



Irradiation & Kidney

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Normal Tissue Response

- ❖ Radiation Nephropathy: uncommon
- ❖ Acute radiation nephropathy
- ❖ Latency period
- ❖ Urinary findings
- ❖ Blood alterations

Dose/volume/toxicity Data

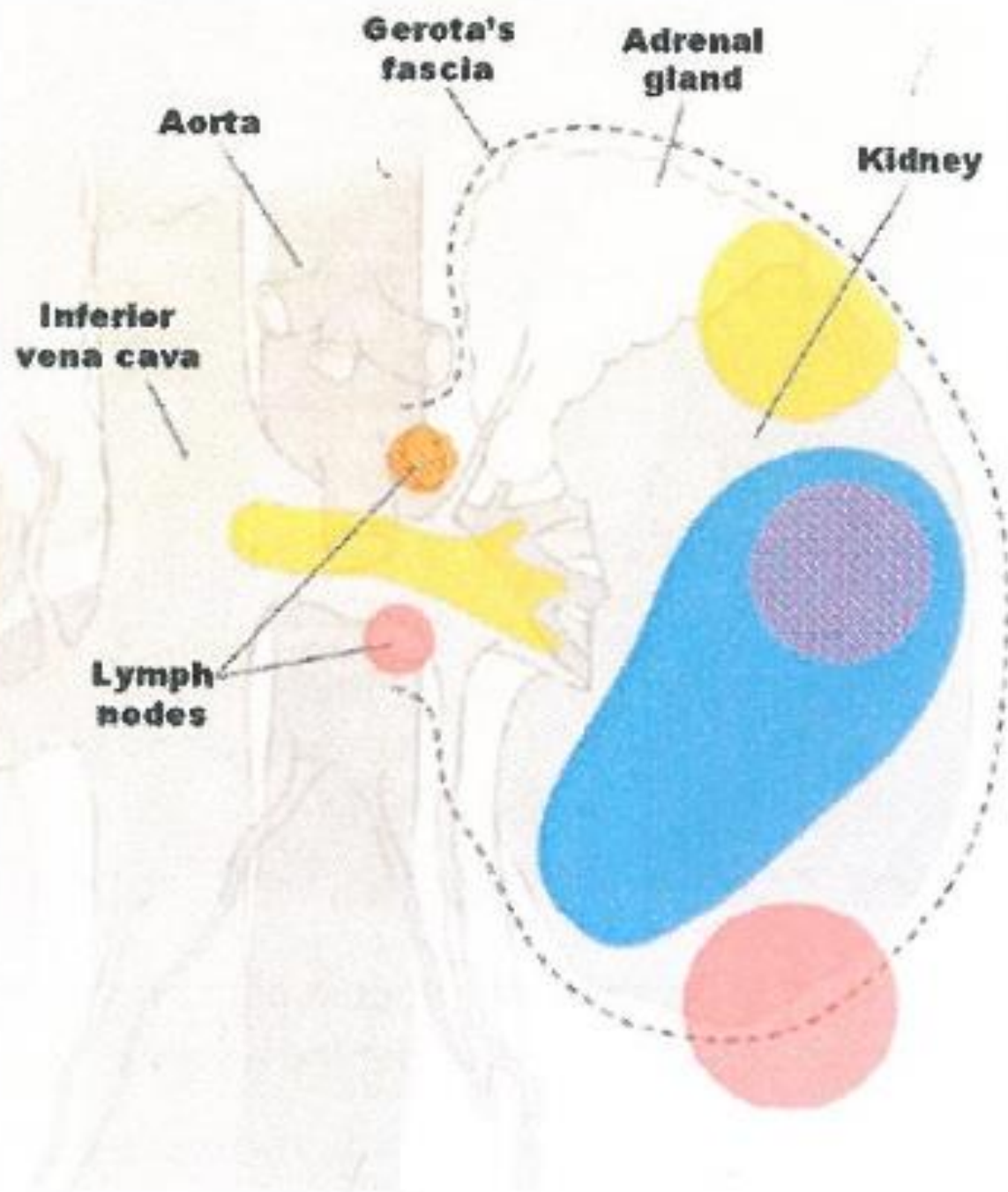
Whole kidney tolerance (WAR, TBI ...)

$\geq 10\text{Gy}, 20\text{Gy}$ (50 – 80%)

$> 1/2$ kidney $>20\text{-}30$ Gy	Renal Atrophy
	Function ↓
$> 1/3$ kidney $>30\text{-}40$ Gy	Hypertension

Factors Affecting Risk

- ❖ Radio sensitizers
- ❖ ACE inhibitors
- ❖ Patient – related factors
- ❖ Amifostine (WR-2721, Ethyol)



Stage I

Tumor ≤ 7 cm in greatest dimension and limited to kidney;
5-year survival, 96%

Stage II

Tumor > 7 cm in greatest dimension and limited to kidney;
5-year survival, 82%

Stage III

Tumor extends into major veins or perinephric tissues but not into the ipsilateral adrenal gland and not beyond Gerota fascia or regional lymph nodes are involved;
5-year survival, 64%

Stage IV

Tumor beyond Gerota's fascia or distant metastasis;
5-year survival, 23%

Radiation Therapy in RCC

- ❖ Neoadjuvant (preop.) RT
- ❖ Adjuvant (postop.) RT
- ❖ Stereotactic Body Radiation Therapy (SBRT)
- ❖ Whole brain RT for brain metastases
- ❖ Stereotactic Radiosurgery (SRS) for brain met.s & extracranial met.s
- ❖ Conventional RT for extracranial met.s
- ❖ Intraoperative RT for advanced or recurrent cases.

Considerations on chemoradiation

❖ Mechanism

❖ Indications:

+ Brain Tumor

+ Head & neck Cancers

+ Esophageal & Gastric Cancers

+ Pancreatic Cancer

+ Rectal Cancer

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± Breast Cancers

± Soft Tissue Sarcoma

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