Radiology

Black	From slides
Red	important
purple	Notes
Green	additional info

What is radiology?

It is a medical specialty that employs the use of imaging to both diagnosing and treating diseases within the human body.

What radiological modalities can be used to image the renal system ?

- **Conventional radiography**
- **Intravenous urogram (IVU)**
- **US**
- **CT**
- **MRI**
- **Nuclear medicine**

IMAGING MODALITIES:

Machine	How it work	Additional information	Image features	Diagnostic for	Extra notes
Conventional radiography	Plan X-ray	First imaging modality. Cheap.	Projectional image. Image contrast determined by tissue density.	radio-opaque stones.	If there is stone, it appears white mass.
Intravenous urogram (IVU)	Conventional x-ray plus intravenous contrast	Cheap. Recently replaced by CT and MRI.	Projectional image. Image contrast determined by tissue density and IV contrast.	radio-opaque stones and collecting system.	To diagnose hydronephrosis (dilation of the renal pelvis and calyces)
Ultrasound	Use high frequency sound wave. Contrast between tissue is determined by sound reflection.		Operator dependant. Projectional image. Good resolution.	Stone Hydronephrosis Focal lesion	High frequency sound waves are transmitted to the body and reflected depending of tissue composition
CT scan	Same basic principle of radiography	More precise. Costly. With or without contrast.	Cross sectional images. Image contrast determined by tissue density +/- contrast. Better evaluation of soft tissue.	trauma, stone, tumor, infection.	In case of renal stone we use CT without contrast.

MRI		**Expensive.** **Excellent for soft tissue evaluation**	**Cross sectional images.** **Image contrast determine by tissue properties.**	**soft tissue pathology: tumor, infection.**	**One of its disadvantage that is time consuming**
Nuclear medicine	**Utilizes a gamma camera and radioactive isotopes.**	**Functional test.** **Less expensive**	**Projectional image.** **Image contrast by tissue uptake and metabolism.**	**Obstruction and split function.**	

I tried to put everything the doctor mentioned in the lecture.

I didn't include the rest of the lecture because the doctor said that there will be no images and cases in the exam

Thank you