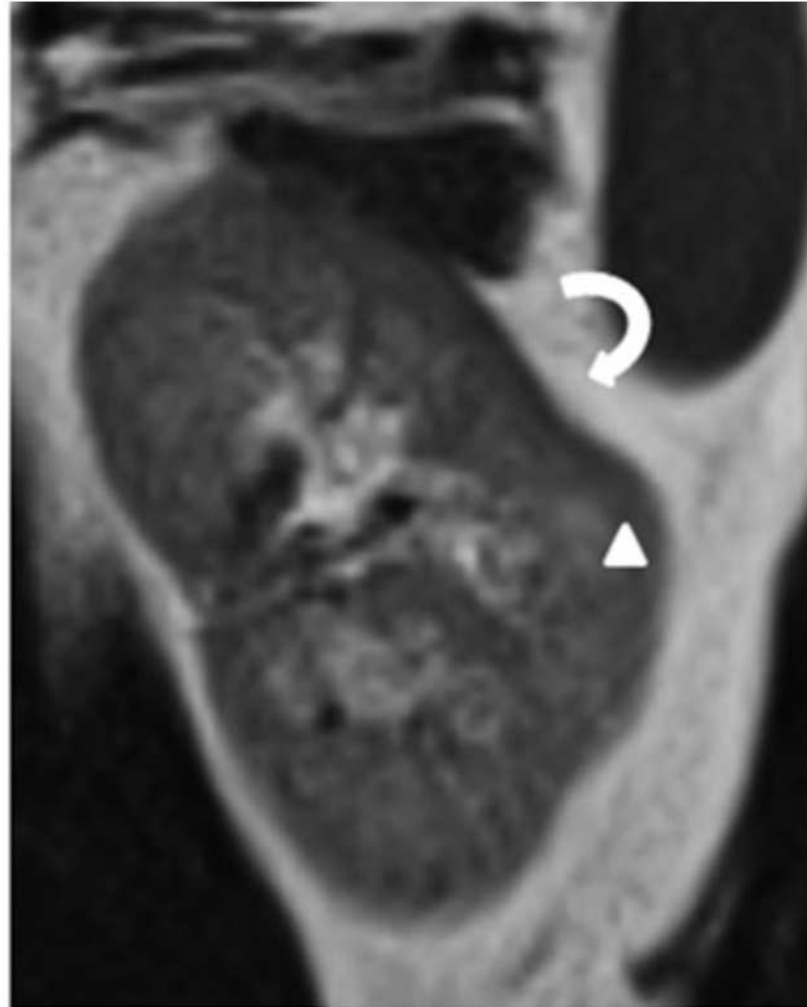
Neeruvormi anomaaliad

Struktuurianomaaliad

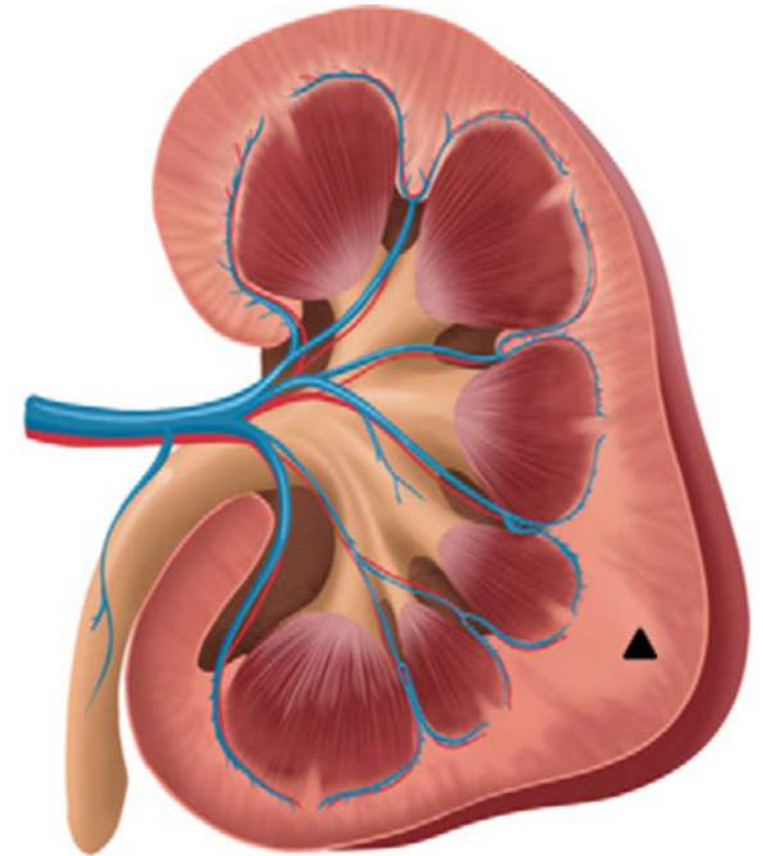
- Neeru lateraalse kontuuri esilevõuvus

nn. *Kaameli küür*

- Ainult vasakus neerus (põrn avaldab survet neeru superolateraalsele osale)
- Ei oma kliinilist tähtsust



M 40 a.



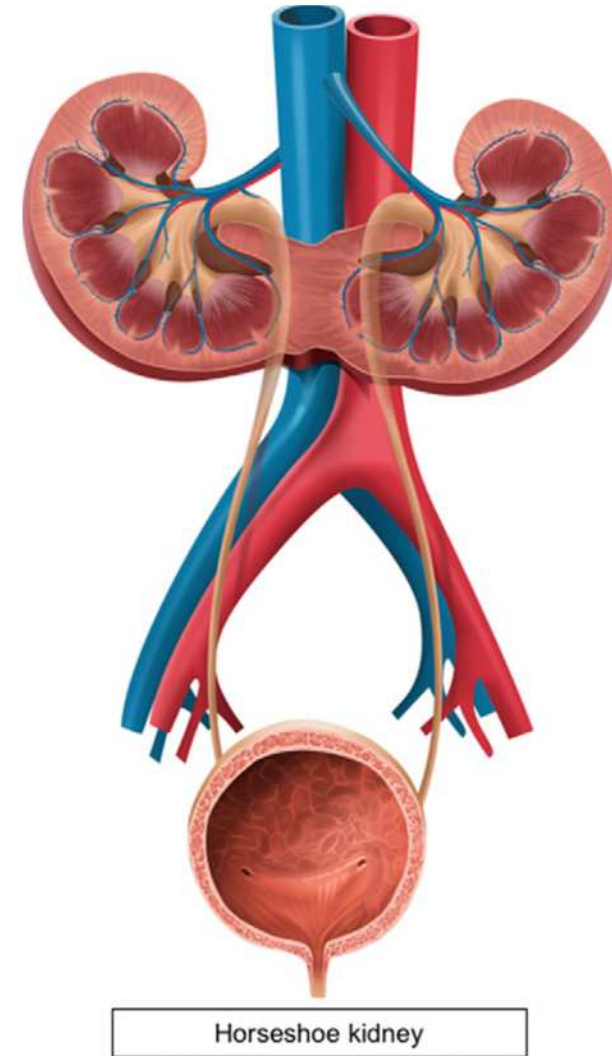
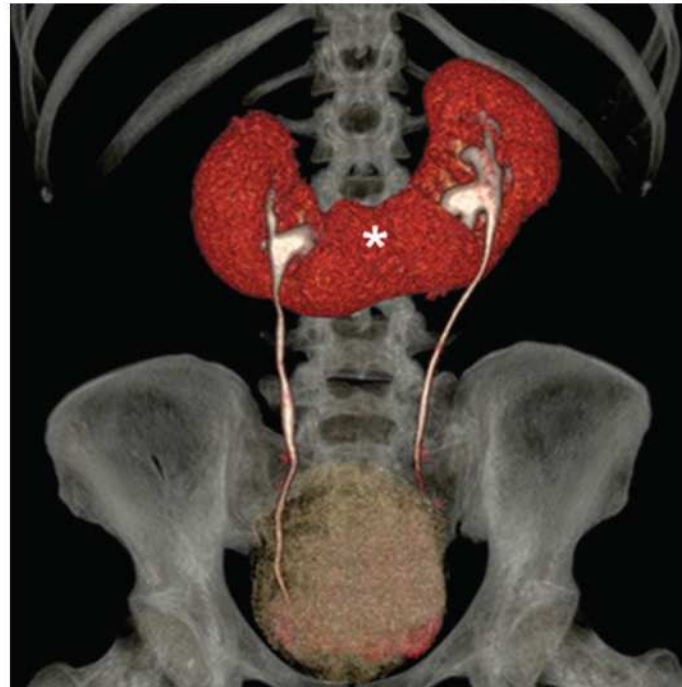
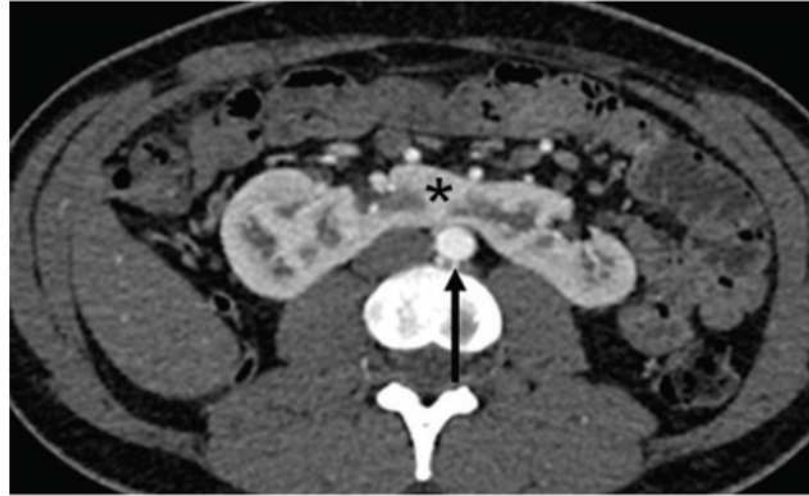
Dromedary Hump (▲)

Neeruvormi anomaaliad

Fusiooni anomaaliad

• Nn. Hoburaudneer

- Sagedasem ülemise urotrakti arenguanomaalia (1:400)
- 90% alumised poolused on omavahel ühenduses, 10% ülemised või mõlemad poolused on ühenduses
- Madal asetus ning rotatsioonihäire
- Tavaliselt asümptomaatiline
- Saab verevarustust aordist või niudearteritest või a. hypogastrica´st
- Neeru pahaloomulise kasvajate suurem esinemisesagedus
- Kõhutrauma puhul suurem risk neerukahjustuse tekkeks



M 31 a.



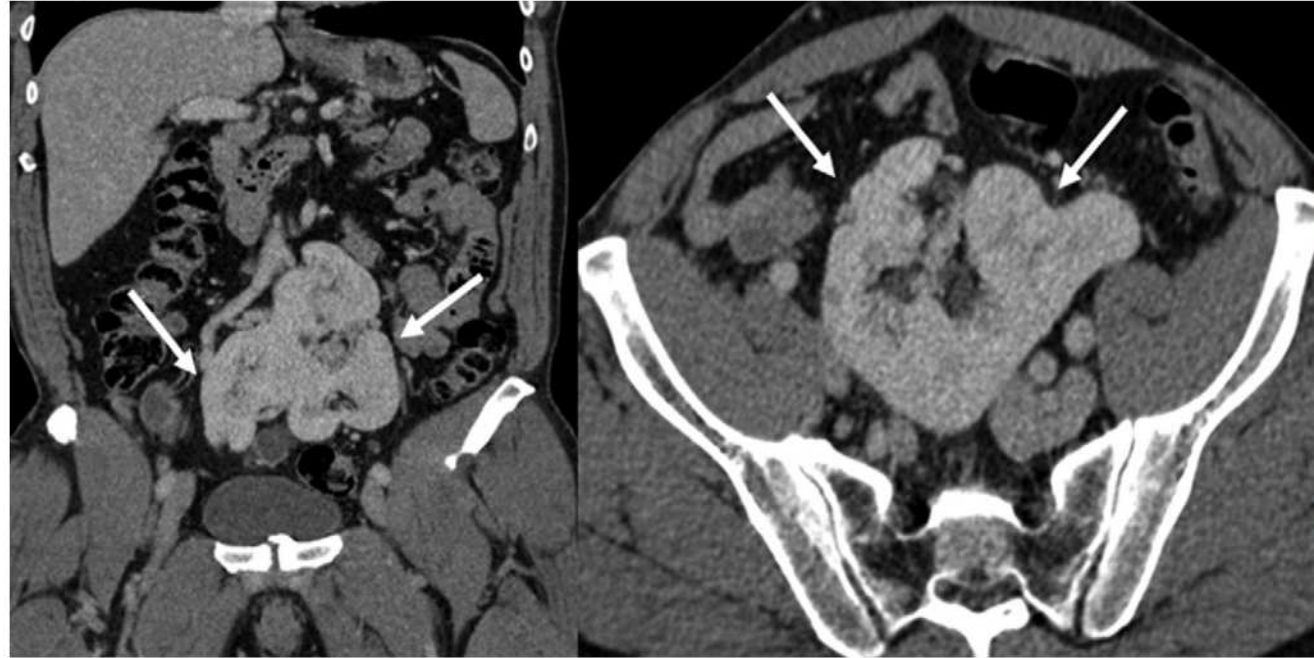
M 43 a. NET

Neeruvormi anomaaliad

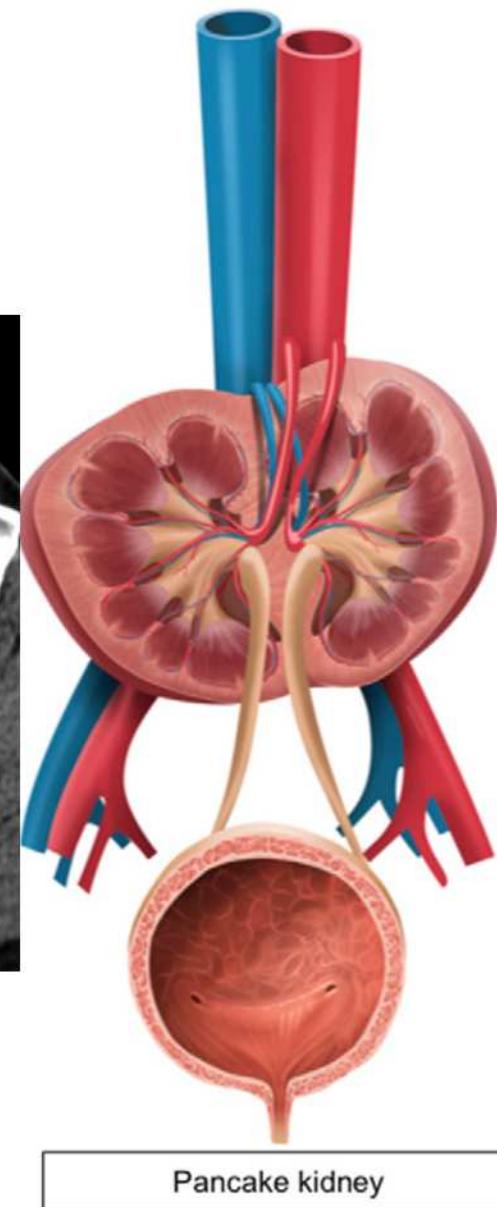
Fusiooni anomaaliad

- Nn. Pannkoogi neer

- Neerukapsel puudub ning neerude ülemised, keskmised ja alumised osad on omavahel ühenduses
- Madal asetus
- Kogumissüsteem väga erineva konfiguratsiooniga (kalduvus korduvale UTI-le ja kivide tekkele)
- Saab verevarustust aordist või niudearteritest
- Harva esinev arenguanomaalia (1: 65000-375000)
- Kooesinemine teiste urogenitaalsüsteemi arenguanomaaliatega



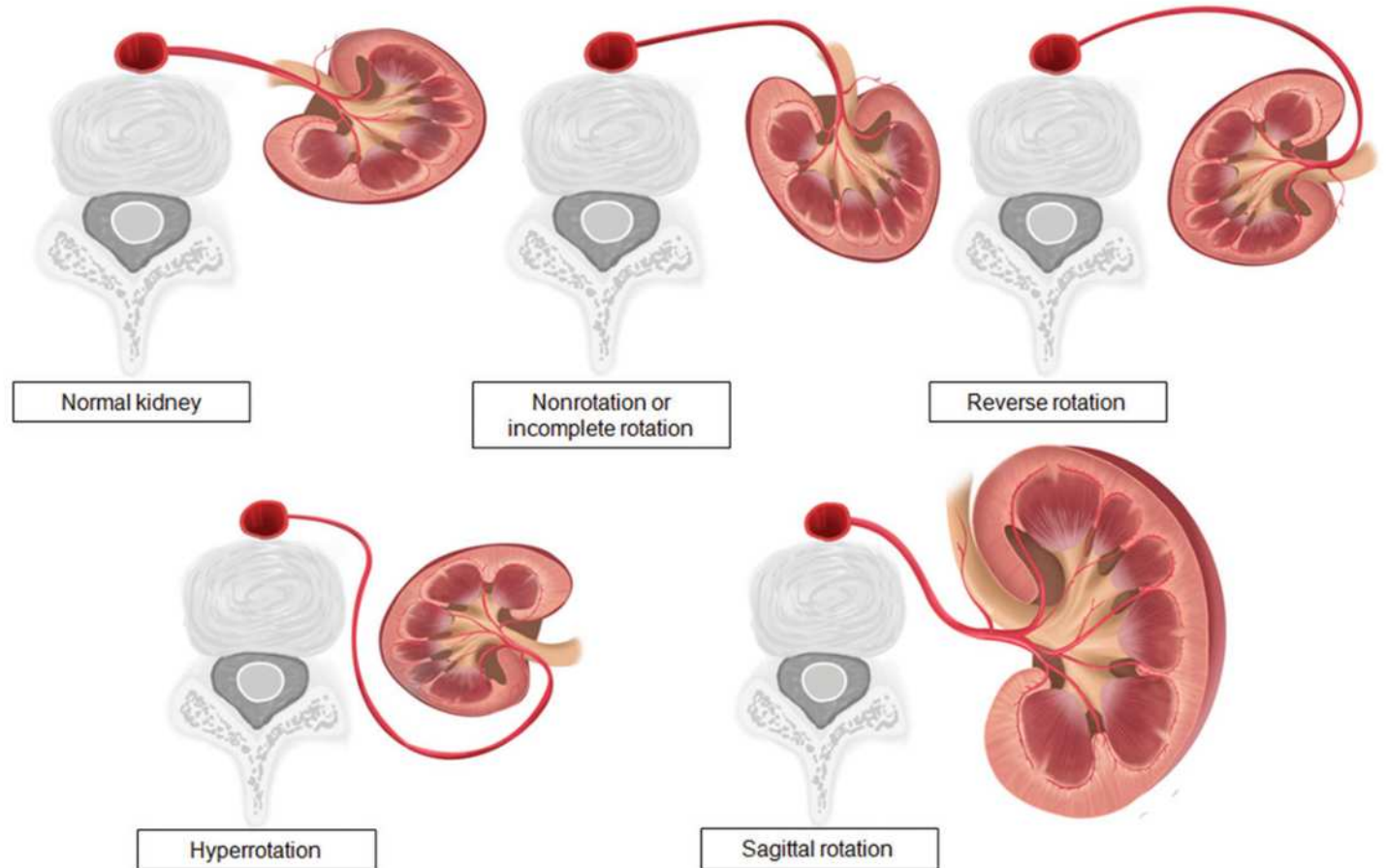
M 59 a.



Asetuse anomaaliad

Neeru malrotatsioon

- Neeru ebanormaalne asend neeruhiiluse suhtes
- Tavaliselt asümptomaatiline
- Võib põhjustada UPJ obstruktsiooni





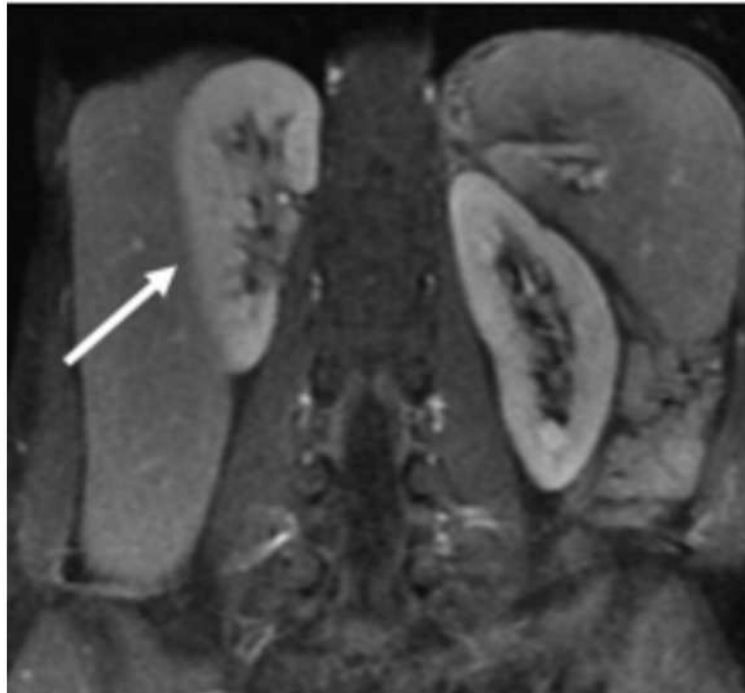
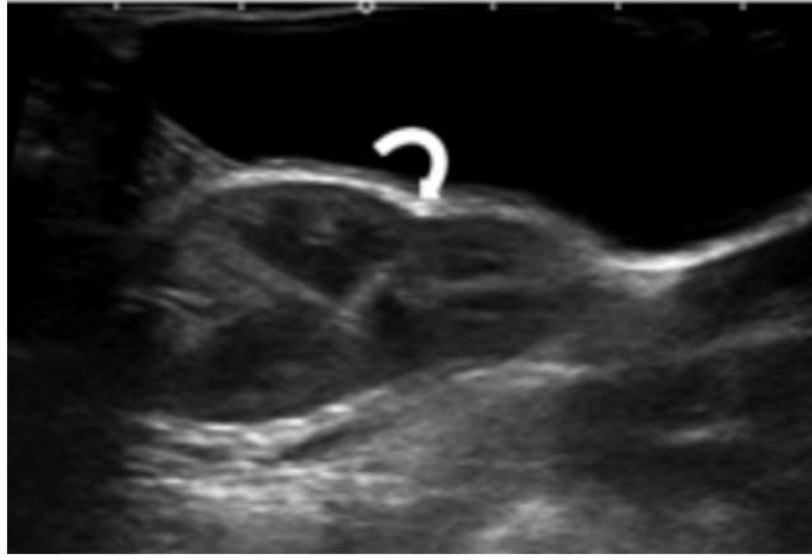
Hüperrotatsioon

Case courtesy of Dr Ruslan Asadov,
Radiopaedia.org, rID: 7566

Asetuse anomaaliad

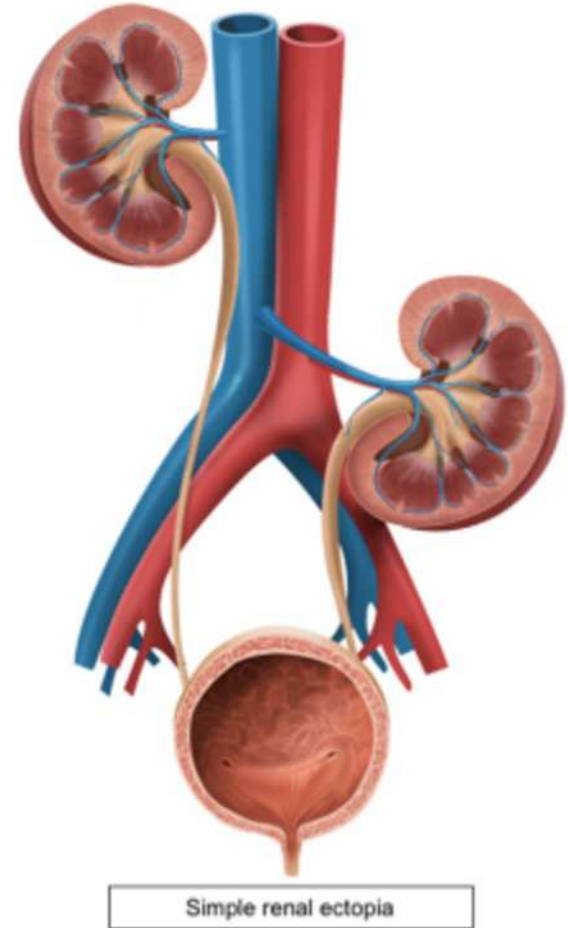
Tavaline ektoopia

- Neeru ebanormaalne lokalisatsioon
- Neer ja kusejuha UVJ paiknevad samal pool
- Neer võib paikneda vaagnas, ülakõhus või rindkeres
- Verevarustus tavaliselt niudearteritest või infrarenaalsest aordist
- Tavaliselt asümptomaatiline



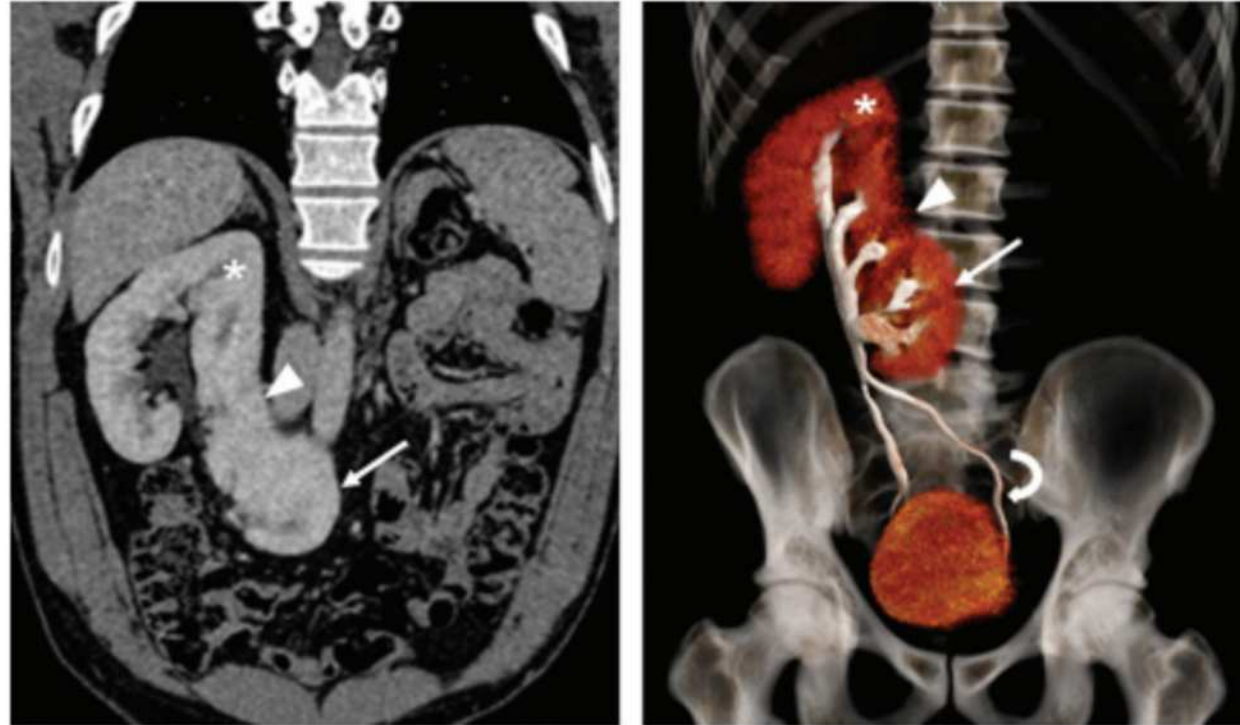
M 5 k

N 53 a

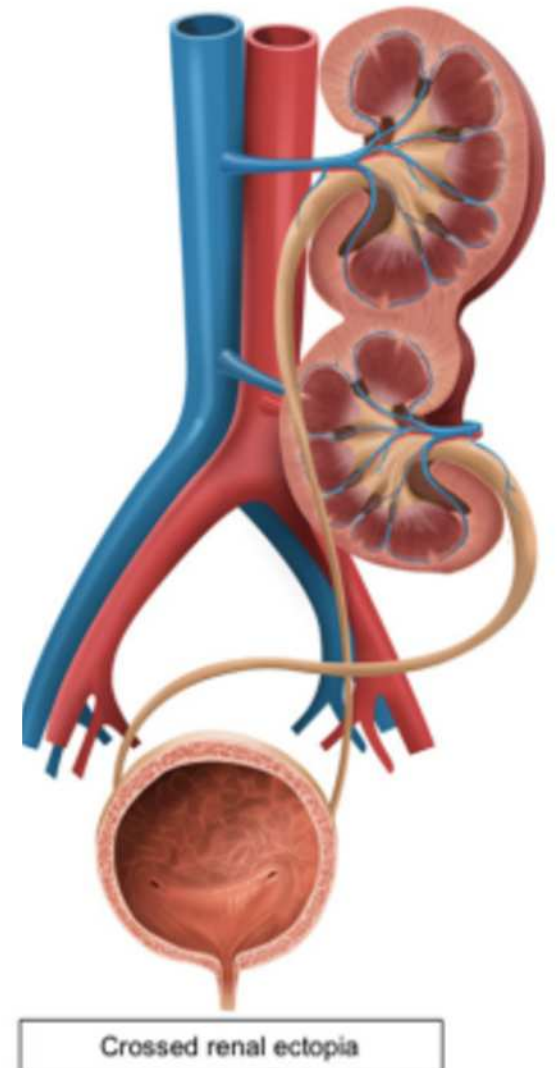


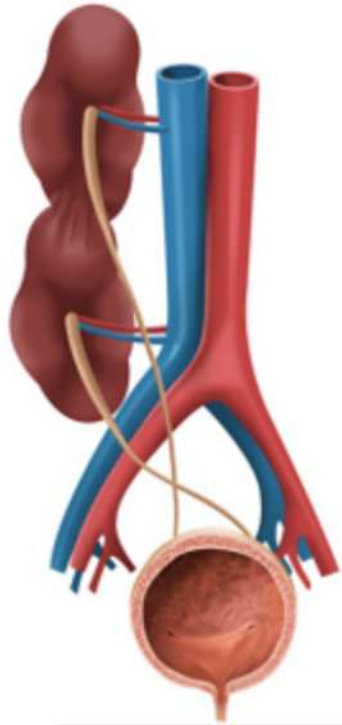
Asetuse anomaaliad

Ristisuunaline ektoopia

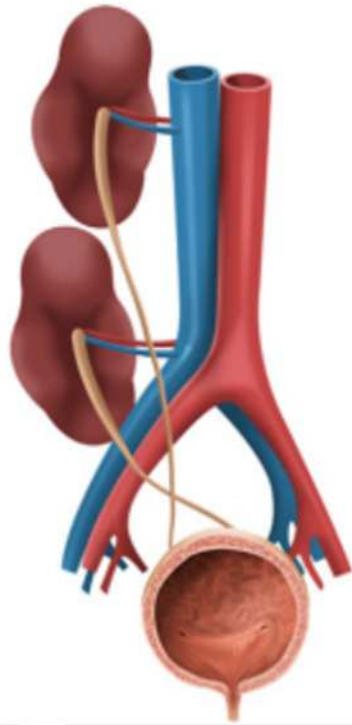


M 40 a.

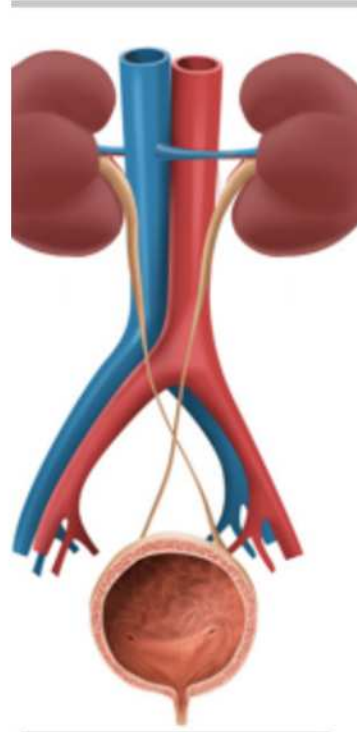




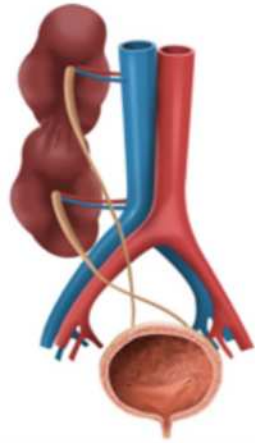
CRE with fusion



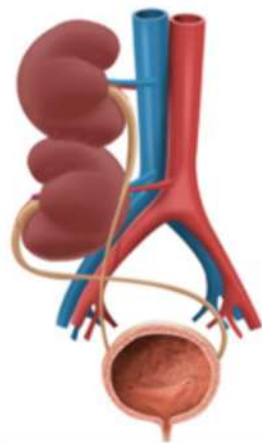
CRE without fusion



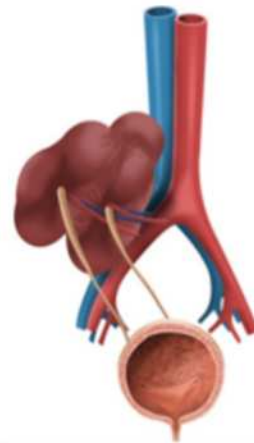
Bilateral CRE



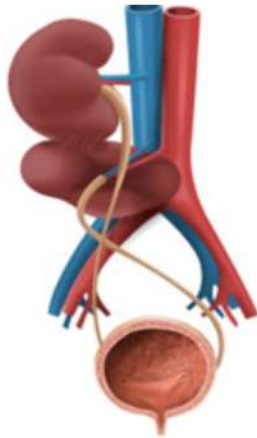
Inferior crossed fusion



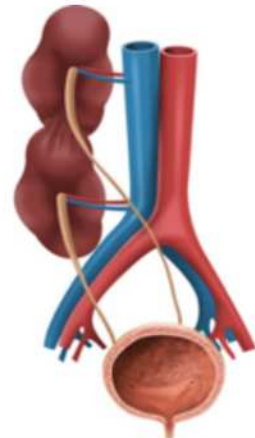
S-shaped kidney



Lump kidney



L-shaped kidney

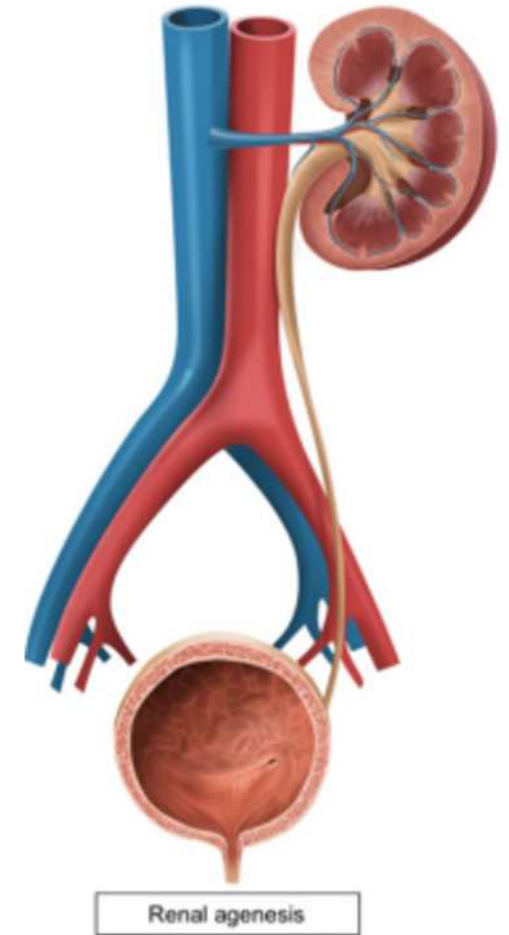


Superiorly crossed fused

Arvu anomaaliad

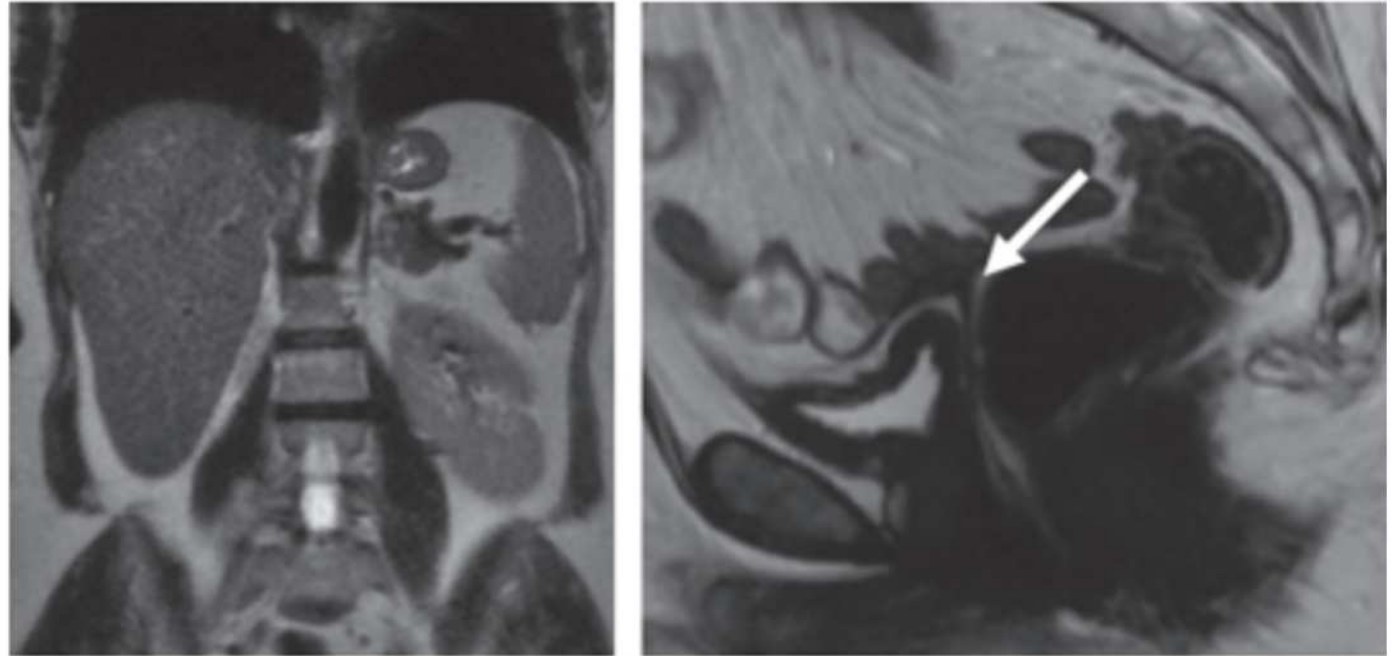
Neeru agenees

- Bilateraalne neeru agenees väga harvaesinev anomaalia
- Unilateraalne neeru agenees ei ole haruldane (1:2000)
- U 25% kaasneb vesikoureteraalne refluks



Neeru agenees

- Naistel on seotud Mayer-Rokitansky-Küster-Hauser sündroomiga – Mülleri juha agenees

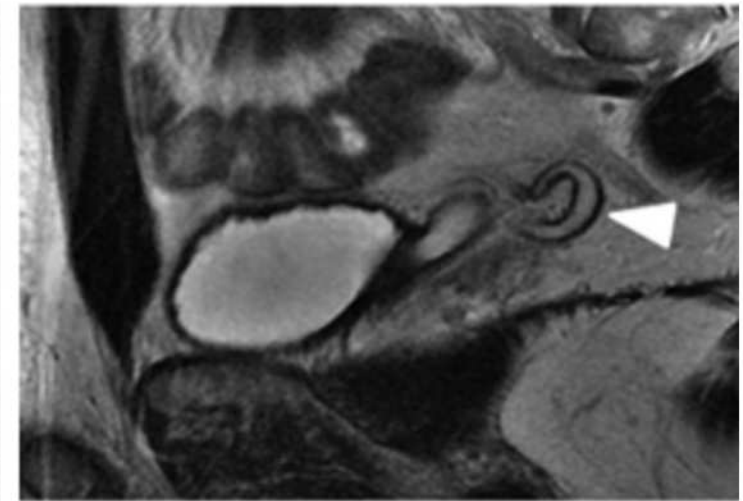
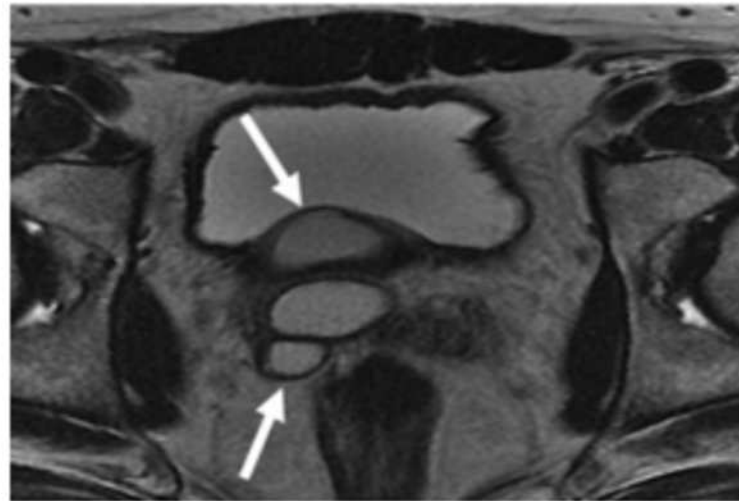
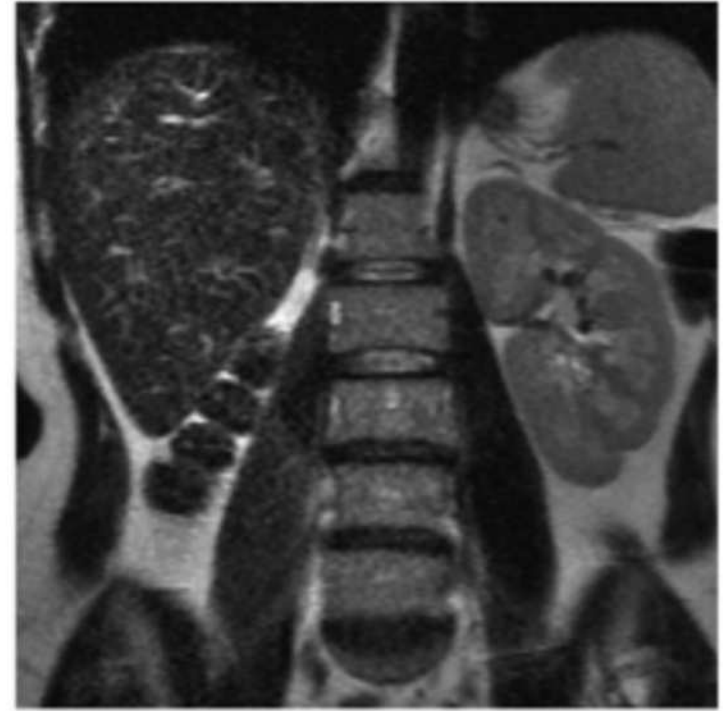


55 a.

Neeru agenees

- Meestel on seotud Zinner sündroomiga

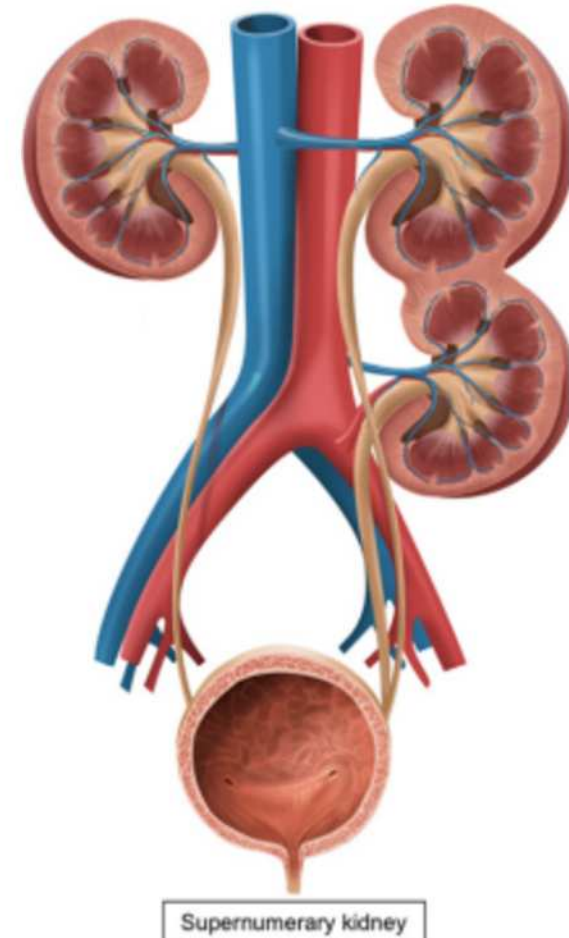
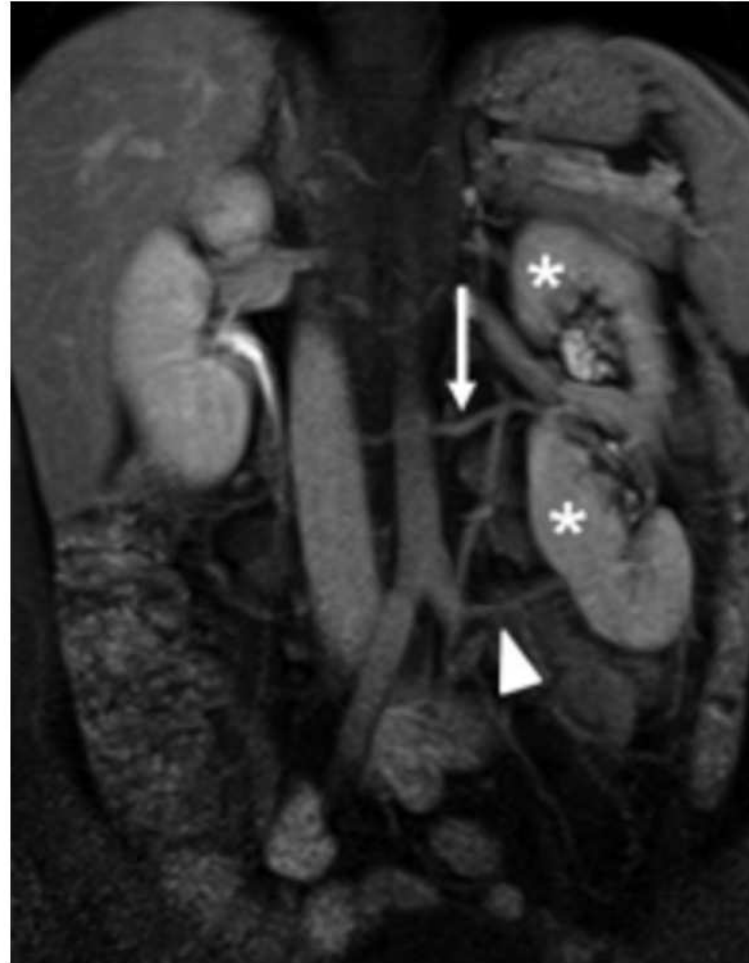
Triaad: Unilateraalne neeru agenees, ipsilateraalse seemnejuha obstruktsioon ning tsüst ipsilateraalses seemnepõikes.



Arvu anomaaliad

Lisaneer

- Tavaliselt vasakul
- Normaalse neeruga võrreldes väiksem
- Eraldi verevarustus kas aordist või ühisest niudearterist

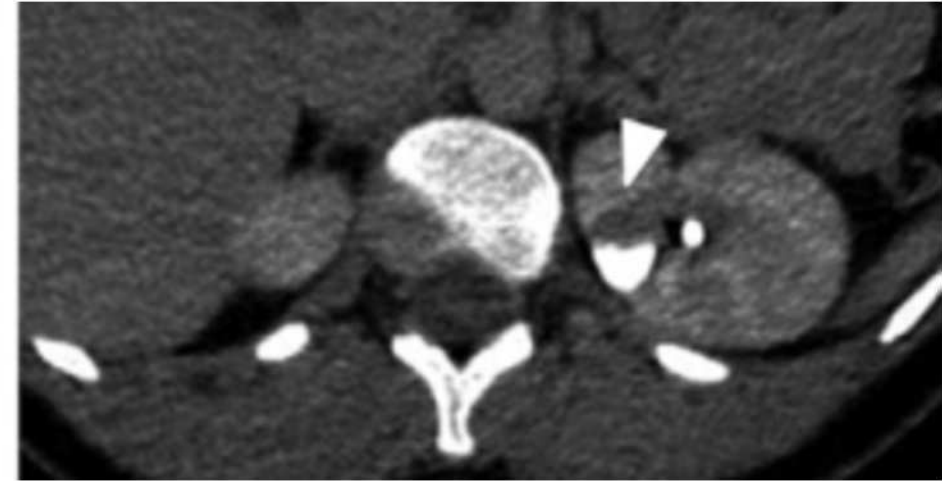
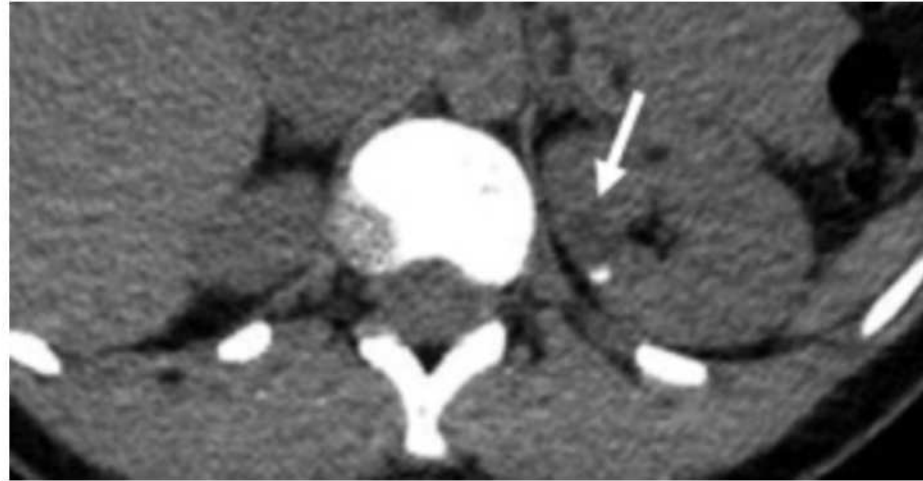


N 26 a.

Kogumissüsteemi anomaaliad

Püelokalütseaalne divertiikul

- Ühendus kogumissüsteemiga
- Sageli sisaldavad kokremente
- Kõige paremini tuleb nähtavale hilisfaasis

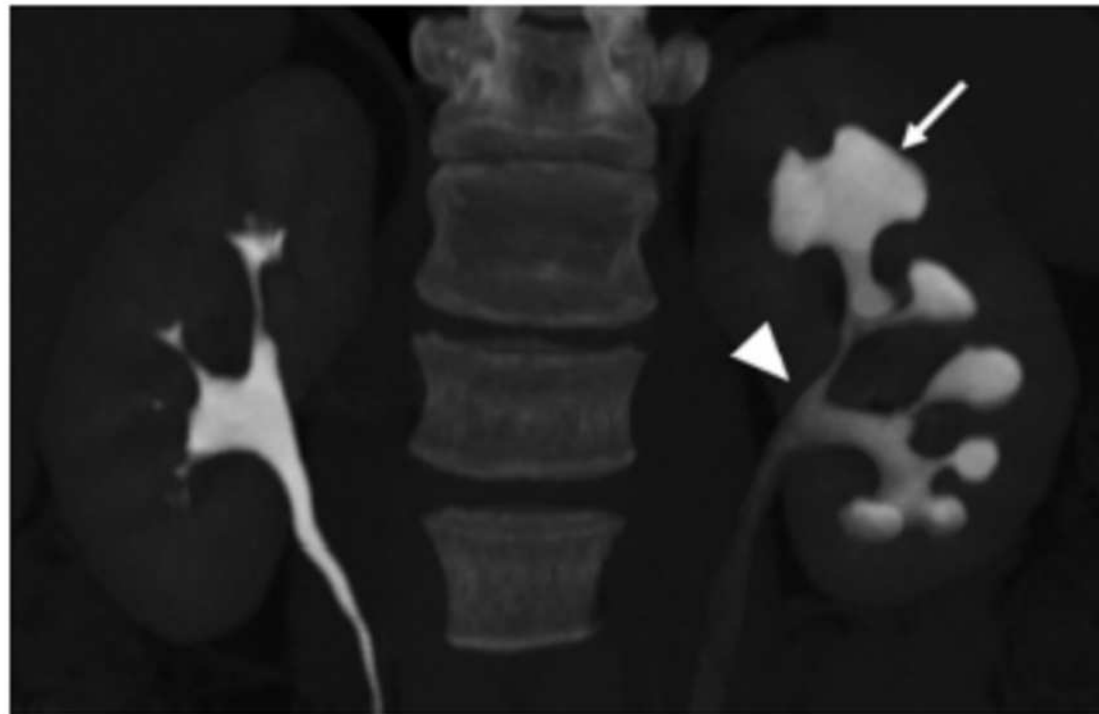


N 35 a.

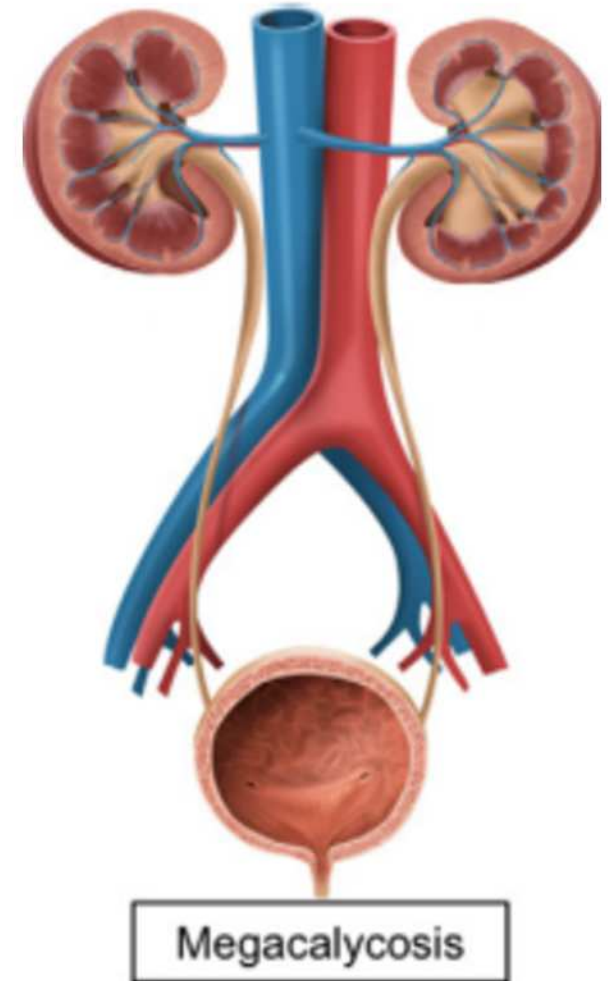
Kogumissüsteemi anomaaliad

Megakarikad

- Neeruvaagen on normaalse laiusega



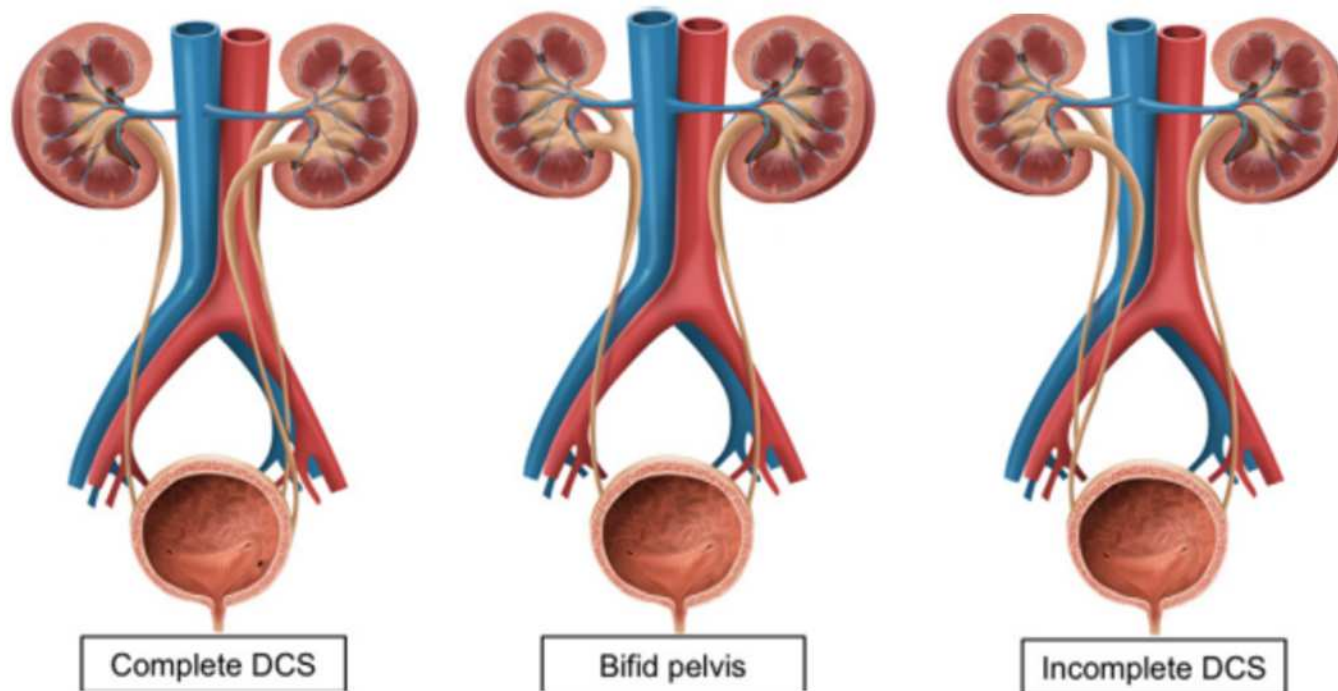
M 34 a.

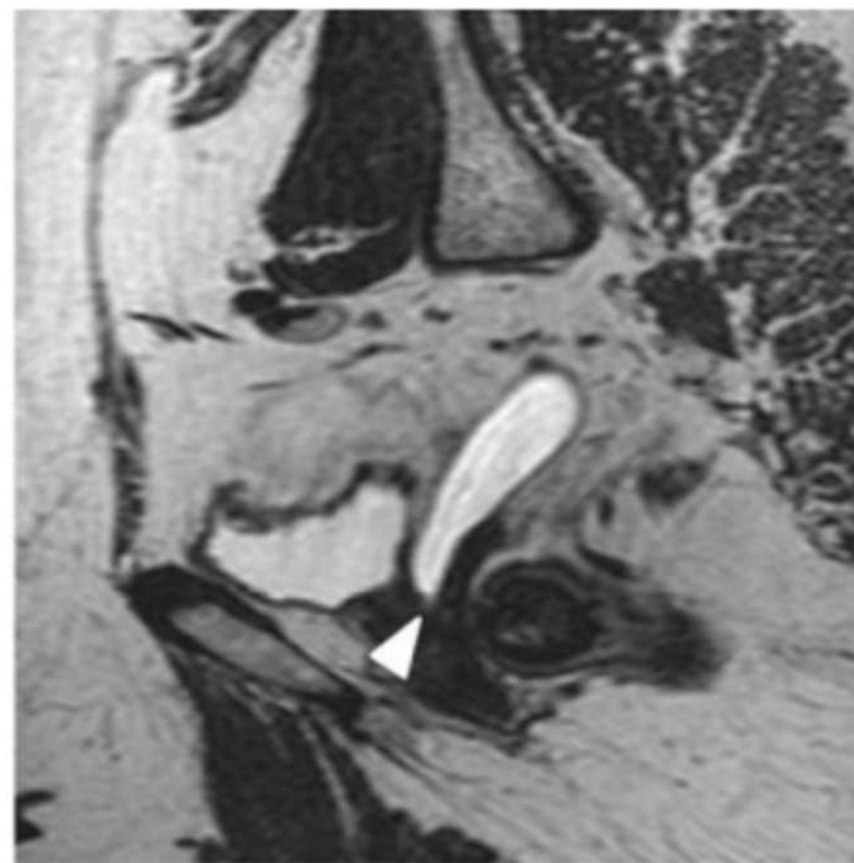


Kogumissüsteemi anomaaliad

Kaksikkogumissüsteem

- Täielik ja mittetäielik vorm
- Mittetäelik – bifid pelvis ja bifid ureter
- Täieliku vormi puhul esineb neeru ülemise pooluse kusejuha ektoopiline suubumine kusepõide (inferioorsemale ja mediaalsemale)



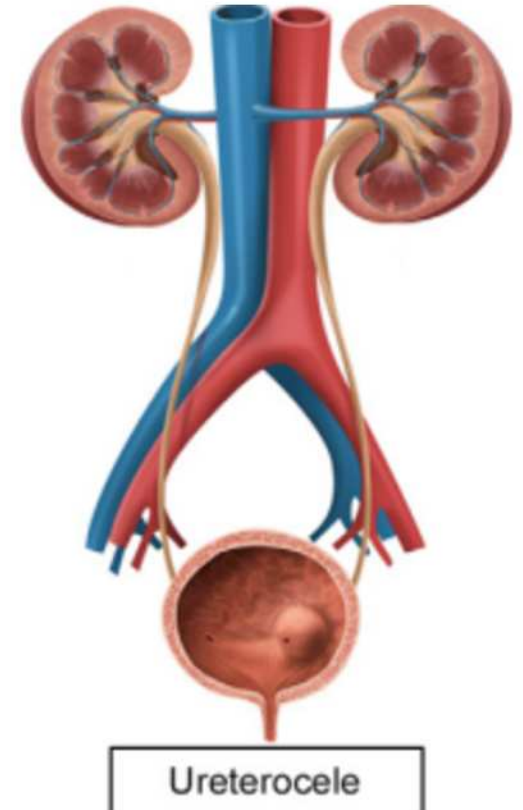


N 74 a.

Kogumissüsteemi anomaaliad

Ureterotseele

- Distaalse kusejuha intravesikaalse segmendi tsüstiline dilatatsioon
- Avastatakse juhuleiuna



M 40 a.

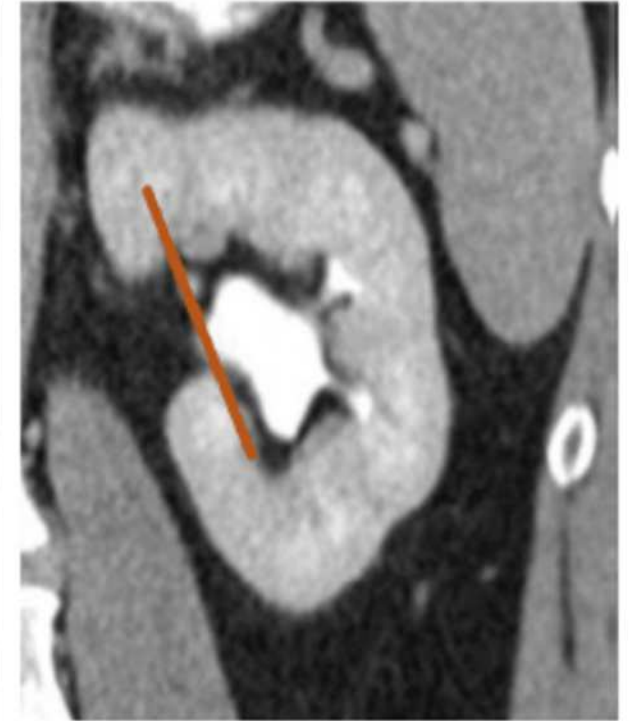
Ekstrarenaalne vaagen

- Normivariant
- Parenhüüm normaalse paksusega
- Karikad ei ole laienenud

Extrarenal renal pelvis



Intrarenal renal pelvis



Kasutatud kirjandus

- *Abdallah P. et al.* Congenital Anomalies of the Upper Urinary Tract: A Comprehensive Review. *RadioGraphics* 2021; 41:462–486
- Jacob Mandell 2013. *Core Radiology A Visual Approach to Diagnostic Imaging*. Genitourinary imaging.
- *Jeffrey J. Tomaszewski et al.* Renal Pelvic Anatomy Is Associated with Incidence, Grade, and Need for Intervention for Urine Leak Following Partial Nephrectomy. *EURURO*-5347; No. of Pages 7
- Radiopaedia

Täna n kuulamast!