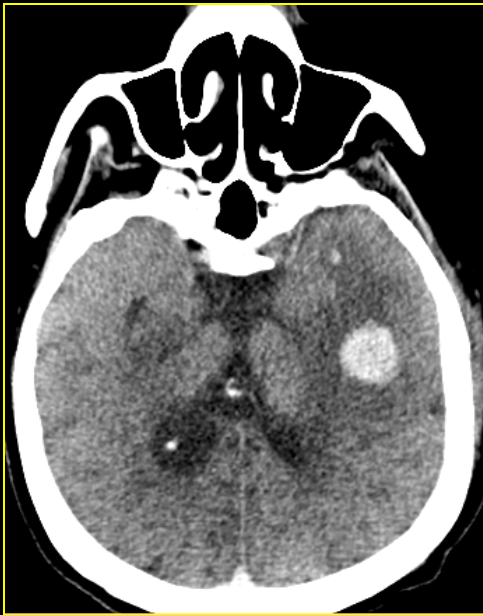


Web Chapter 4

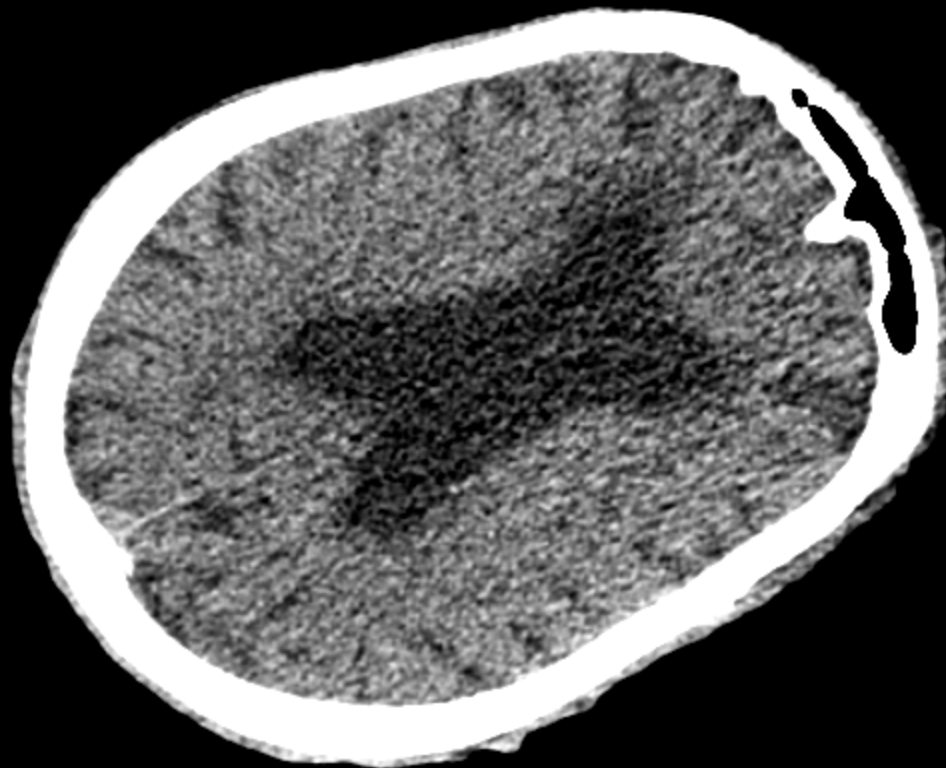
Image Gallery: Lesion detection on low dose head CT

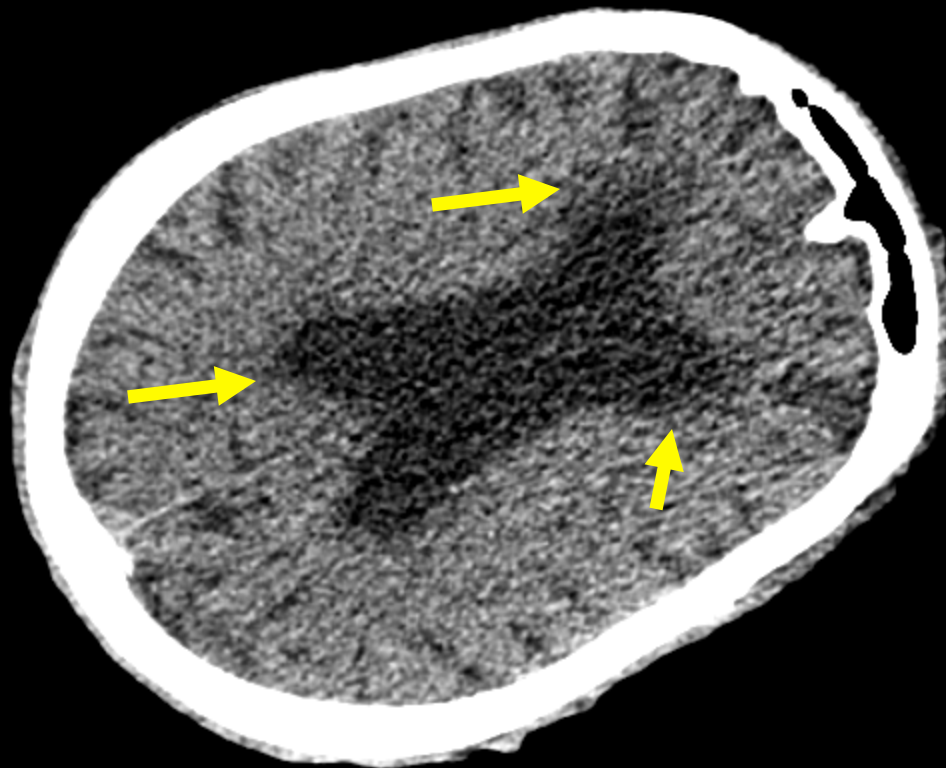


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Do you see any abnormal findings in this transverse CT image?





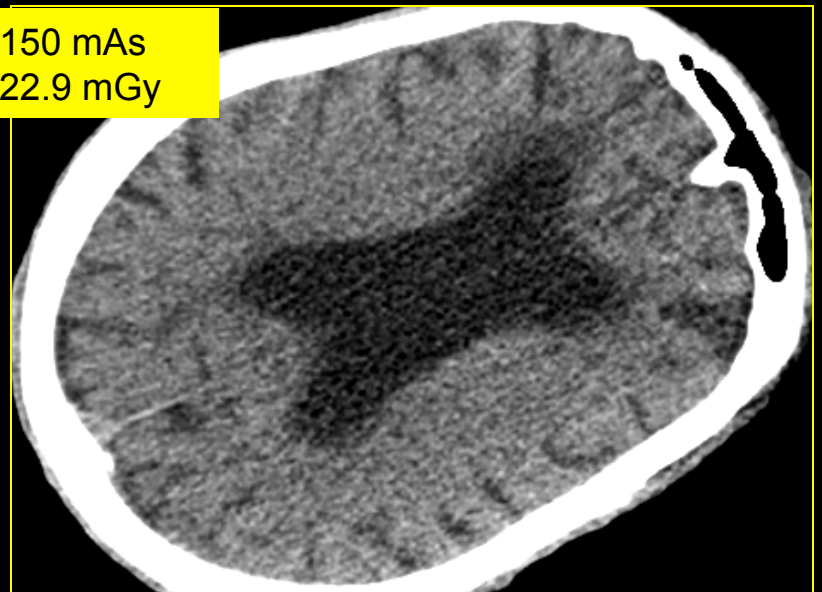
Do you see any periventricular hypoattenuation?

Do you see any additional findings on higher dose images?

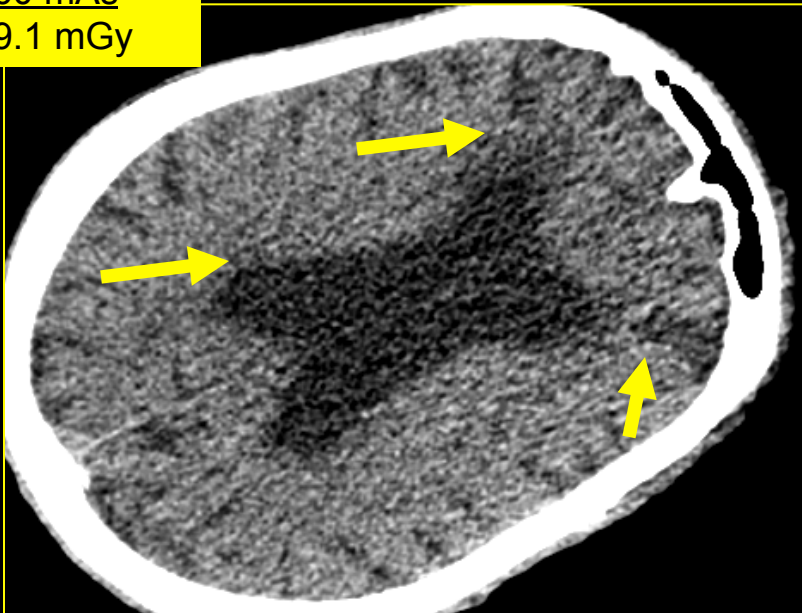
300 mAs:
CTDI vol: 45.8 mGy



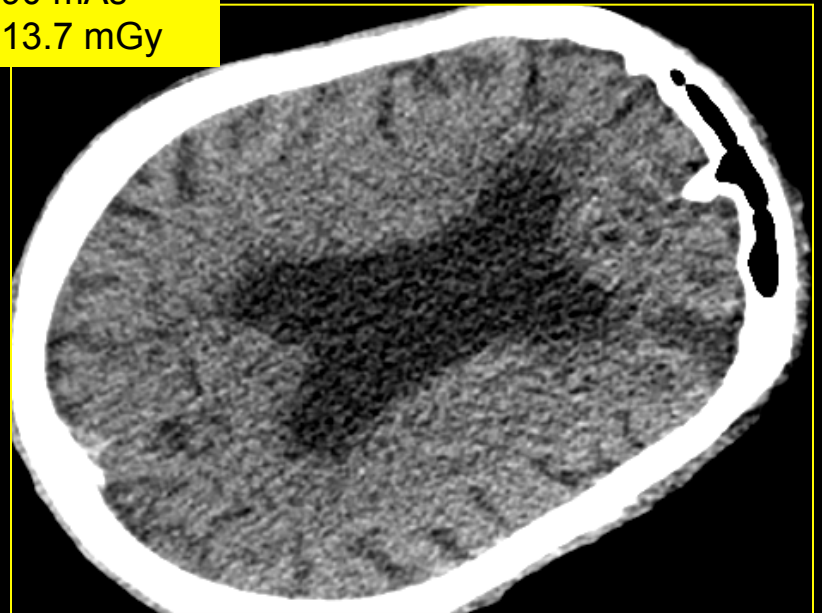
150 mAs
22.9 mGy



60 mAs
9.1 mGy



90 mAs
13.7 mGy



Periventricular hypoattenuation

Do you see any abnormal findings in this transverse CT image?

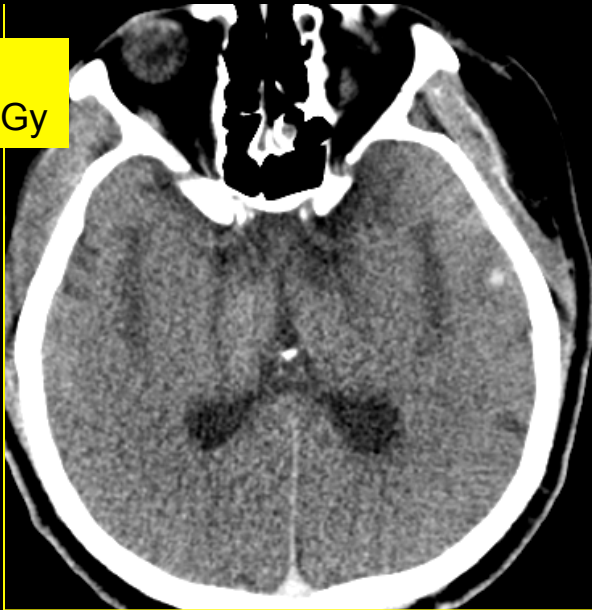




Do you see tiny bright hemorrhagic or calcified spec?

Do you see any additional findings on higher dose images?

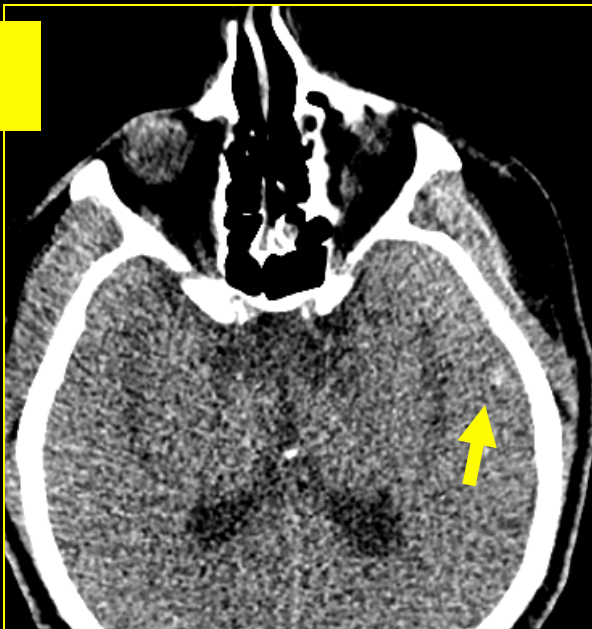
300 mAs:
CTDI vol: 45.8 mGy



150 mAs
22.9 mGy



60 mAs
9.1 mGy



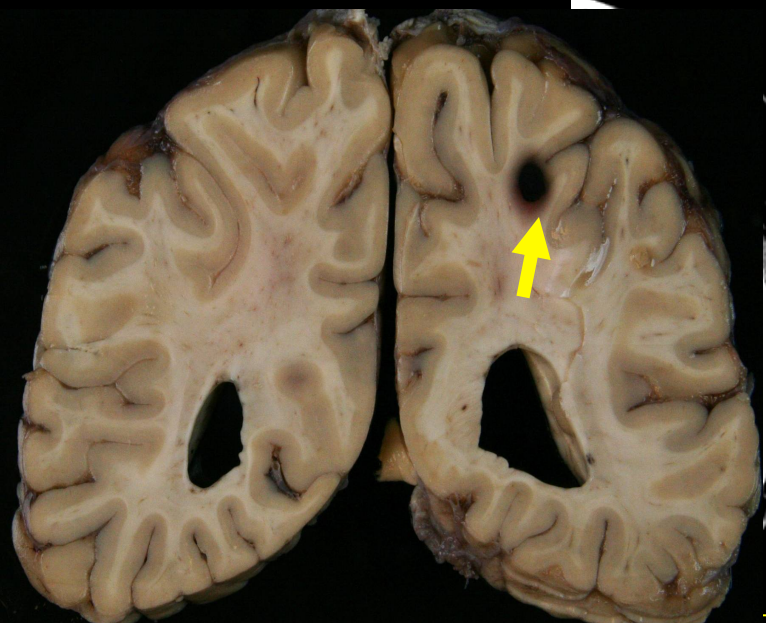
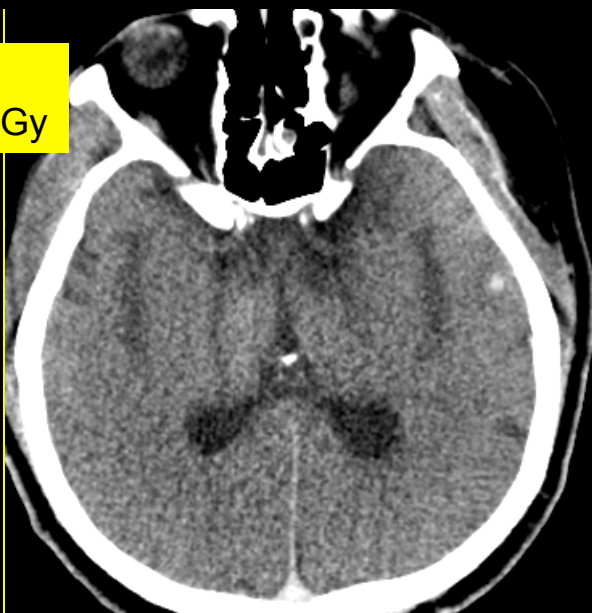
90 mAs
13.7 mGy



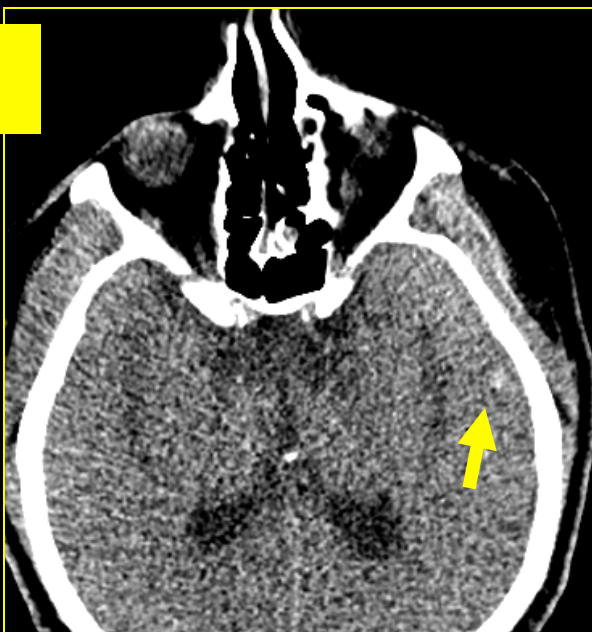
Tiny bright, high contrast structure seen at all dose levels

Do you see any additional findings on higher dose images?

300 mAs:
CTDI vol: 45.8 mGy



60 mAs
9.1 mGy



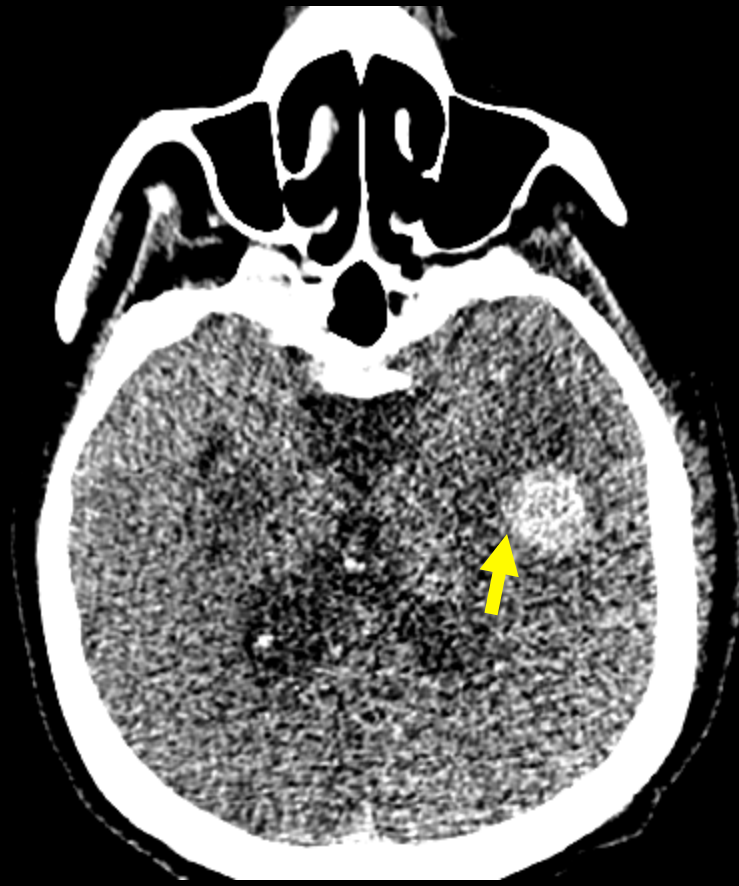
90 mAs
13.7 mGy



Tiny bright, high contrast structure seen at all dose levels

Do you see any abnormal findings in this transverse CT image?

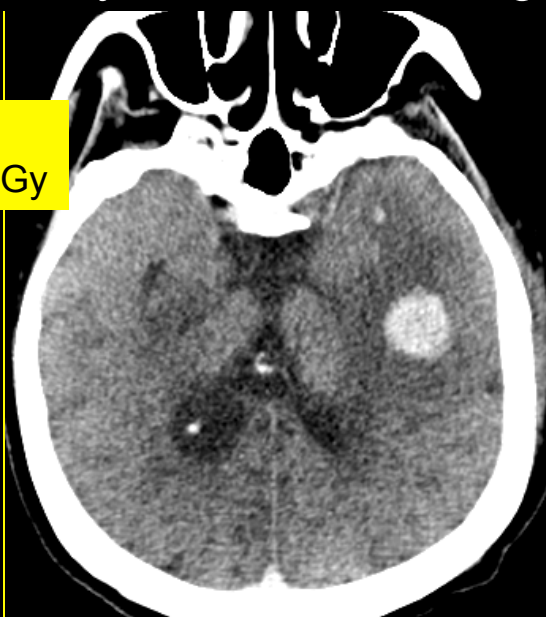




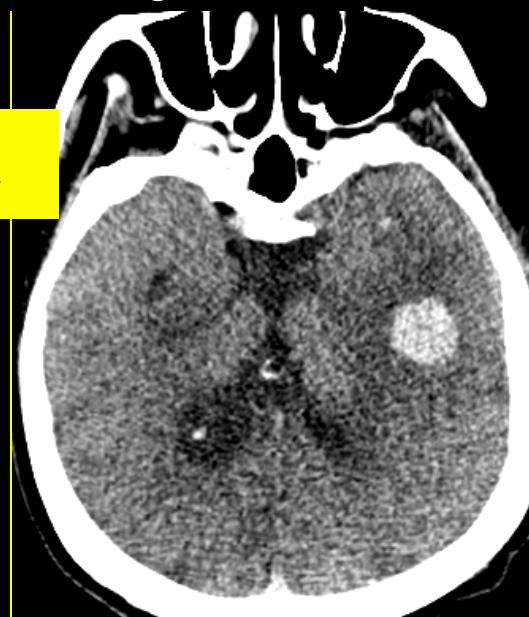
Do you see bright hemorrhagic metastatic nodule ?

Do you see any additional findings on higher dose images?

150 mA:
CTDI vol: 45.8 mGy



75 mA
22.9 mGy



20 mA
9.1 mGy



38 mA
13.7 mGy



Bright hemorrhagic metastatic nodule seen at all dose levels

Do you see any abnormal findings in this transverse CT image?





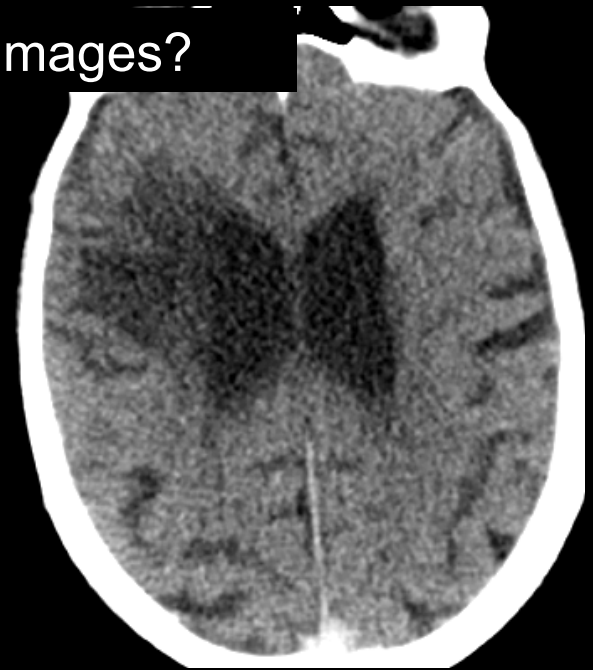
Do you see a hypodensity in right fronto parietal peri ventricular white matter?

Do you see any additional findings on higher dose images?

150 mA:
CTDI vol: 45.8 mGy



75 mA
22.9 mGy



20 mA
9.1 mGy



38 mA
13.7 mGy



hypodensity in right frontoparietal peri ventricular white matter seen at all dose levels

Do you see any abnormal findings in this transverse CT image?





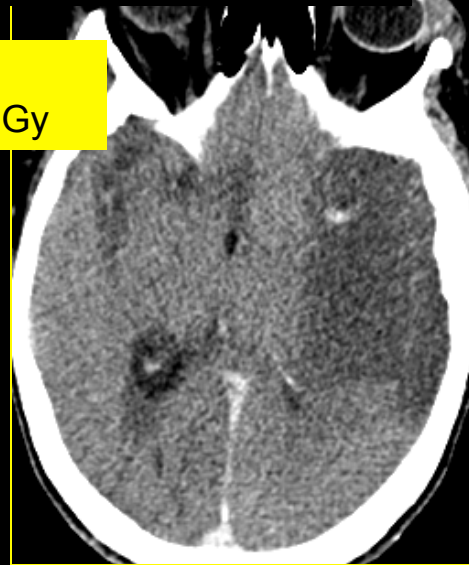
Do you see severe hypo attenuation in Lt MCA and ACA with multiple foci of sub cm hemorrhagic conversion

Do you see any additional findings on higher dose images?

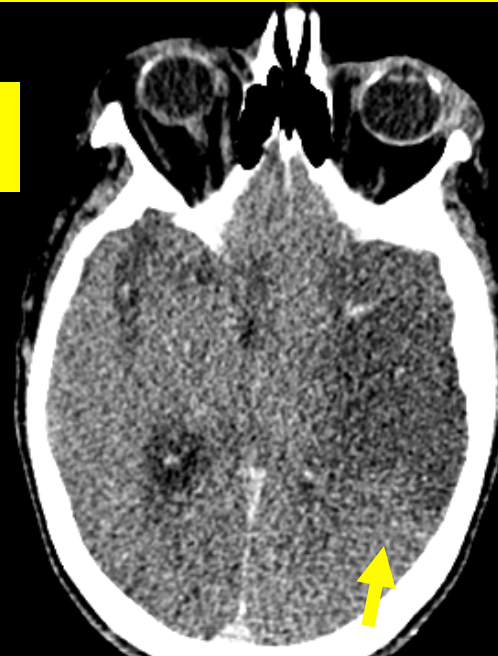
150 mA:
CTDI vol: 45.8 mGy



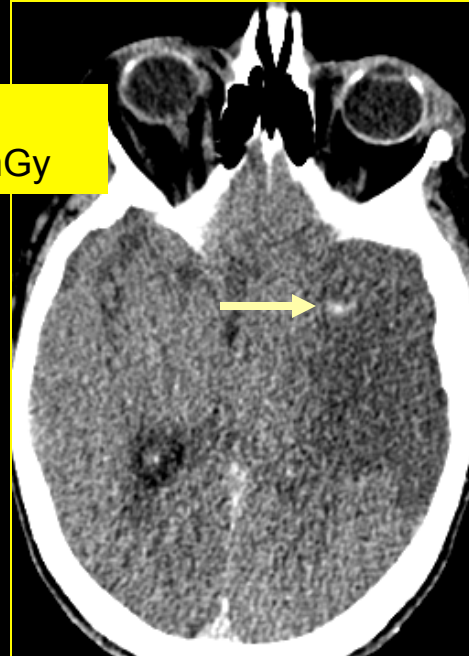
75 mA
22.9 mGy



20 mA
9.1 mGy



38 mA
13.7 mGy



Loss of grey-white matter differentiation with marked hypoattenuation in left MCA and ACA territory with sub-centimeter size hemorrhagic conversion

Do you see any abnormal findings in this transverse CT image?





Do you see massive subarachnoid hemorrhage

Do you see any additional findings on higher dose images?

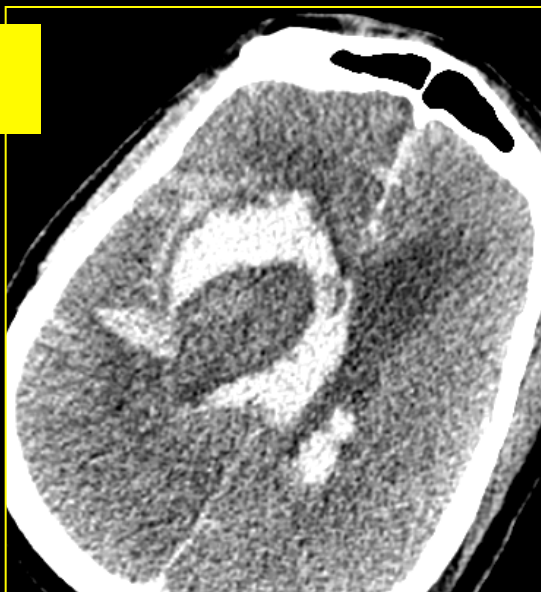
150 mA:
CTDI vol: 45.8 mGy



75 mA
22.9 mGy



20 mA
9.1 mGy



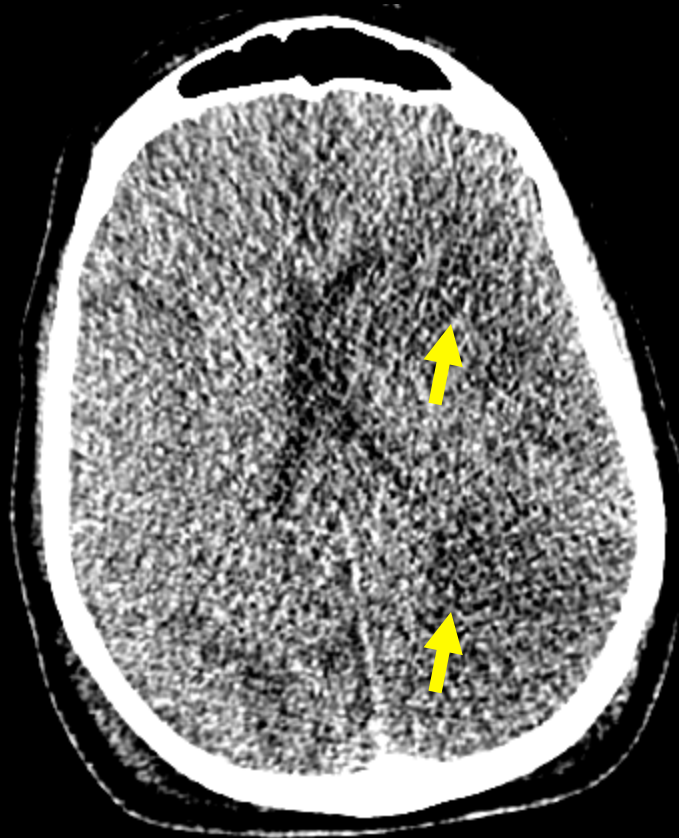
38 mA
13.7 mGy



Massive subarachnoid hemorrhage

Do you see any abnormal findings in this transverse CT image?





Do you see extensive areas of hypoattenuation in left middle cerebral artery vascular territory?

Do you see any additional findings on higher dose images?

300 mAs
CTDI vol: 46 mGy



150 mAs
23 mGy



40 mAs
6 mGy



75 mAs
12 mGy



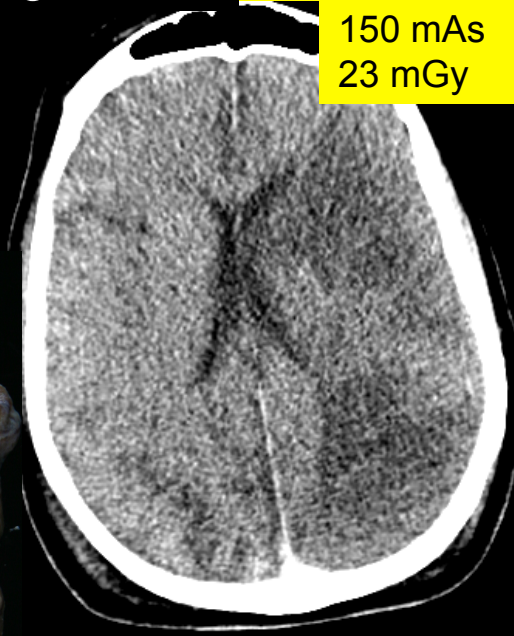
Extensive low attenuation in left MCA territory

Do you see any additional findings on higher dose images?

300 mAs
CTDI vol: 46 mGy



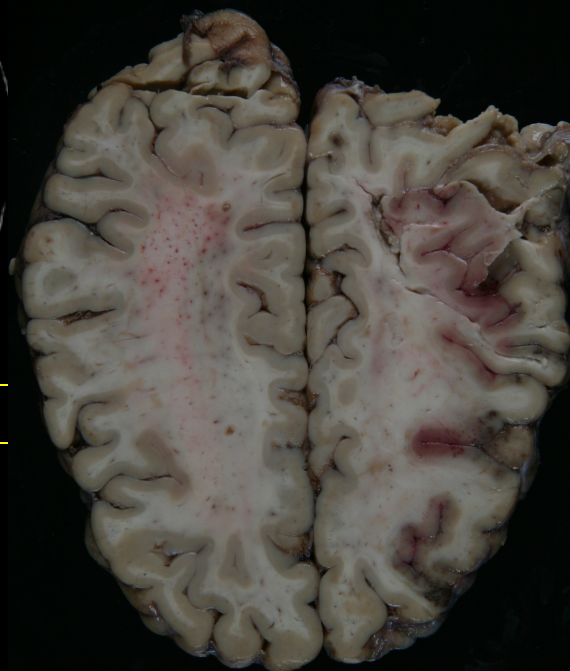
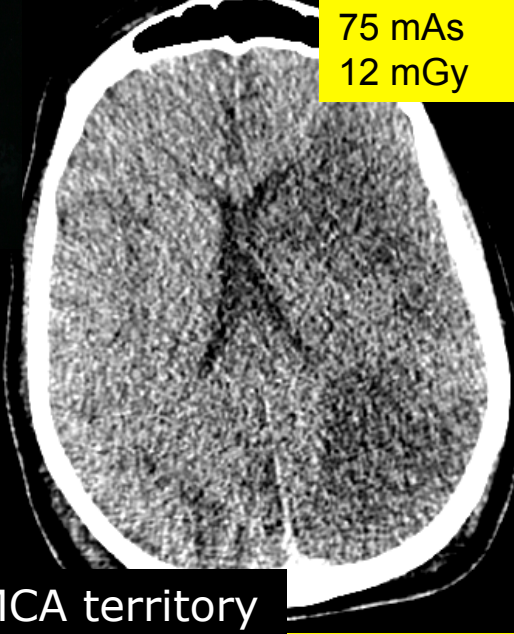
150 mAs
23 mGy



40 mAs
6 mGy



75 mAs
12 mGy



Extensive low attenuation in left MCA territory

Do you see any abnormal findings in this transverse CT image?





Do you see left frontal lobe infarct and
left temporal ventricle dilation?

Do you see any additional findings on higher dose images?

120 kV,
300 mA



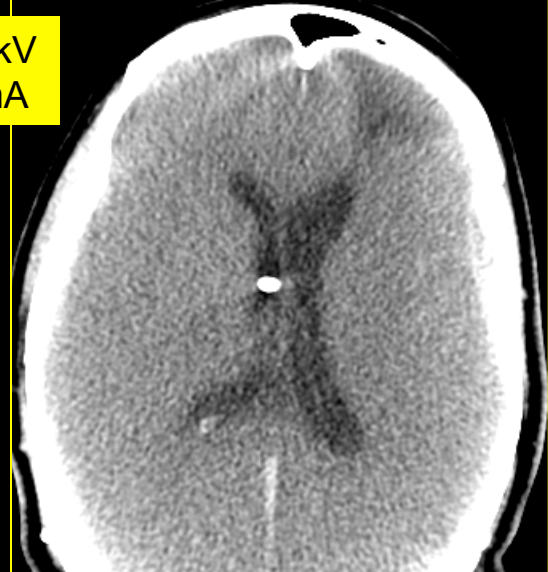
120 kV
180 mA



120 kV
45 mA



120 kV
90 mA



left frontal lobe infarct and left temporal ventricle dilation

Do you see any abnormal findings in this transverse CT image?

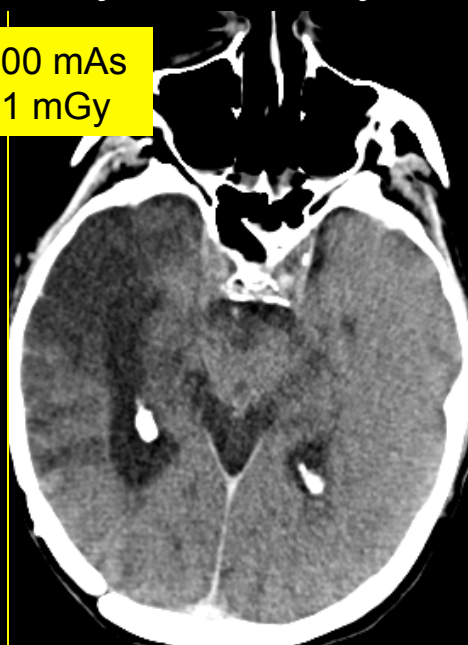




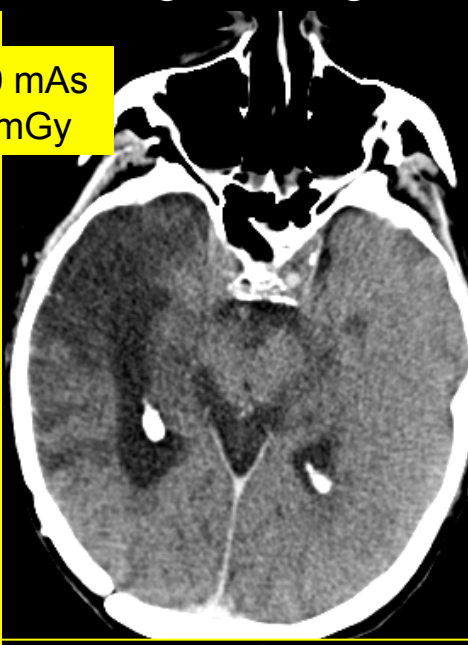
Do you see right frontal and temporal lobe infarct?

Do you see any additional findings on higher dose images?

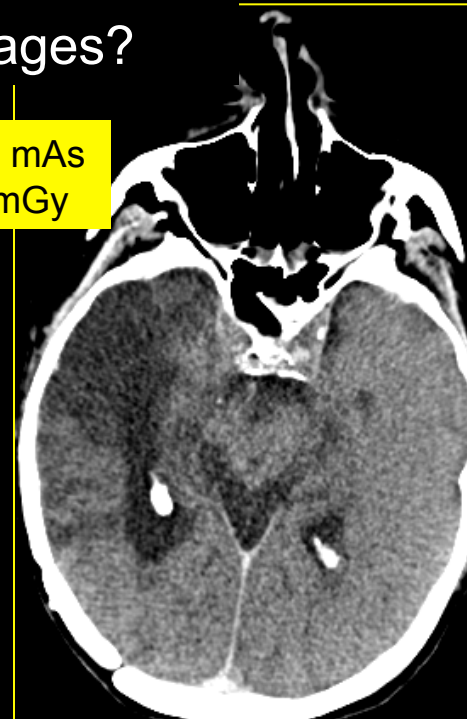
400 mAs
61 mGy



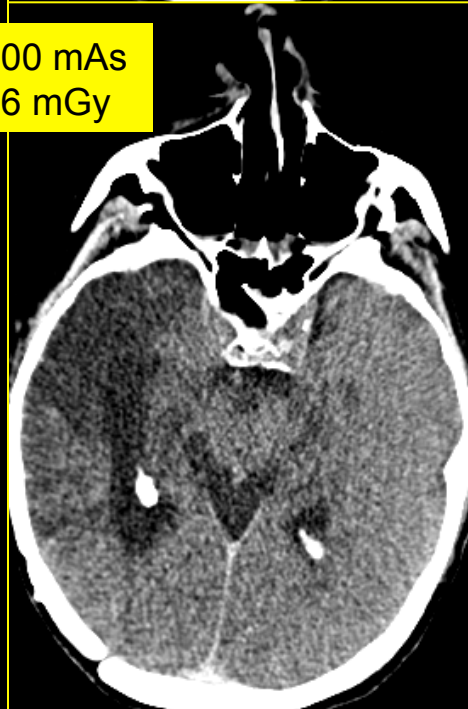
300 mAs
46 mGy



200 mAs
31 mGy



100 mAs
16 mGy

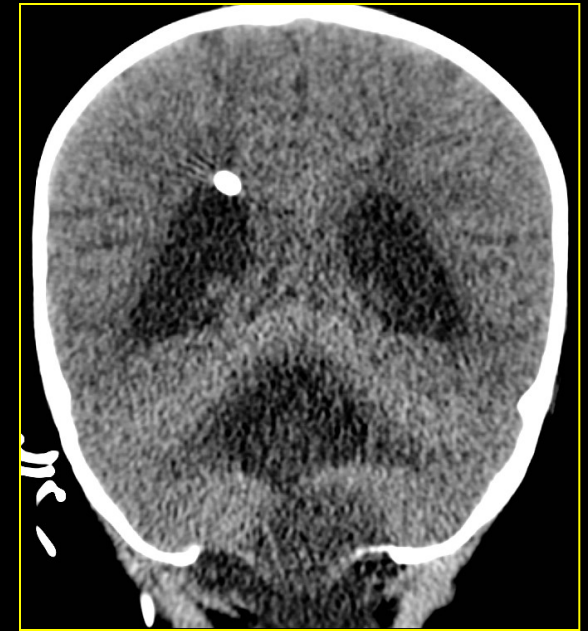
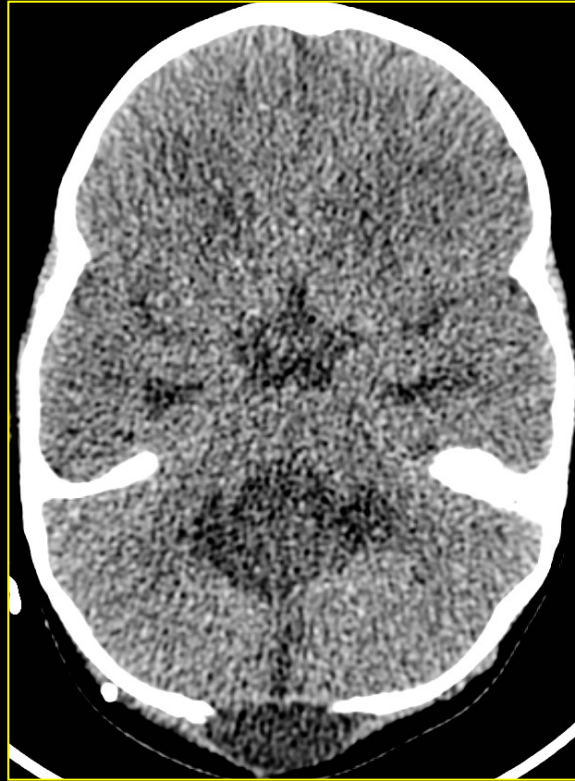


60mAs
9 mGy

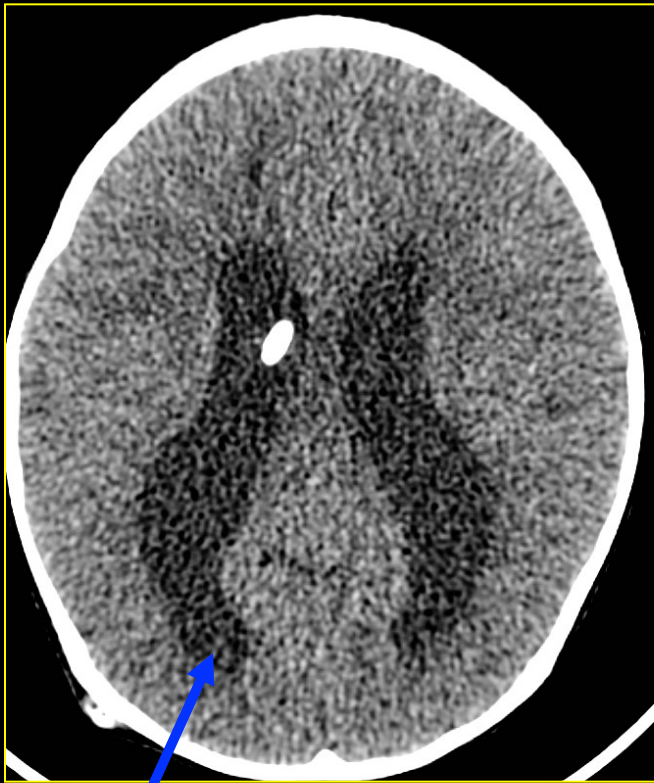


Right frontal and temporal
lobe infarct

Do you see any abnormal findings in these CT images?



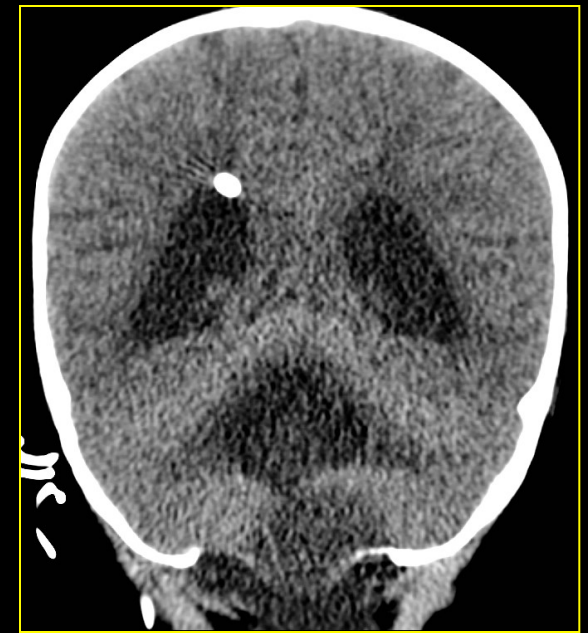
2 year old patient status post surgical resection of cervico-medullary mass, who underwent head CT to assess **hydrocephalus**



Enlarged fourth ventricle



Pseudo-meningocele



Scan parameters

80 kVp

100 mA

Pitch: 0.531

Dose parameters

CTDIvol = 5.4 mGy

DLP = 90 mGy.cm

Do you see any abnormal findings in these CT images?



18yr old boy, with subarachnoid blood along the b/l frontal convexities and small SDH along the left frontotemporal convexity

Prior scan: (FBP)



Scan parameters

120 kVp
231 mA

Estimated dose:

CTDIvol: 65.6 mGy
DLP: 1223.6 mGy.cm
2.4 mSv

Follow up: (ASIR)



Scan parameters

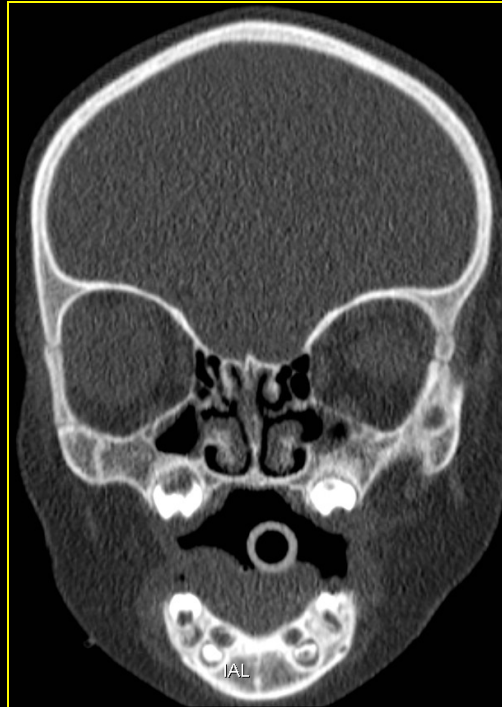
120 kVp
159 mA, NI: 42
Pitch: 0.531
ASIR:90

Estimated dose:

CTDIvol: 25.4 mGy
DLP: 459.8 mGy.cm
0.9 mSv

1 yr girl, 10kg, with abnormal facies, underwent Head CT for osseous dysmorphism: **Craniosynostosis protocol**

Technique: (ASIR)



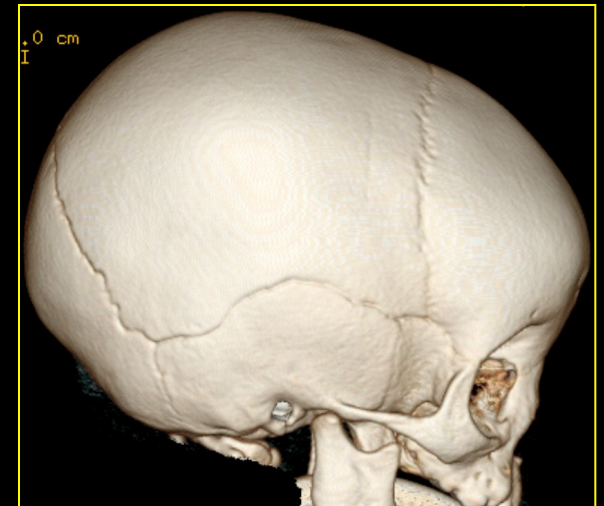
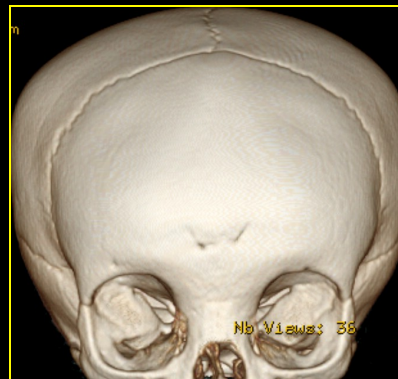
Scan parameters

80 kVp

50 mA

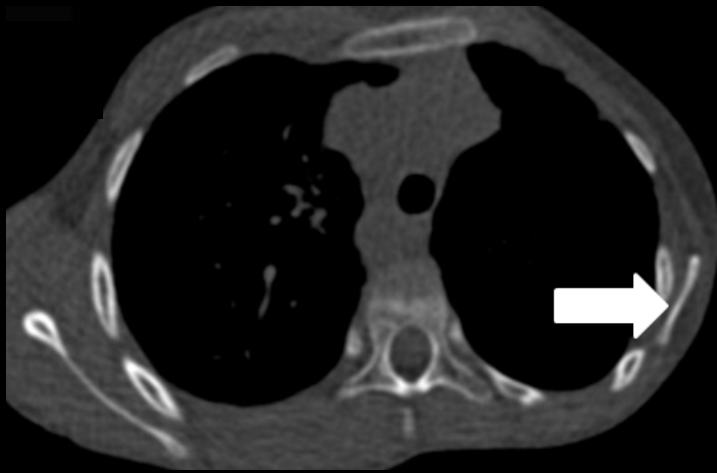
Estimated dose:

0.1 mSv



CT evaluation of bony abnormalities such as craniostenosis should be performed at lowest possible radiation dose levels. Note that brain parenchyma is hard to see at such dose levels but bony details and reformatted images show exquisite bony details.

9 yr old boy underwent whole spine
CT with scoliosis protocol



Scan parameters

High pitch: 3.0:1

kVp: 100

Table speed: 115.2

Ref mAs: 10

DLP= 10 mGy.cm

Estimated Dose: 0.15 mSv

Amelia of right upper limb
Hypoplastic left scapula
Hypoplastic left chest wall muscles
No scoliosis or spinal abnormality



Thank You for your kind attention

Contact for any queries

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