

Radiology

- **What is radiology?**
- Radiology is a medical specialty that employs the use of imaging to both diagnose and treat disease visualized within the human body.

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▶ <u>Radiological method</u>	X-Ray	IVU (intra-venous urogram)	UT (ultrasound)
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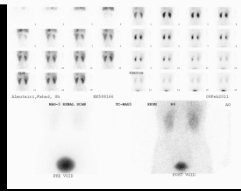
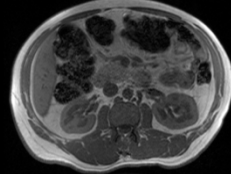
▶ <u>Advantages:</u>	<ul style="list-style-type: none"> • Cheap & widely available • Often used as first choice (abdomen pain) 	<ul style="list-style-type: none"> • Cheap & available 	<ul style="list-style-type: none"> • Available • No radiation • Good anatomy
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▶ <u>Disadvantages:</u>	<ul style="list-style-type: none"> ▪ Radiation ▪ Limited anatomy 	<ul style="list-style-type: none"> ▪ Radiation ▪ Needs IV contrast (reaction/renal failure) ▪ Old (replaced by CT & MRI) 	<ul style="list-style-type: none"> • Operator dependent
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▶ <u>Used for:</u>	<ul style="list-style-type: none"> ▪ Evaluate abdomen pain ▪ Some time good for diagnosing kidney stones 	<ul style="list-style-type: none"> ▪ To diagnose kidney stones ▪ To diagnose hydronephrosis/obstruction 	<ul style="list-style-type: none"> • Good for kidney stones • Excellent for hydronephrosis • Excellent for focal lesion e.g. cysts, masses
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▶ <u>Terminologies</u>	<ul style="list-style-type: none"> ▶ Radio lucent → black (air) ▶ Radio opaque → white (bone/stone) 		<ul style="list-style-type: none"> ▶ Hyper-echoic → white ▶ Hypo-echoic → grey ▶ An-echoic → black (fluid)
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▶ Picture



▶ Radiological method

CT scan

MRI

Nuclear medicine

▶ Advantages:

- Relatively available (more than MRI)
- Very good anatomy

- Excellent anatomy details
- No radiation

- Excellent to assess function

▶ Disadvantages:

- Radiation
- Some times need IV contrast (reaction)

- Expensive
- Long scanning time (30 to 60 min)
- Not used to diagnosed kidney stone

- Radiation
- Poor anatomy details

▶ Used for:

- Excellent for kidney stones (the best)
- Excellent for hydronephrosis & masses
- Excellent for kidney trauma

- Excellent for masses
- Good for hydronephrosis

- Evaluated function
- Evaluated obstruction

▶ Terminologies

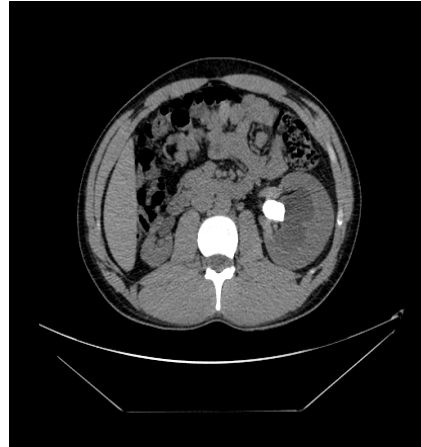
- ▶ Hyper-dense → white (stone/bone)
- ▶ Hypo-dense → grey to black (fat/fluid)

Hyper-intense (white)
Hypo-intense (grey to black)

Case :

- ▶ Young male patient presented with left flank pain and hematuria no fever and normal WBC count.

Renal stones



Case :

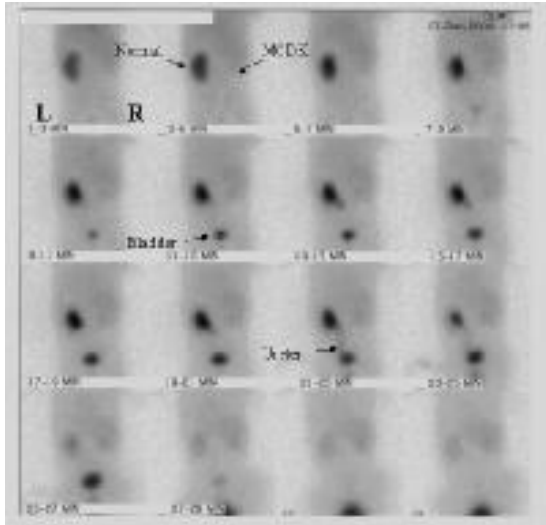
- ▶ Old male patient complaining of recurrent renal infection.

Hydronephrosis:



Case:

- ▶ Young female presented with decrease renal function (high urea and creatinine level).



No function in the right kidney

Case :

Young male patient involved in road traffic accident with blunt trauma to the abdomen.

Trauma

