

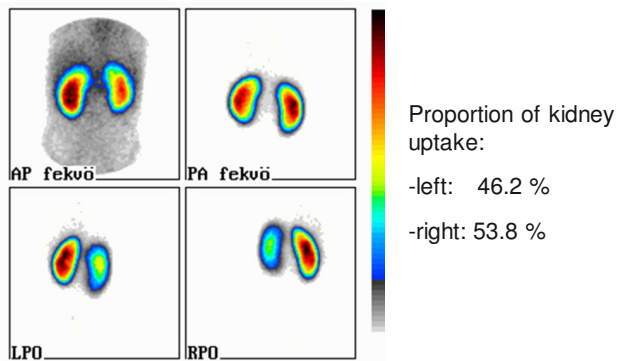
Static renal scintigraphy

Pharmaceutical:	[Tc-99m] DMSA (di-mercapto-succinic acide)
Used phenomenon:	Accumulation in renal proximal tubular cells
Data acquisition:	3-5 hours after iv. injection
Projections:	P, A and oblique views
Calculated quantitative parameters:	Relative activity uptake (in %)
Abnormalities shown:	Intrarenal tumours (benign and malign) Local parenchymal defects, scars Congenital disorders (eg. Horseshoe) or dysplastic kidney
Diagnostic difficulties:	To separate space occupying lesions (tu. abscess, cysta)

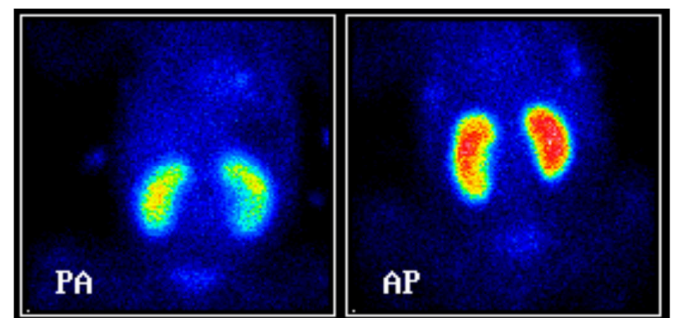
Static renal scintigraphy: Indications

- Urinary tract infections: parenchymal involvement, renal scarring, follow-up
- To estimate functioning parenchymal mass (below 15 %: non-functioning kidney)
- Congenital disorders: sigmoid or horseshoe kidney dysplastic kidney

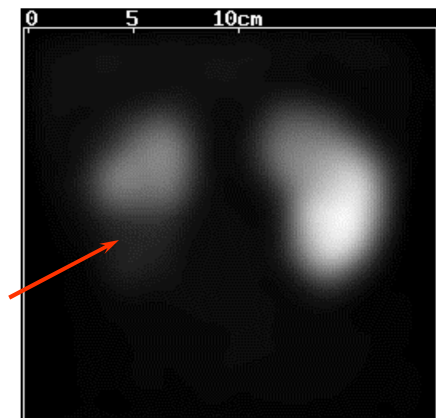
Normal



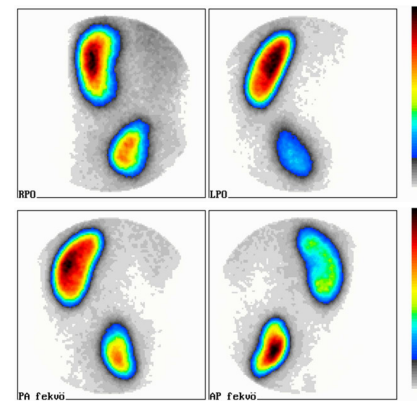
Normal - child



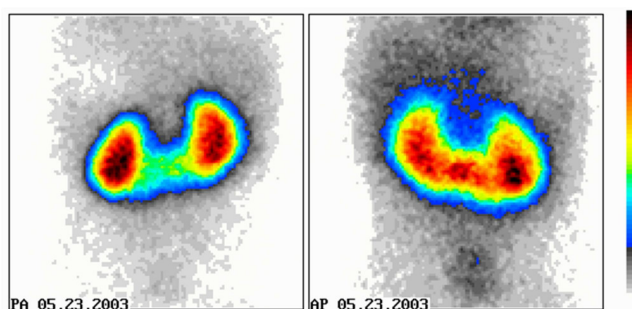
Static renal scan: tumor in left kidney



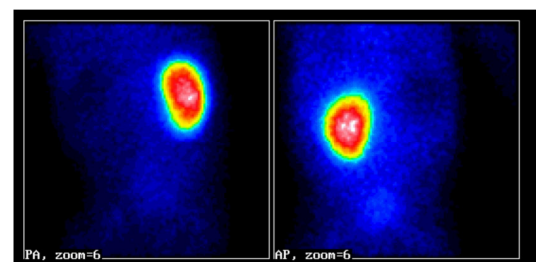
Dystopia



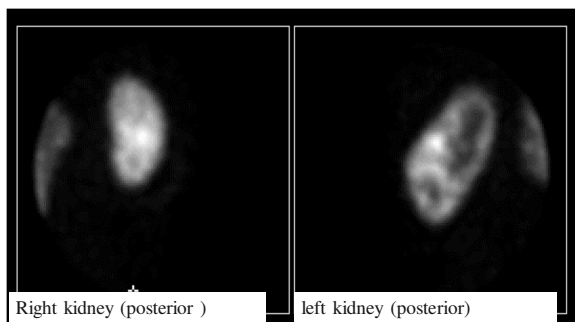
Horseshoe-kidney



Solitary right kidney: Tc-99m-DMSA



Static scan : 99m Tc-DMSA

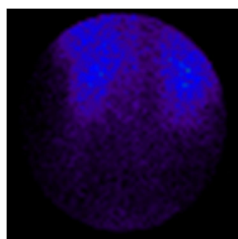


R.K. 2,5 year girl

Dynamic imaging: Radionuclides

Radiopharm.	Name	Used phenomenon
[Tc-99m] DTPA	Diethylene-triamine-pentaacetic acid	Glomerular filtration
[Tc-99m] MAG3	Mercapto-acetil-triglycin	Tubular excretion
[Tc-99m] EC	ethylene-dicisteine	Tubular excretion
[I-131] v. [I-123] OIH	Orthiodo-hippuric acid	glomerular+tubular excretion

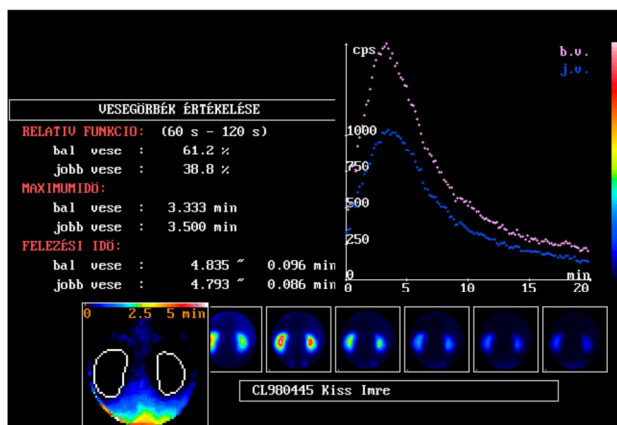
Example: Dynamic kidney study



Dynamic imaging: Variants

- Start with radionuclide angiography
- Provocation with ACE-inhibitor
- Dynamic study with diuretics

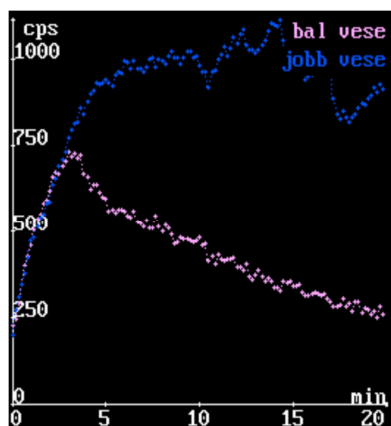
Functional difference between kidneys



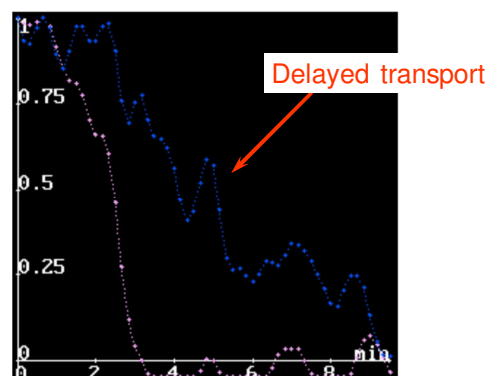
Clinical applications:

- Measurement of renal function
- Obstructive uropathy: differential diagnosis of functional or organic obstruction
- Reflux nephropathy, reflux staging
- Renal failure
- Evaluation of renovascular hypertension
- Differential diagnosis of renal transplant complications

Delayed DTPA transport in right kidney (after ACEI)

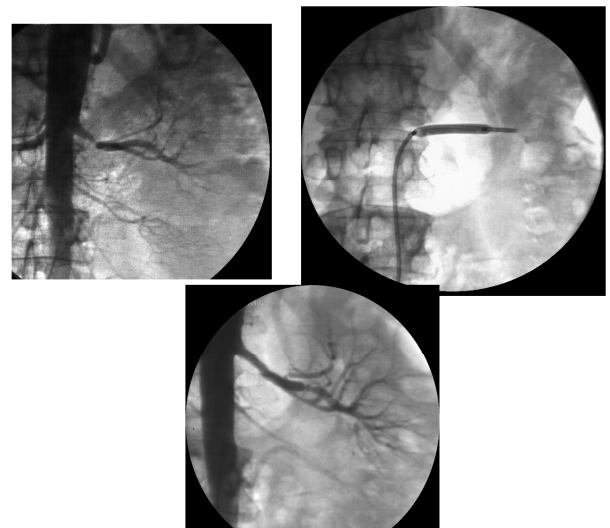
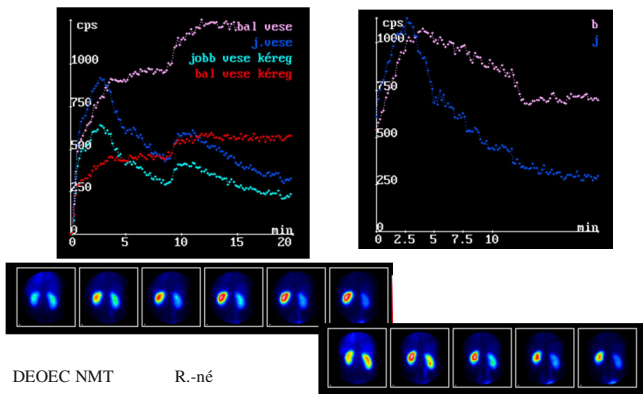


Delayed transport on the right side



With ACE inhibitor

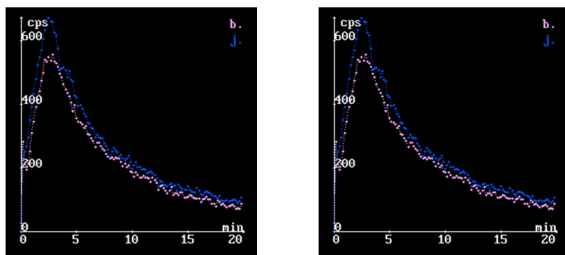
Without ACE inhibitor



After the successful revascularisation

With ACE-inhibitor

Without ACE inhibitor



Obstruction

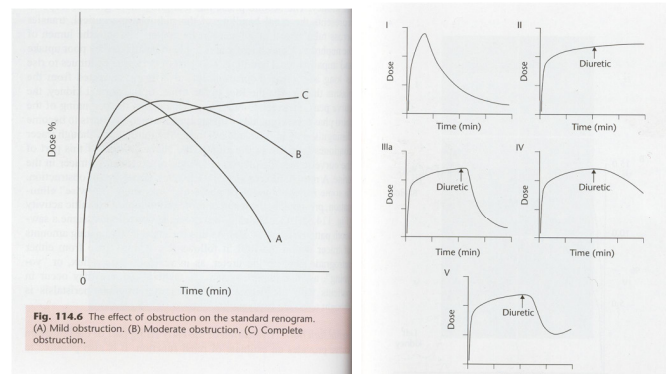
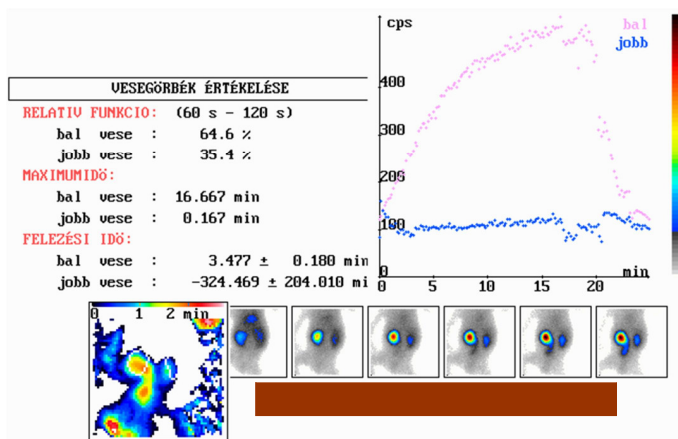
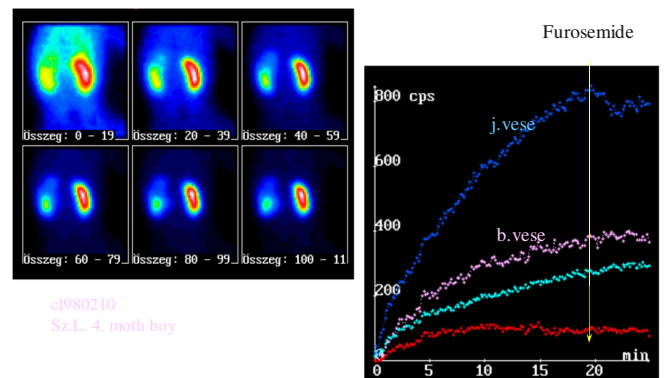


Fig. 114.11 Diuresis renogram responses. I, Normal; II, obstructed; IIIa, hypotonic non-obstructed; IIIb, equivocal; IV, delayed decompensation.

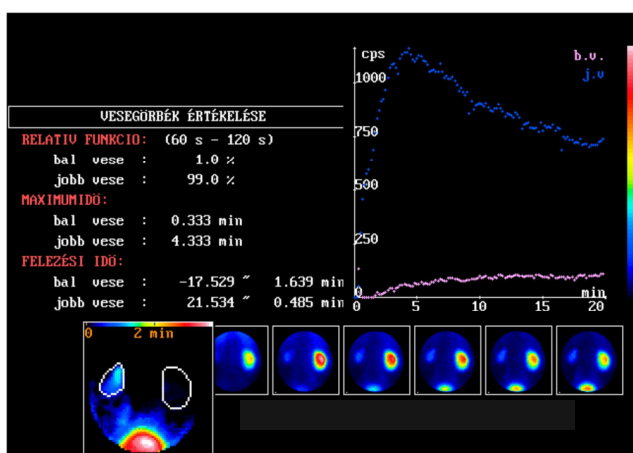
Good response to furosemide



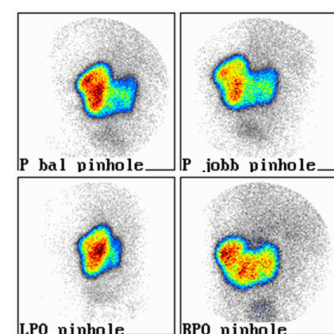
Dynamic study, with Furosemide provocation: no washout



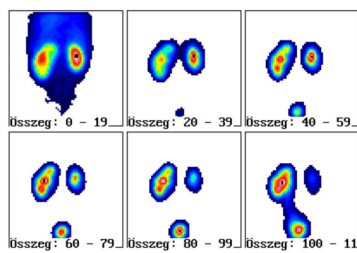
Poor function on the left side



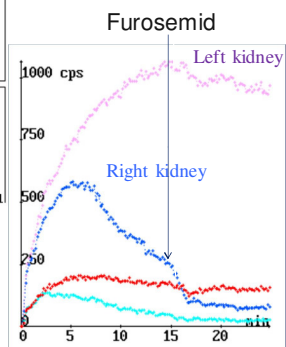
V_020007



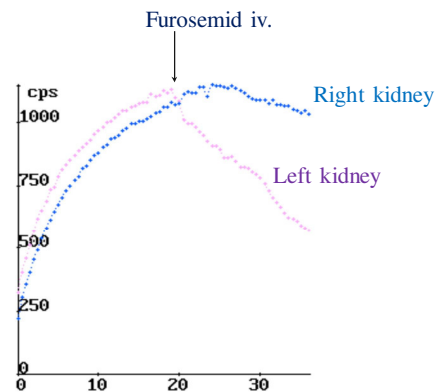
CL #1



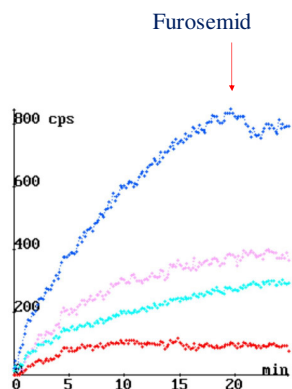
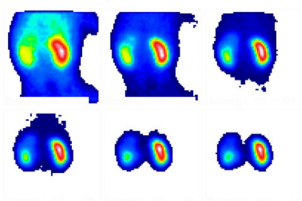
cl980209
R.K., girl, 2.5 y



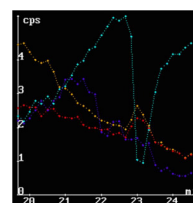
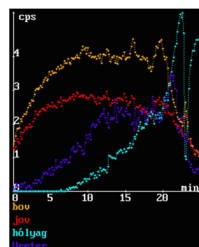
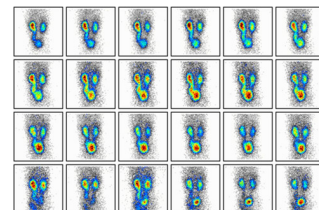
CL #2



CL #3

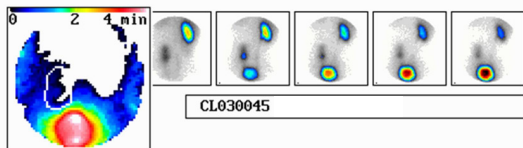
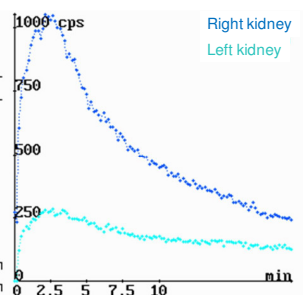


CL020052



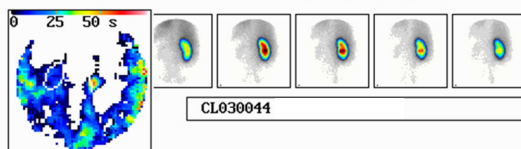
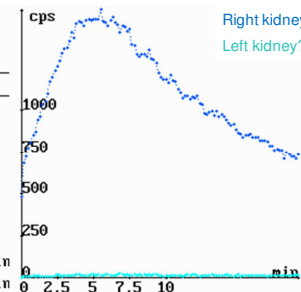
CI #4

VESEGÖRBÉK ÉRTÉKELÉSE			
RELATIV FUNKCIO: MOD (60 s - 120 s)			
bal vese :	35.5 %		
jobb vese :	64.5 %		
MAXIMUMIDŐ:			
bal vese :	2.667 min		
jobb vese :	2.167 min		
FELEZÉSI IDŐ:			
bal vese :	15.564 "	0.513 min	
jobb vese :	7.718 "	0.132 min	



CI #5

VESEGÖRBÉK ÉRTÉKELÉSE			
RELATIV FUNKCIO: (60 s - 120 s)			
bal vese :	1.3 %		
jobb vese :	98.7 %		
MAXIMUMIDŐ:			
bal vese :	6.833 min		
jobb vese :	5.500 min		
FELEZÉSI IDŐ:			
bal vese :	57.011 "	27.458 min	
jobb vese :	11.460 "	0.124 min	



CI #6

VESEGÖRBÉK ÉRTÉKELÉSE			
RELATIV FUNKCIO: (60 s - 120 s)			
bal vese :	55.4 %		
jobb vese :	44.6 %		
MAXIMUMIDŐ:			
bal vese :	7.167 min		
jobb vese :	4.000 min		
FELEZÉSI IDŐ:			
bal vese :	8.582 "	0.350 min	
jobb vese :	8.559 "	0.214 min	

