

COMPUTED TOMOGRAPHY

Head CT Basics : Trauma

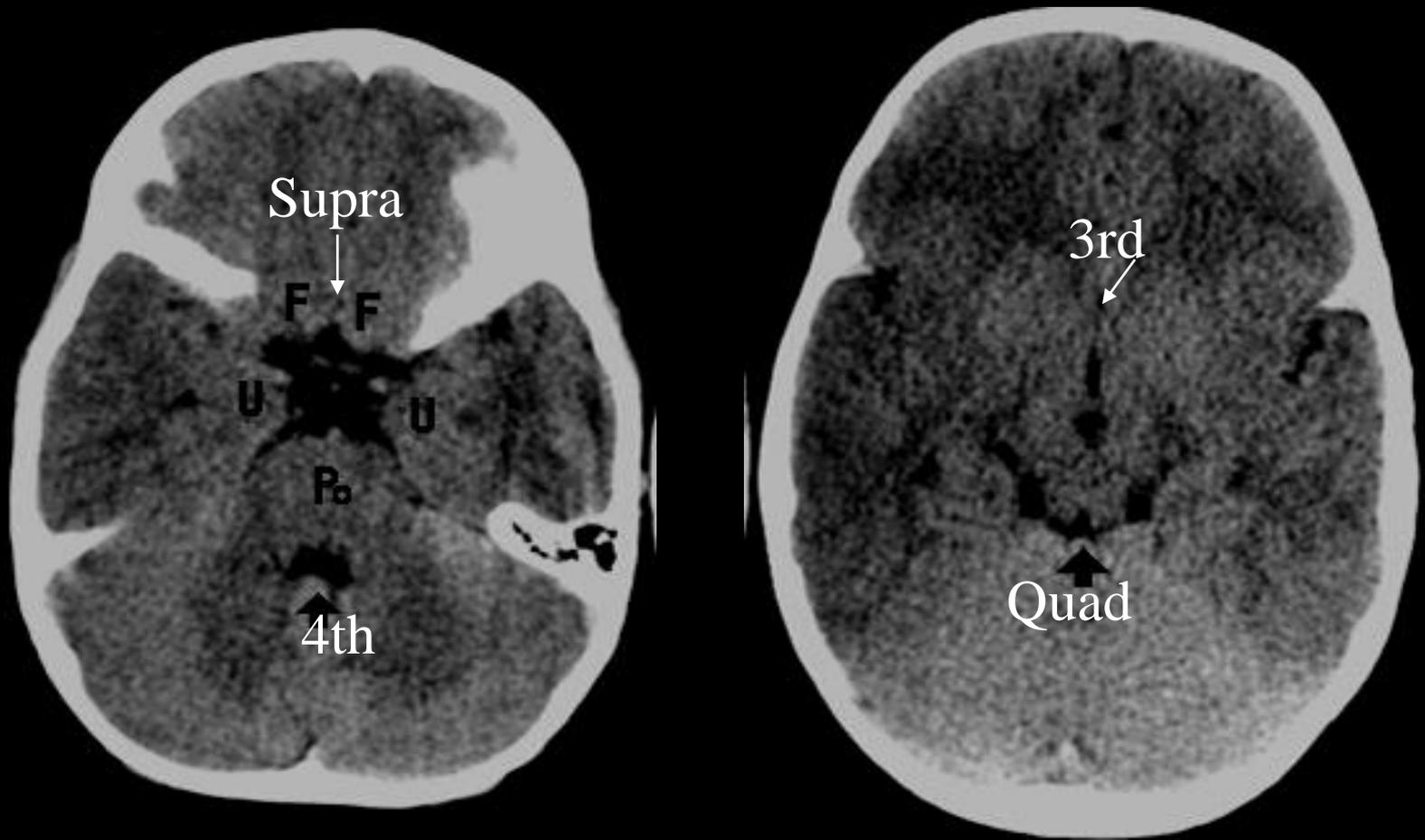
- BY AHMED JASEM ABASS
- MSC of Medical Imaging



Head CT Interpretation the basics

Before we look at abnormal, A little normal geography:

- Use the Cisterns & Ventricles as landmarks



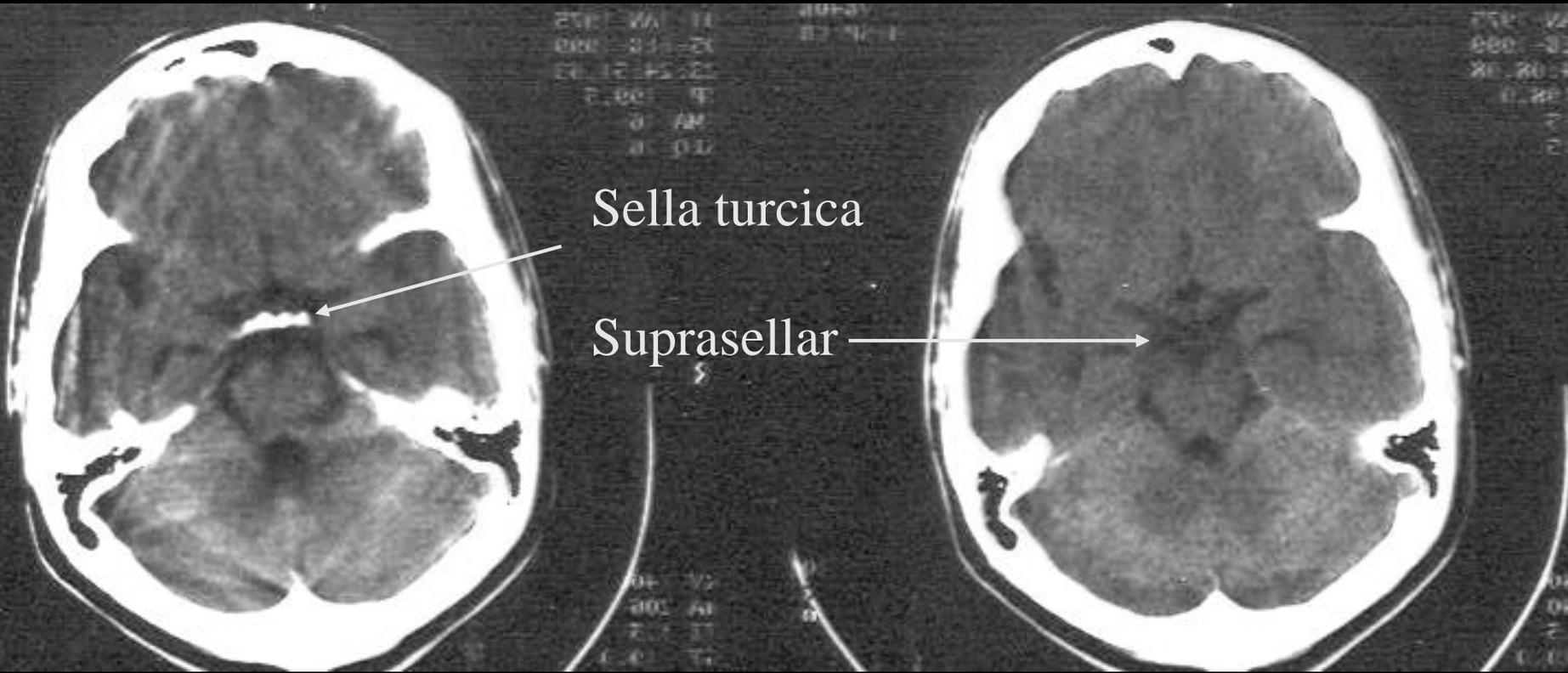


4th Ventricle



Suprasellar Cistern





Sella turcica

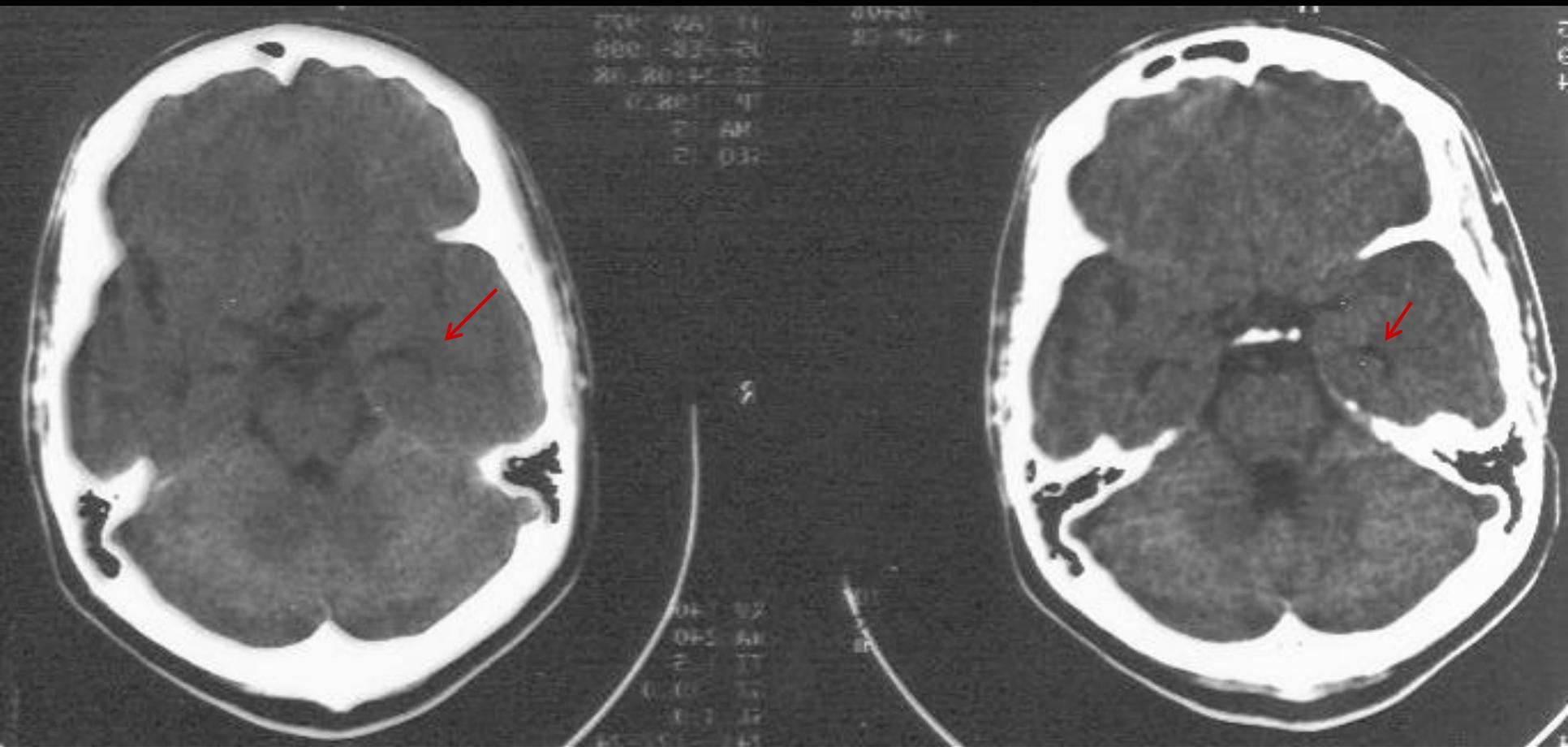
Suprasellar

Suprasellar Cistern

3rd Ventricle

**Quadrigeminal
Cistern**



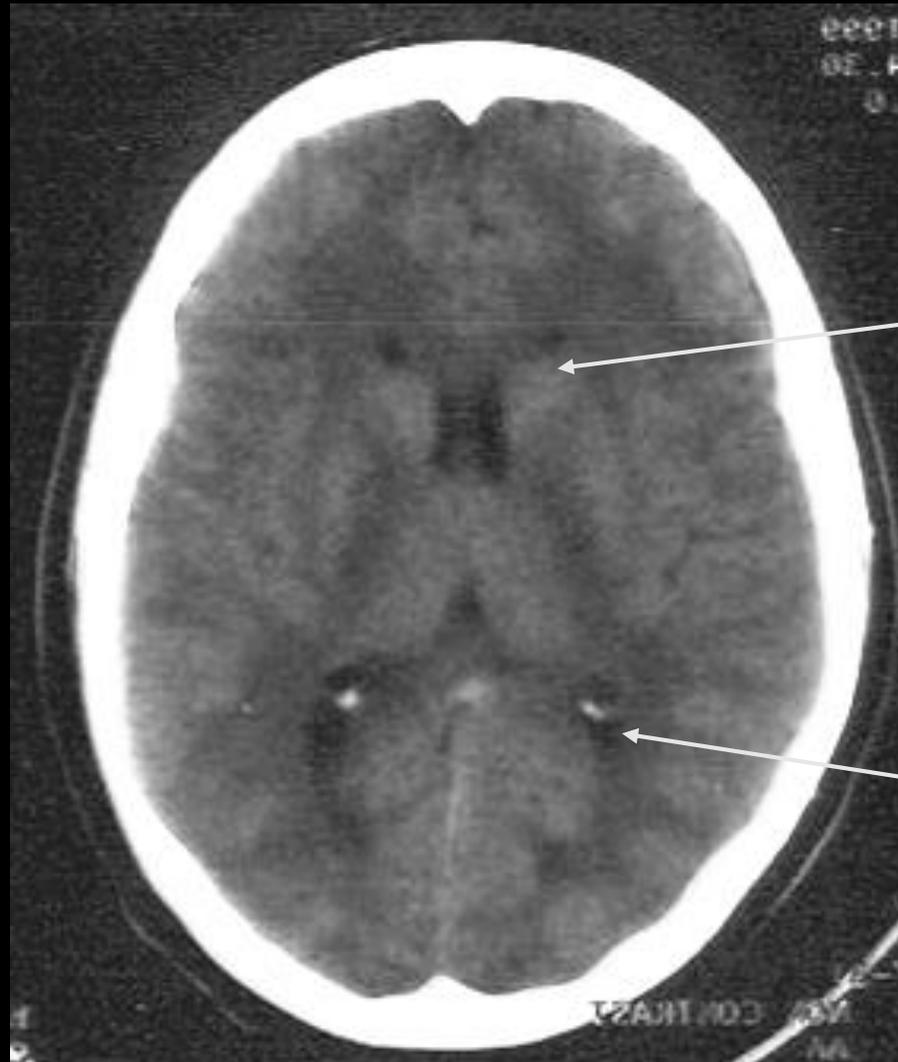


Temporal Horn of Lateral Ventricle



3rd Ventricle &
Quadrigeminal
Cistern

Lateral Ventricles

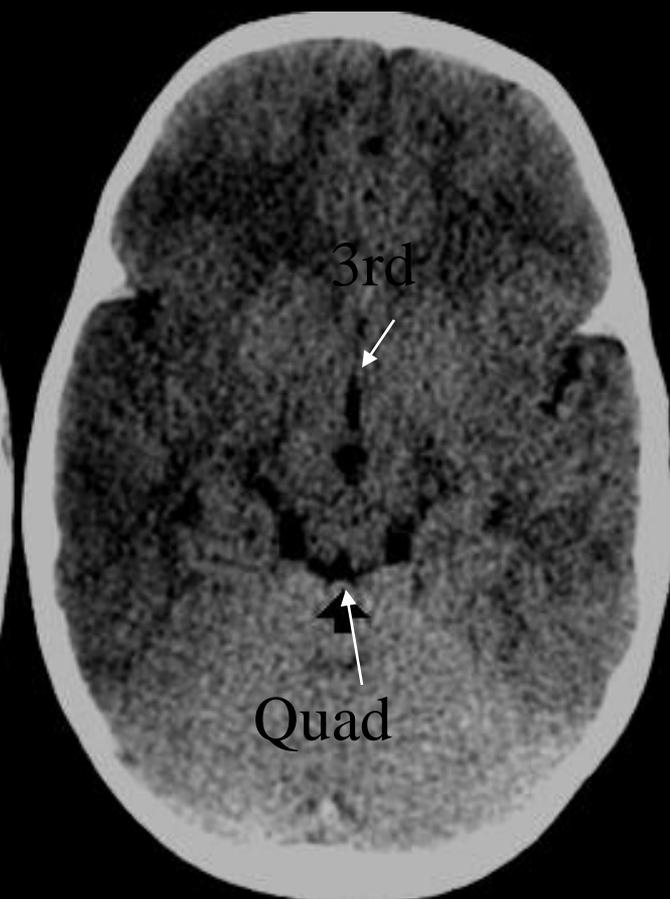
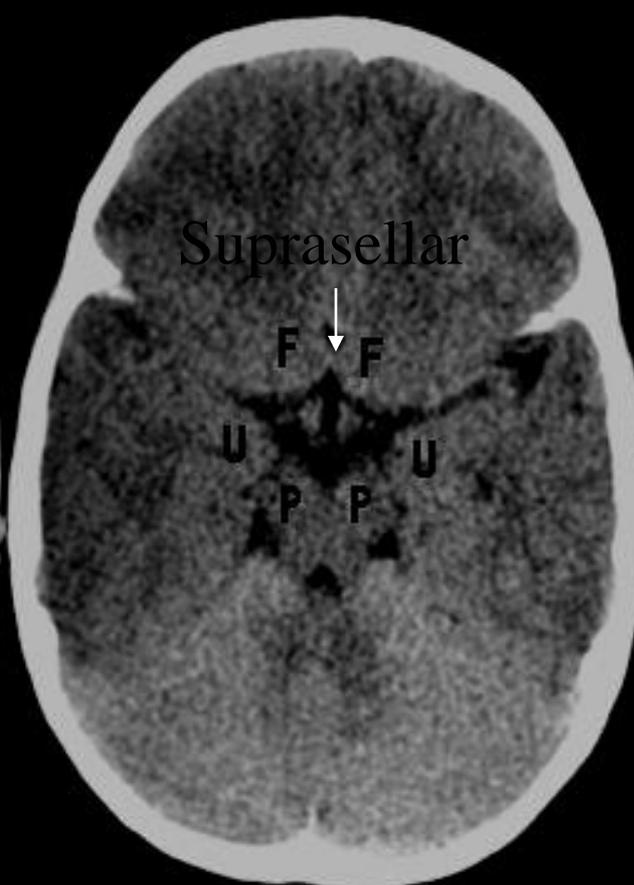
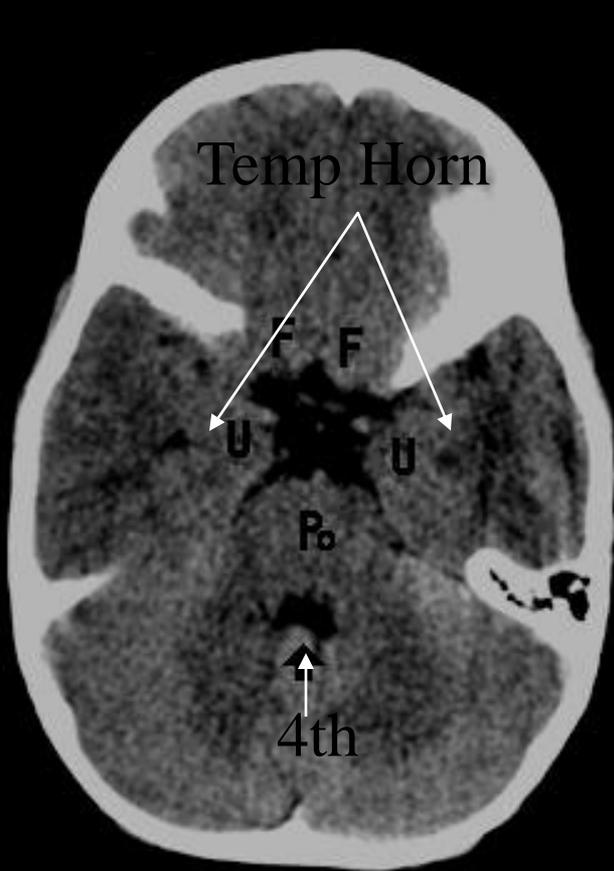


Frontal

Occipital

Lateral Ventricles





ABNORMAL CTs

On each brain slice look for:

- Symmetry, symmetry, symmetry
 - sulci
 - cisterns and ventricles
 - grey-white differentiation

Identify What Doesn't Belong

- **Hyperdensities (whiter)**
 - **extra-axial hematomas (SDH, EDH)**
 - **ICB or contusion**
 - **SAH in sulci, cisterns or ventricles**
- **Hypodensities (darker)**
 - **pneumocephaly (air is darker than CSF)**
 - **infarction**

Blood: Acute blood is white (60-80 HU) on CT, due to the density of hemoglobin.

As hgb breaks down, the HU decrease (i.e. subacute and isodense hematomas)

**Dura tightly
adhered
to skull, but
loosely to
brain.**



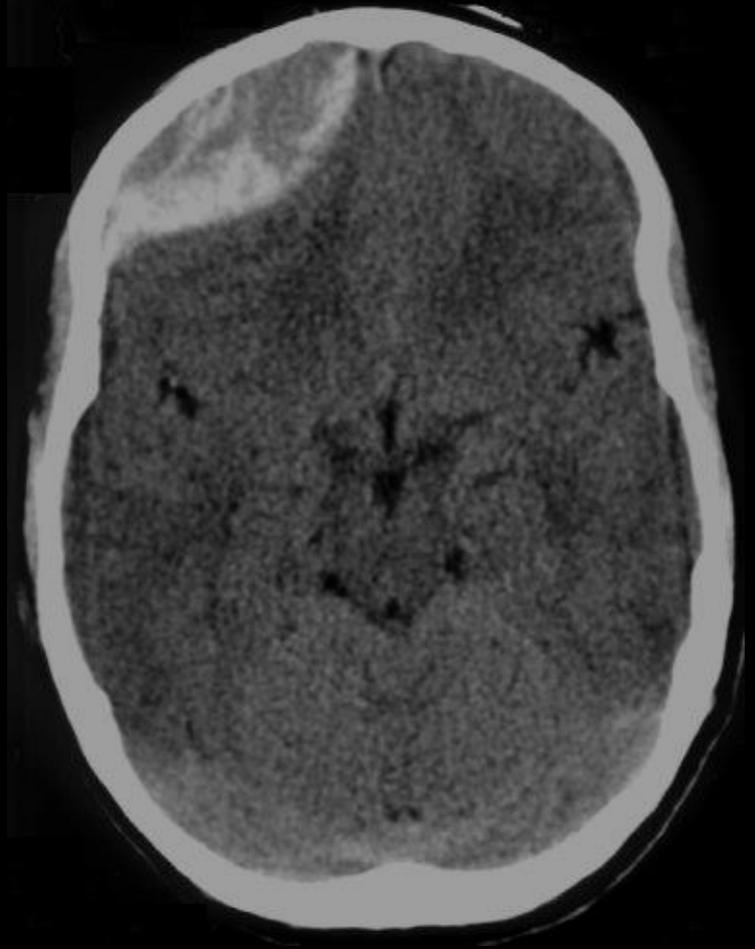
Dura mater

Arachnoid

Pia mater

Epidural Hematoma

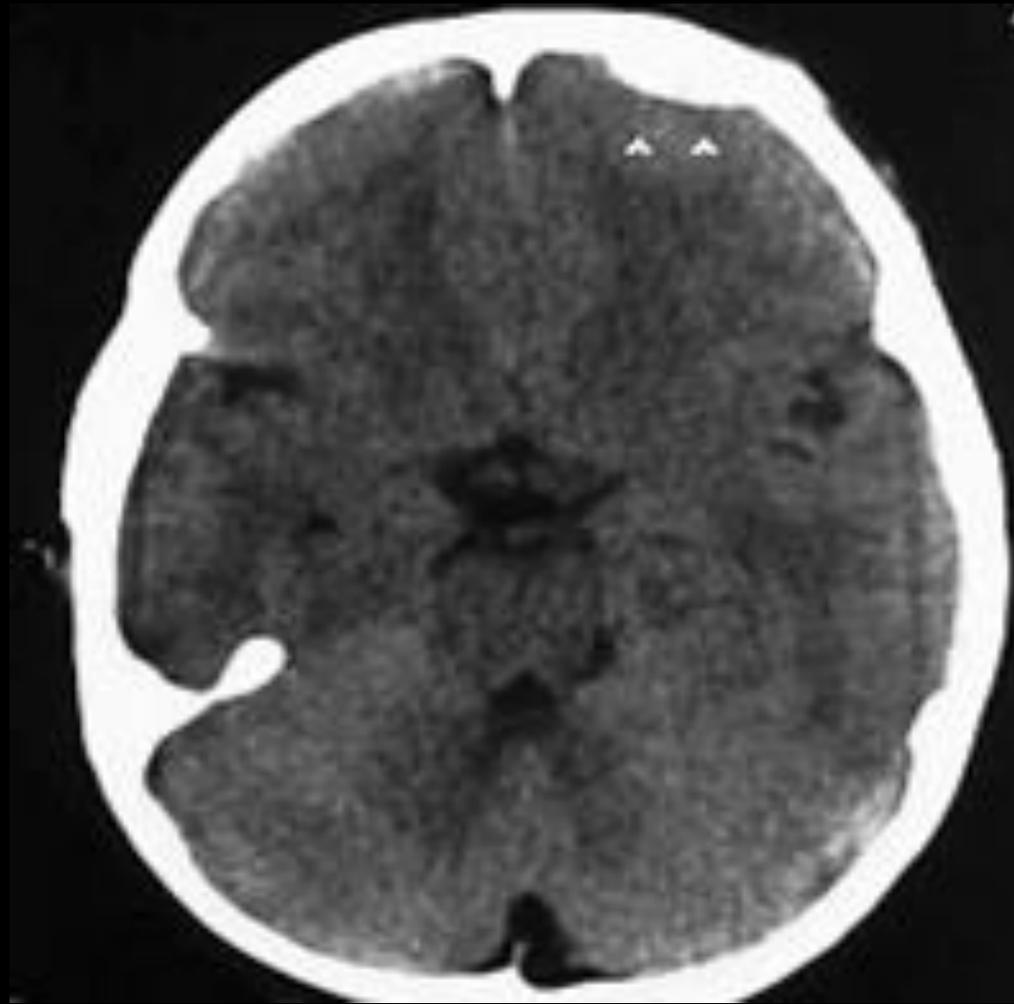
- Lens shaped (dura tightly adhered to skull**
- Can cross midline**
- Frequently assoc. with fracture**



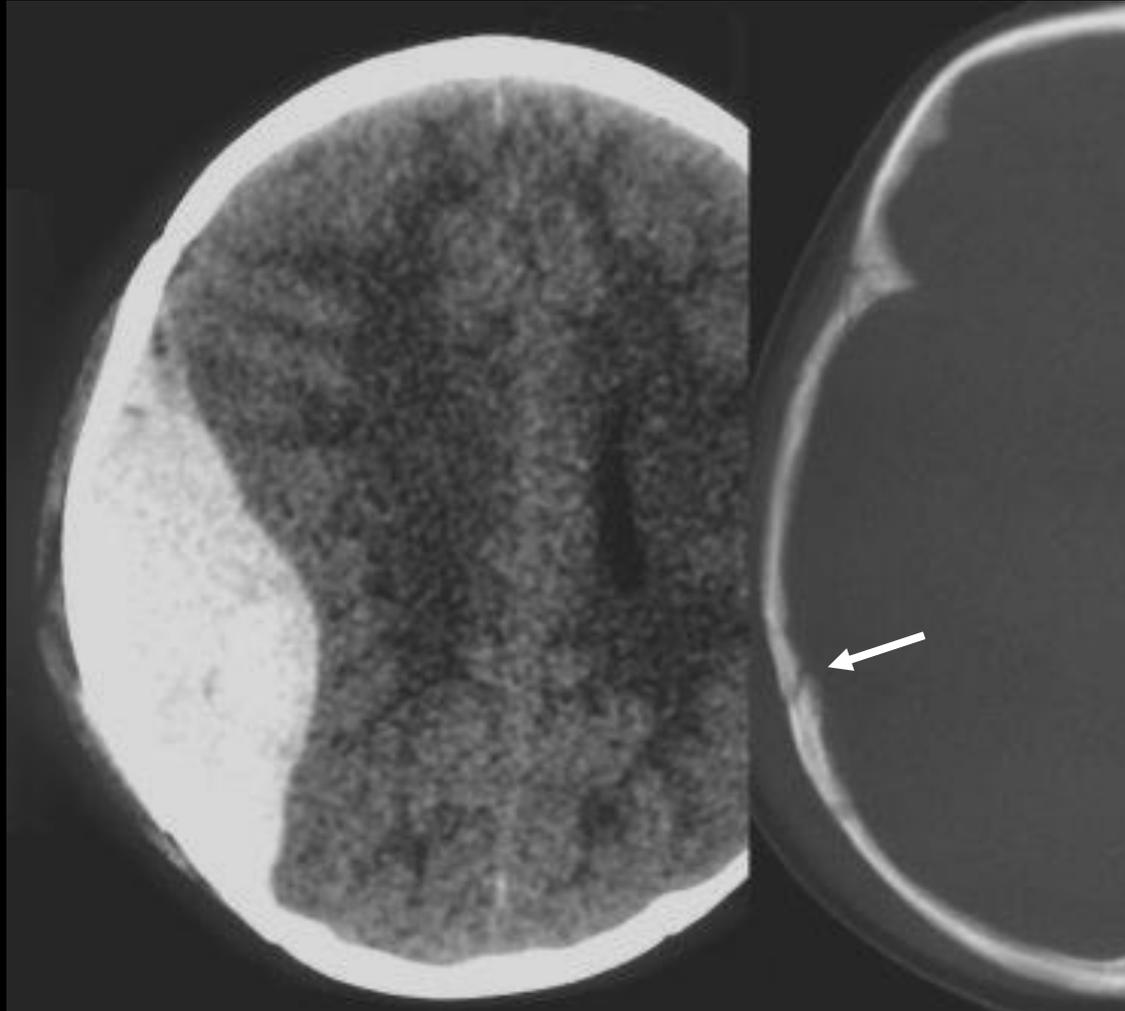
Small Epidural Hematoma



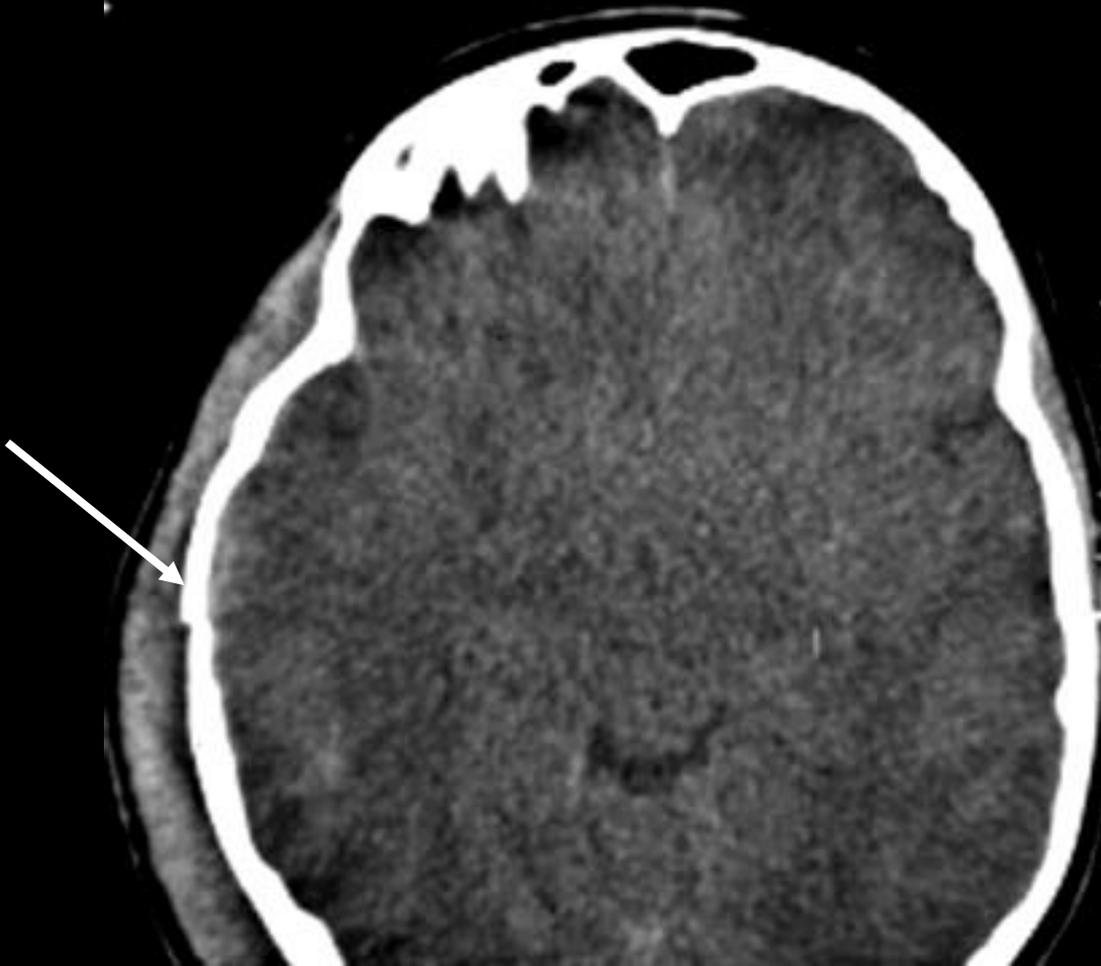
Very Small Epidural Hematoma



Epidural with fracture



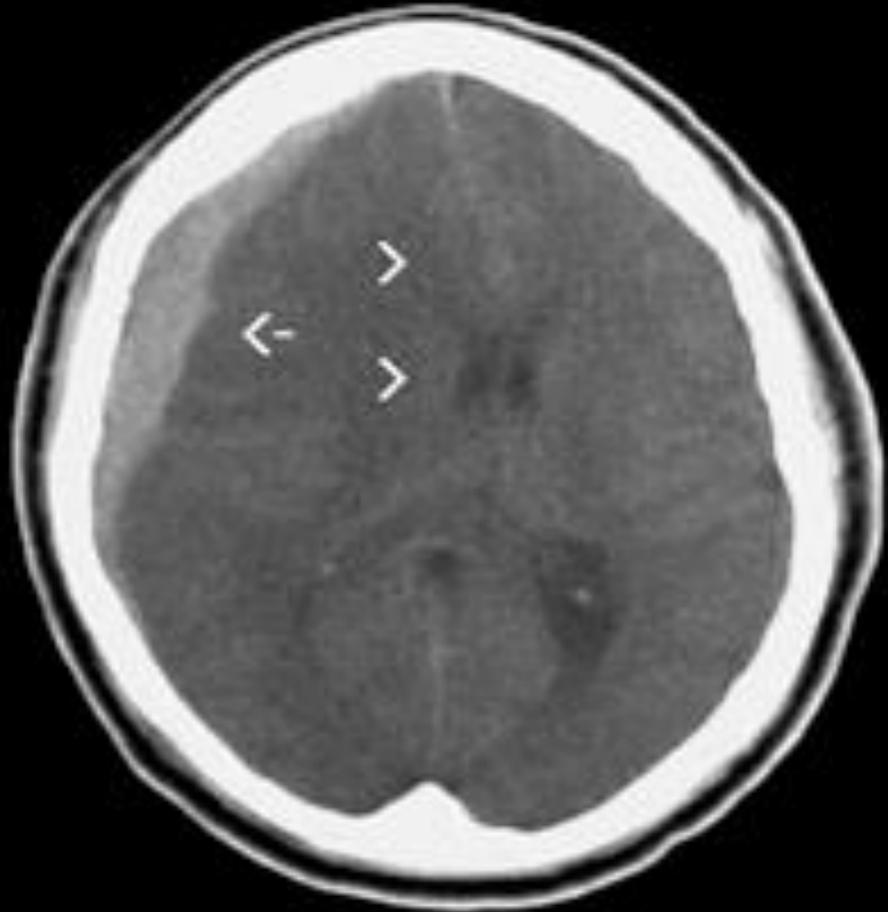
**Very Small Epidural Hematoma
with fracture**



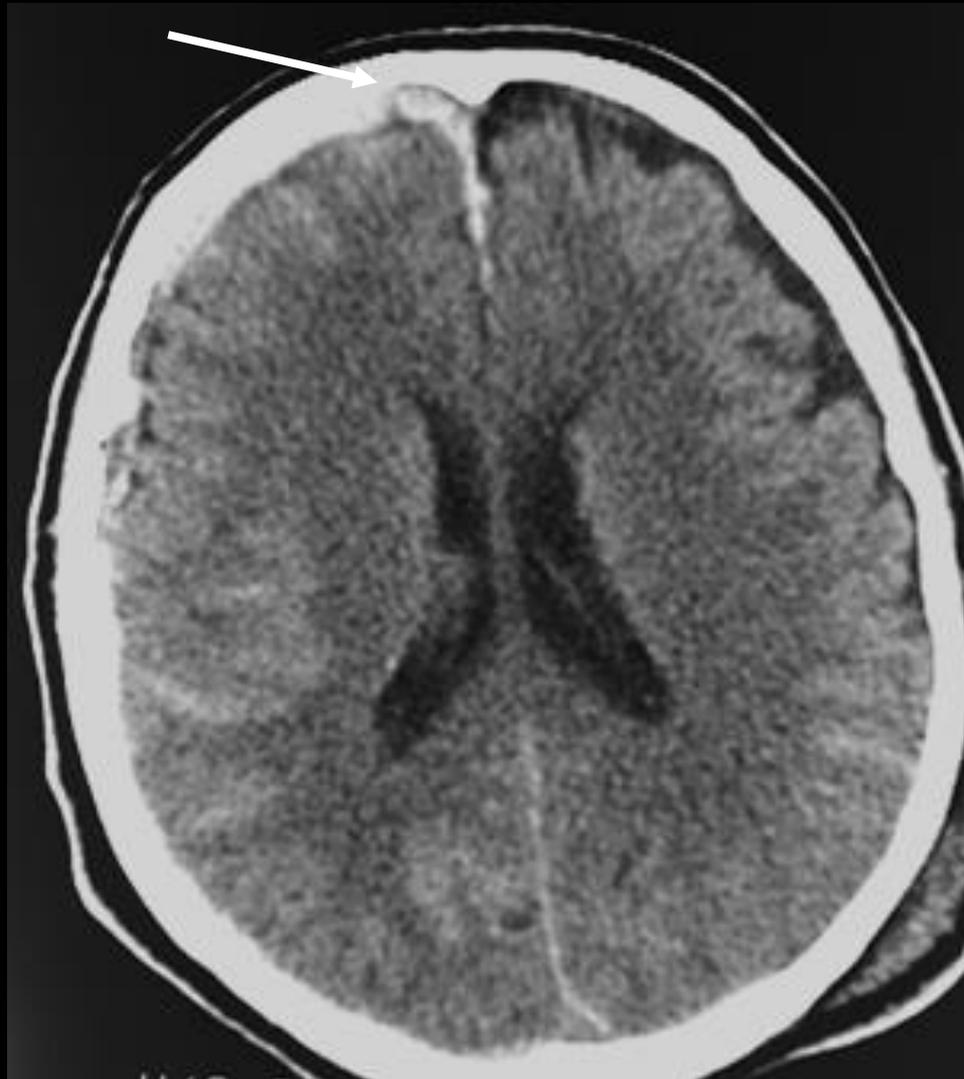
Epidural with Pneumocephaly



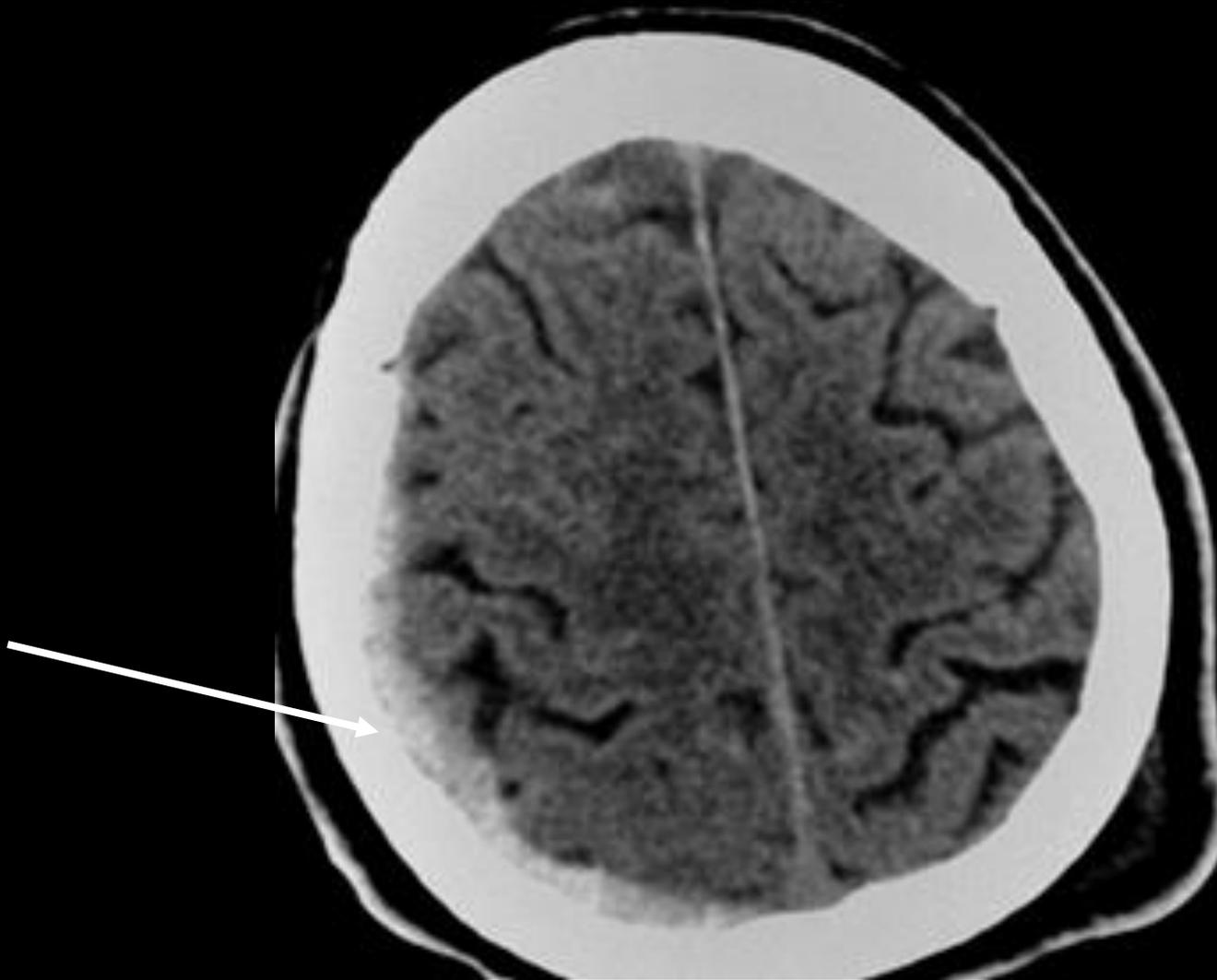
**Subdural
Hematoma**
Follows the
contour of the
brain & doesn't
cross the
midline



Small SDH tracking down midline



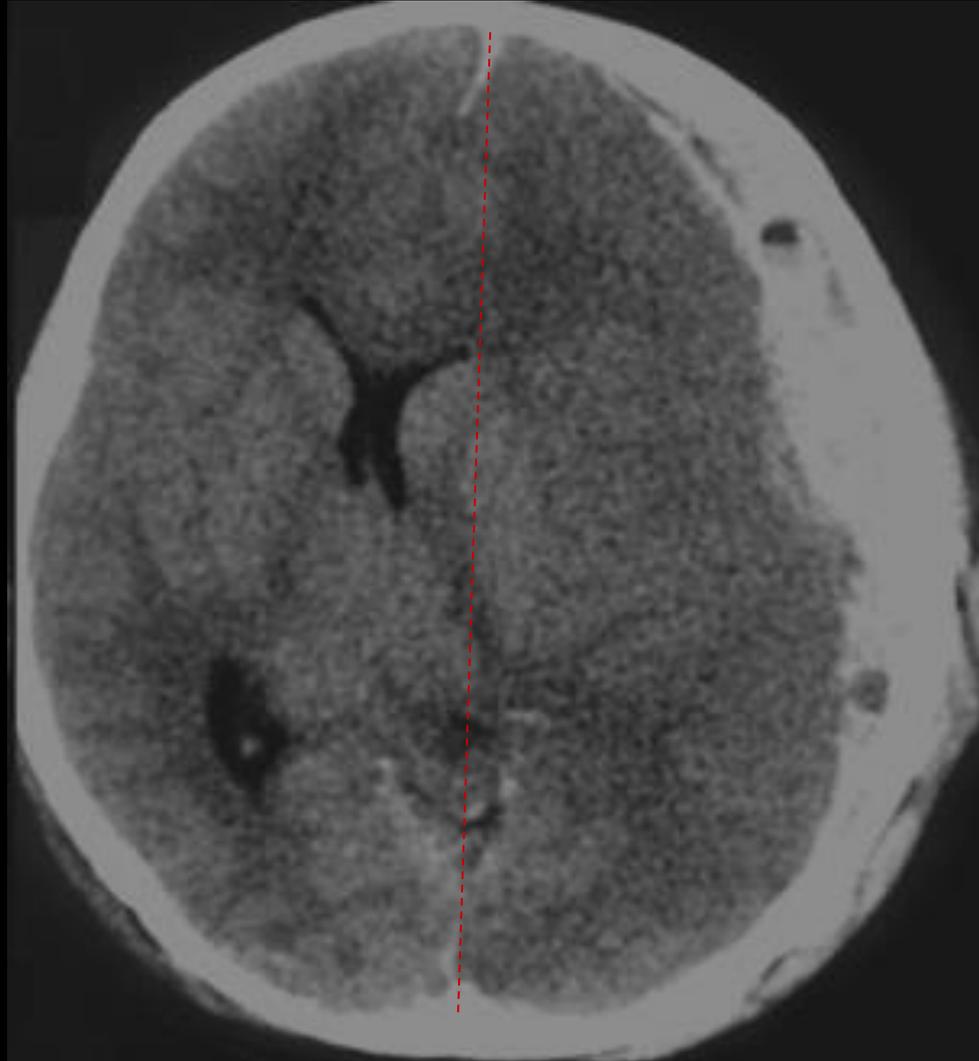
Small Subdural Hematoma



Very Small Subdural Hematoma



Large Subdural Hematoma with shift



Isodense Subdural Hematoma



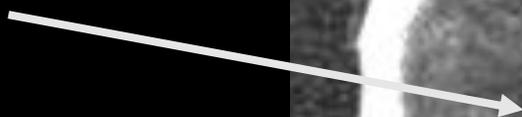
Hygroma with shift s/p SDH



Acute on Chronic Subdural Hematoma



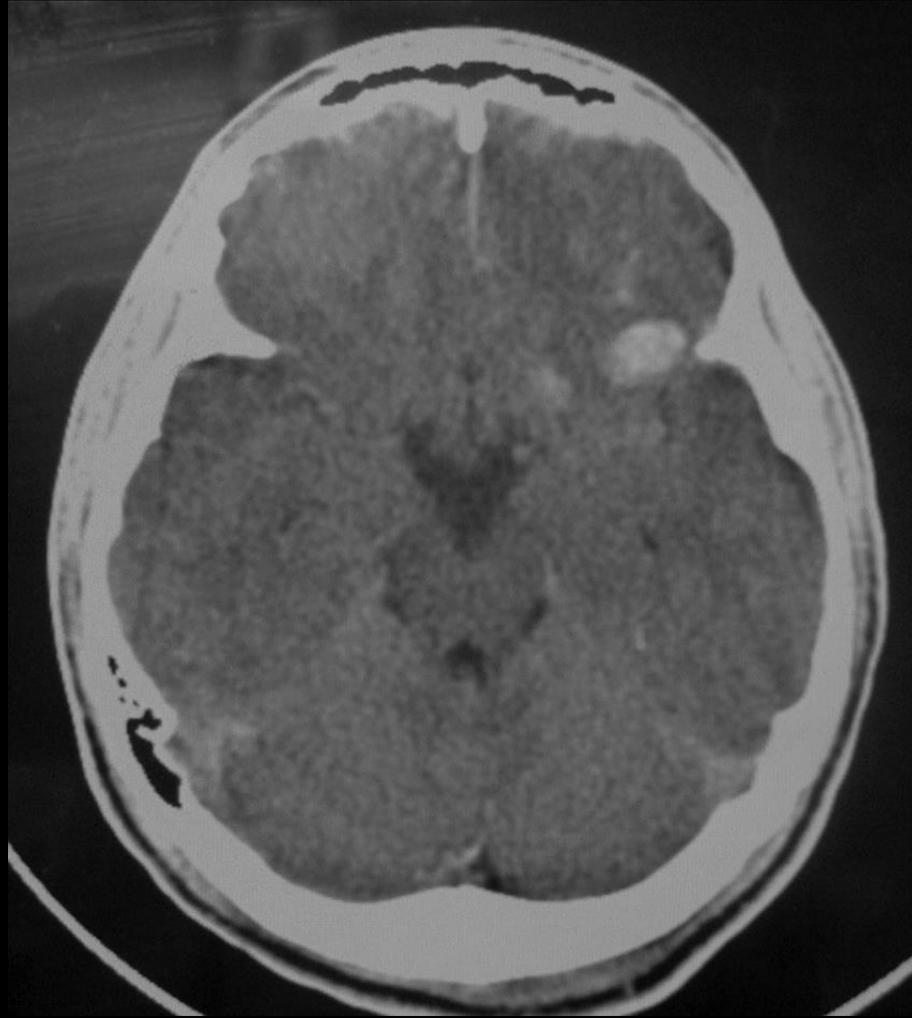
Intraparenchymal
Bleed



Intraparenchymal Bleed & Skull Fracture

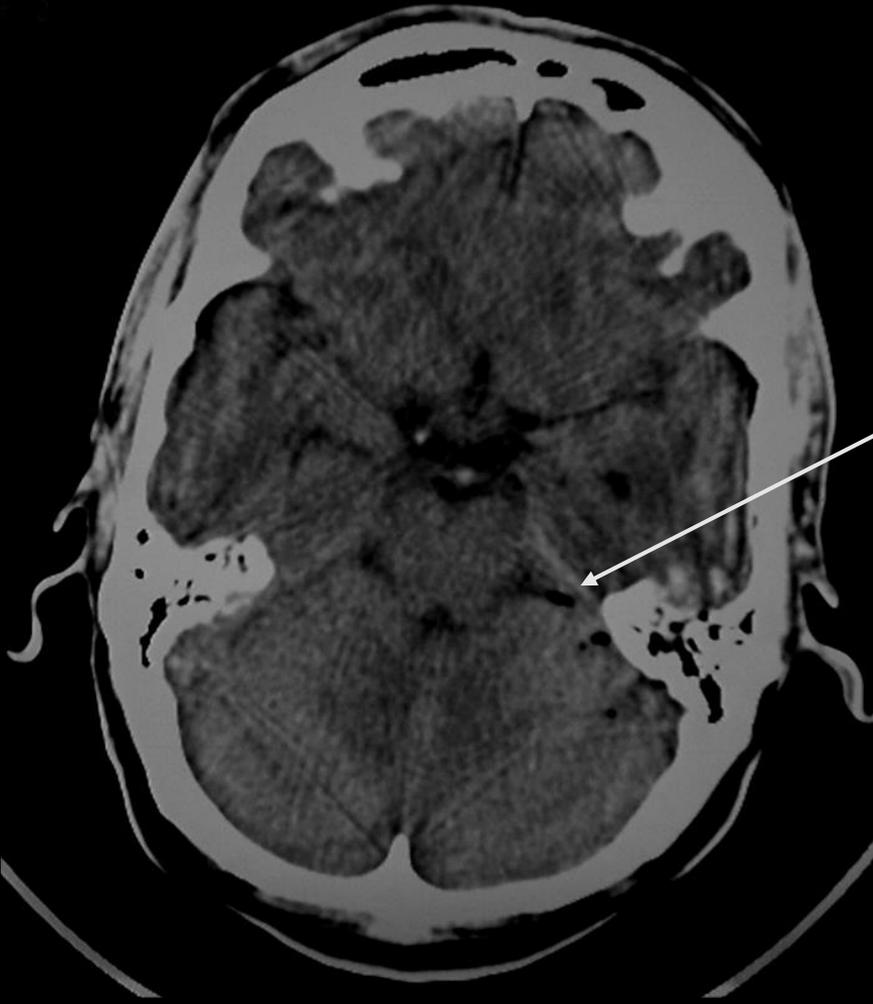


Intraparenchymal Bleed & Contusions



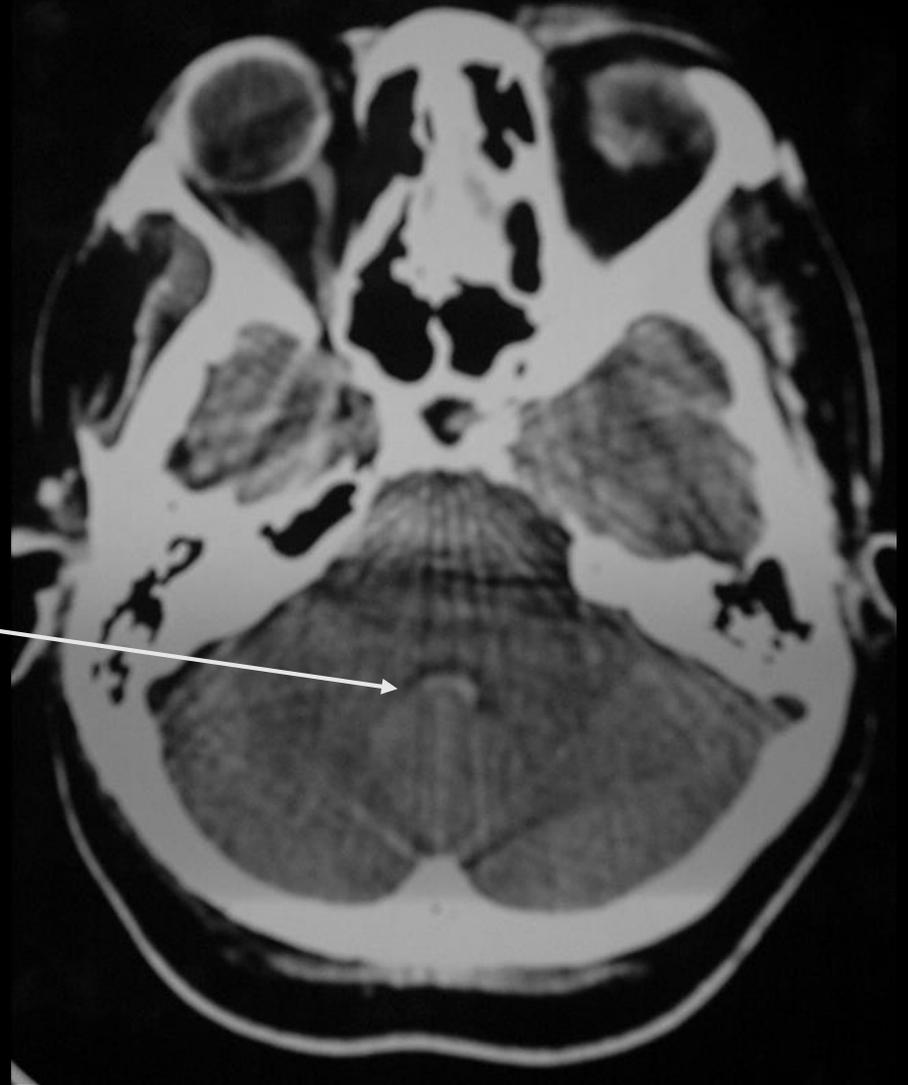


Contusion

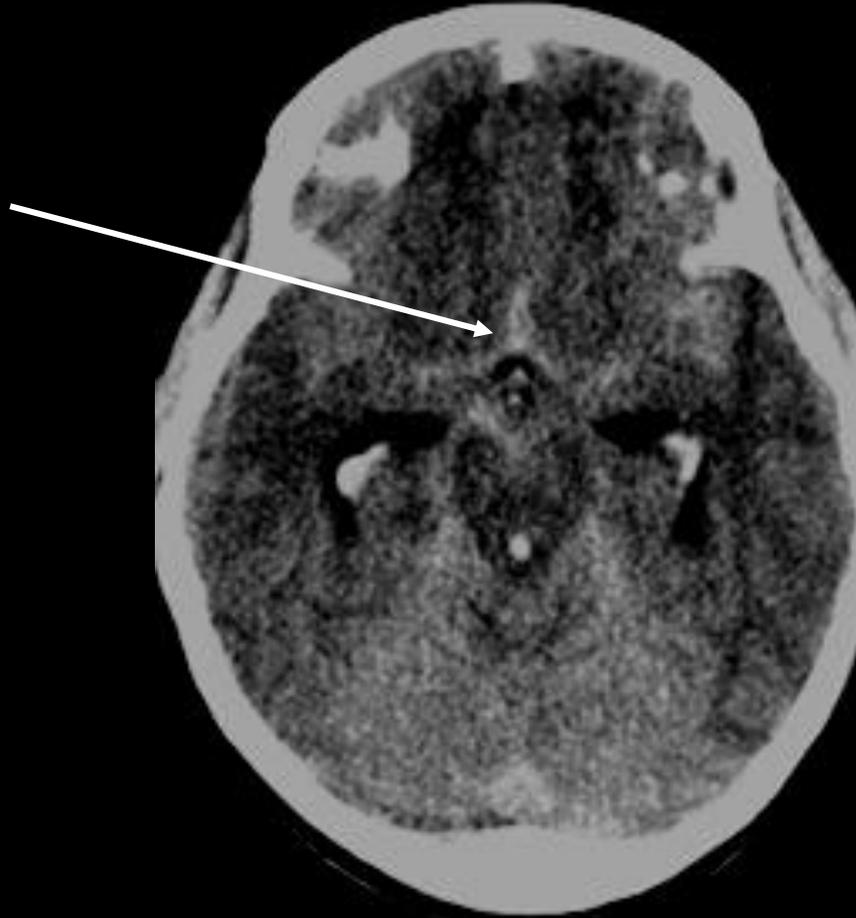


**Pneumocephaly
and contusion**

**Subarachnoid hemorrhage-
Blood in the 4th Ventricle**



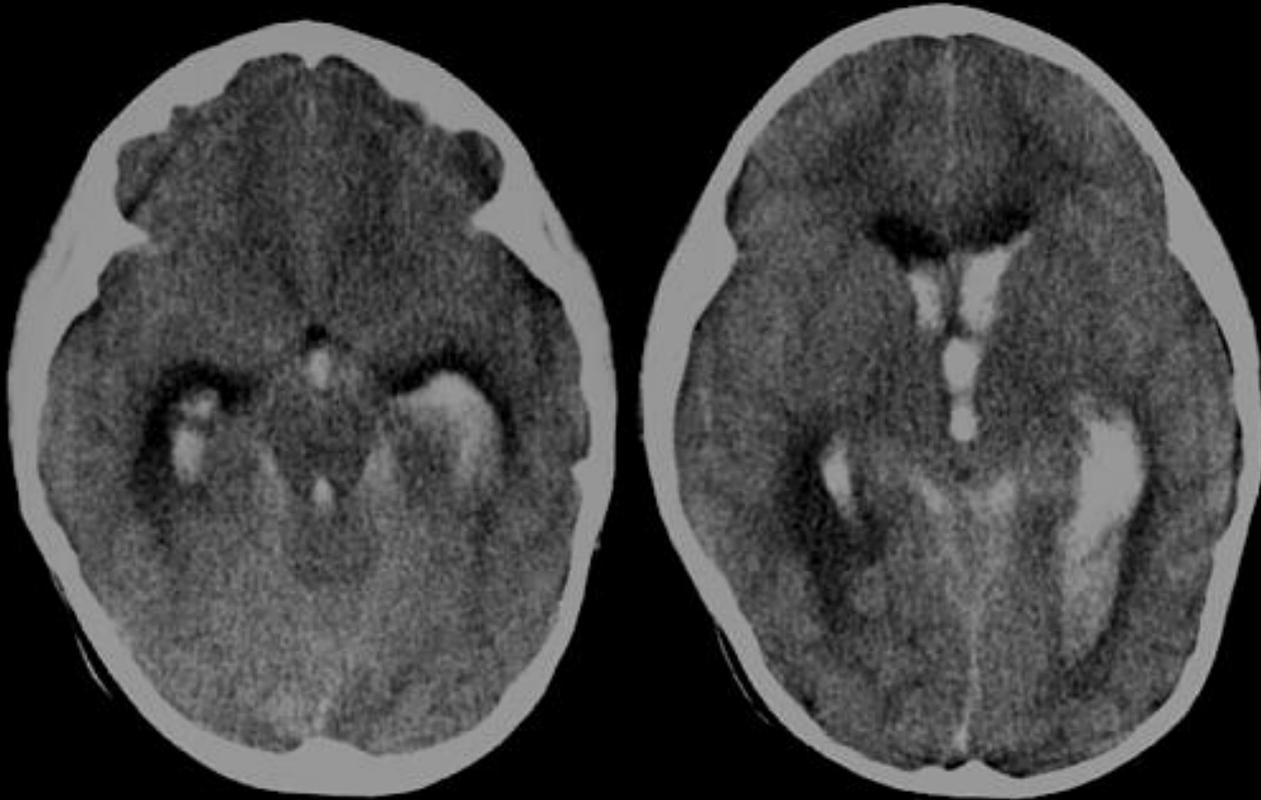
Subarachnoid blood in the suprasellar cistern



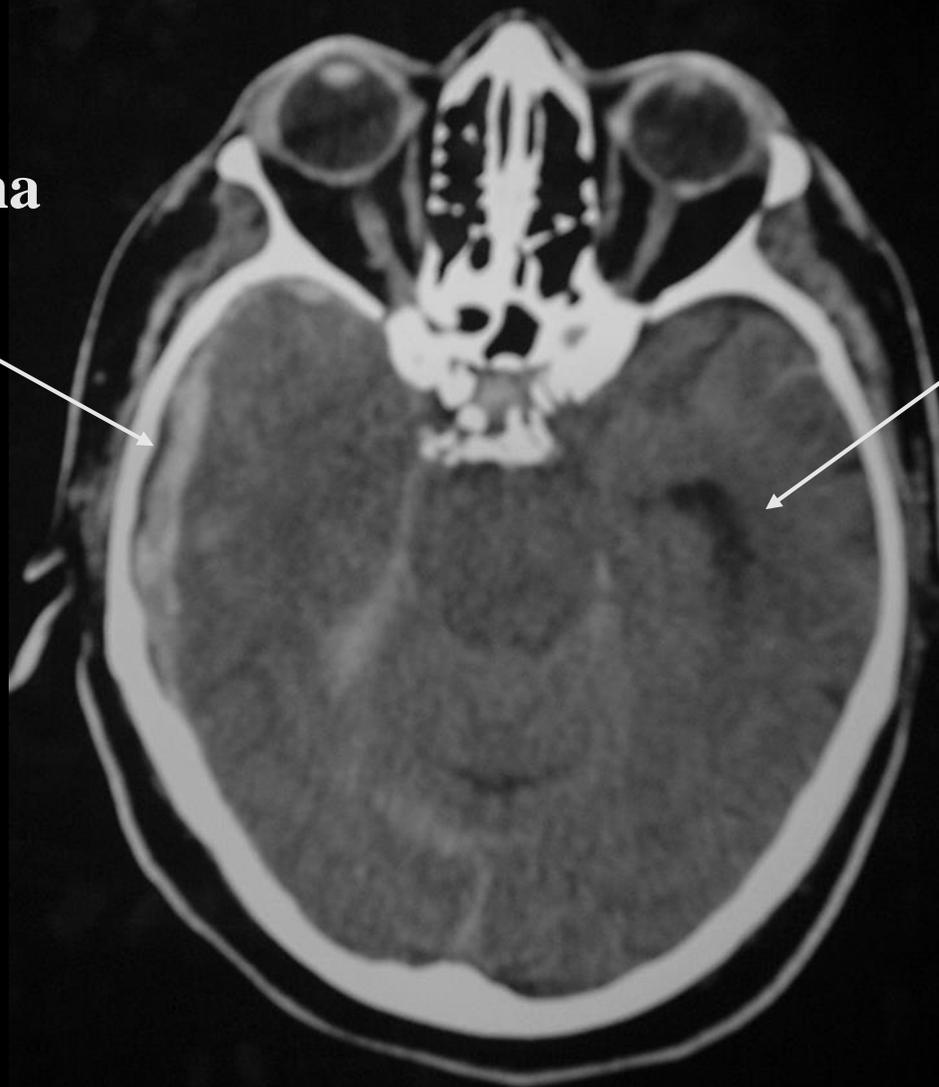
Subarachnoid blood tracking along the sulci



Intra-Ventricular Blood throughout



Subdural hematoma



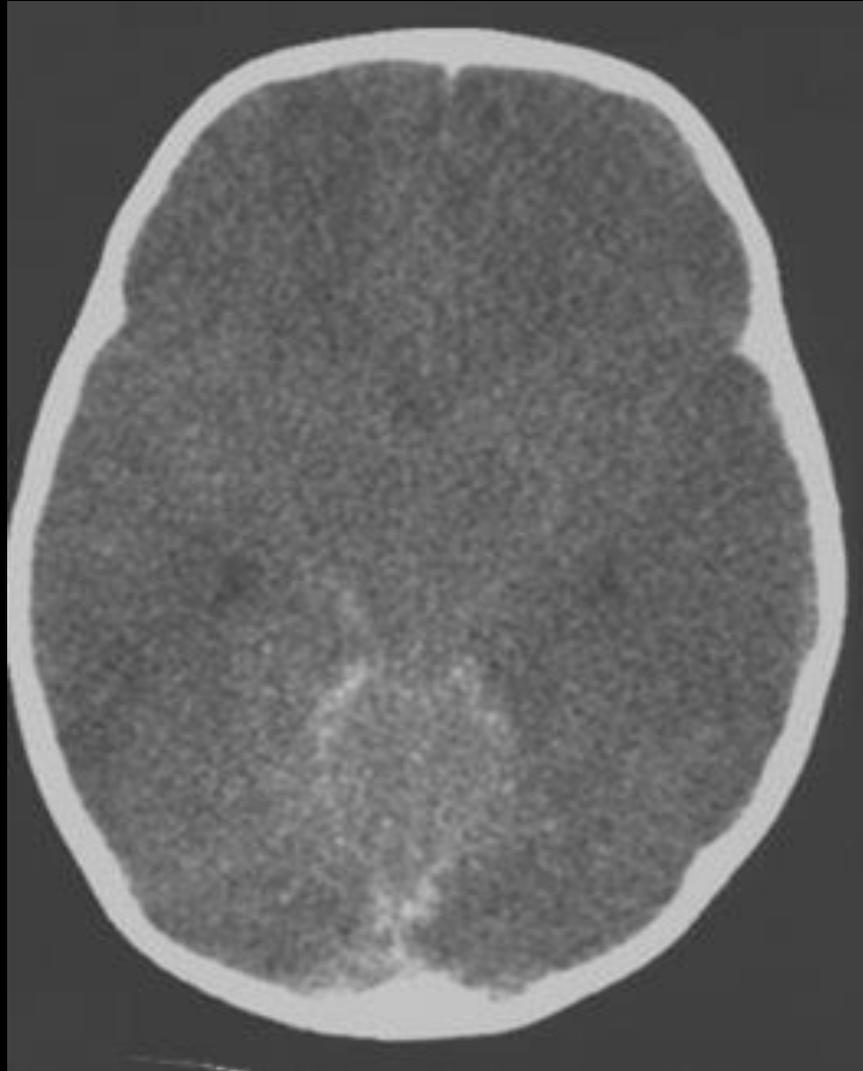
**Temporal
Horn
enlargement**

Epidural

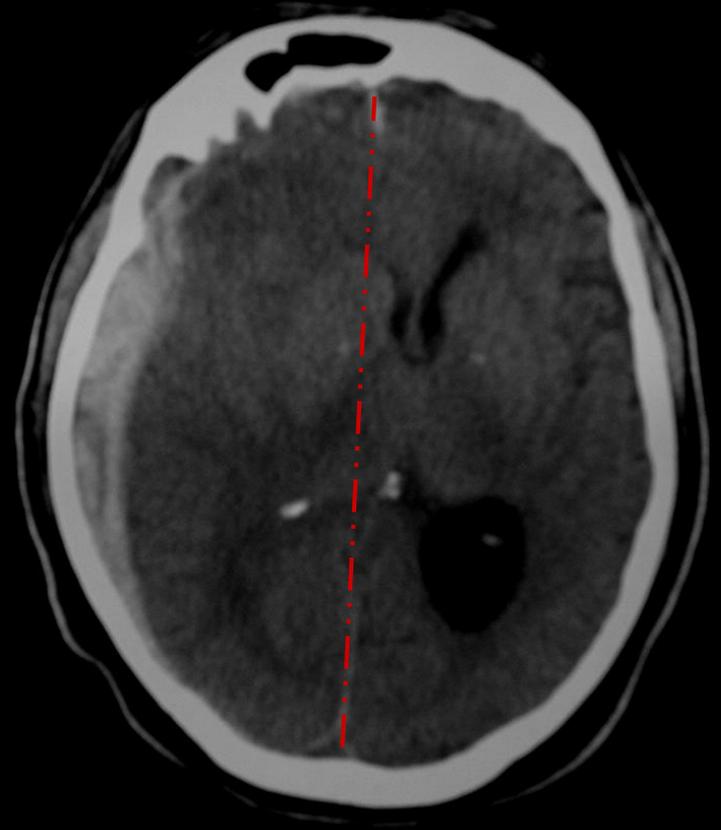


Enlarged
Temporal
Horn

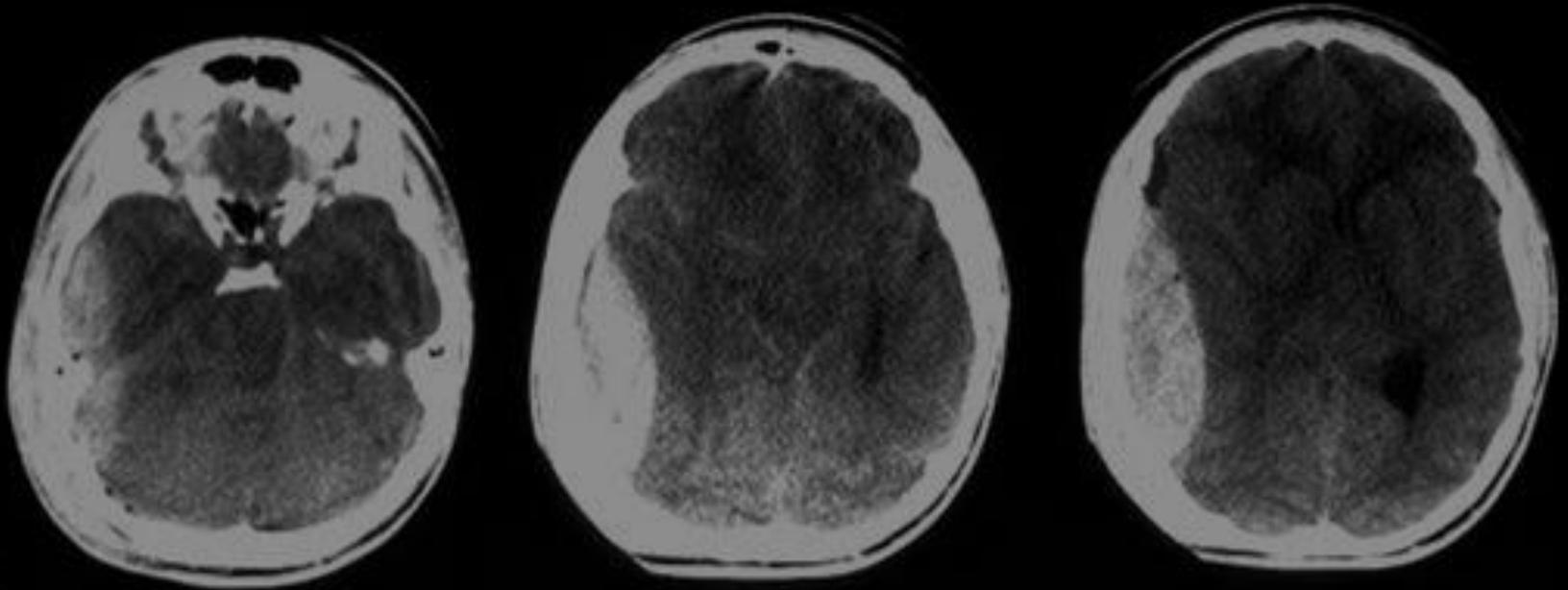
Diffuse Edema, SAH tracking across tentorium



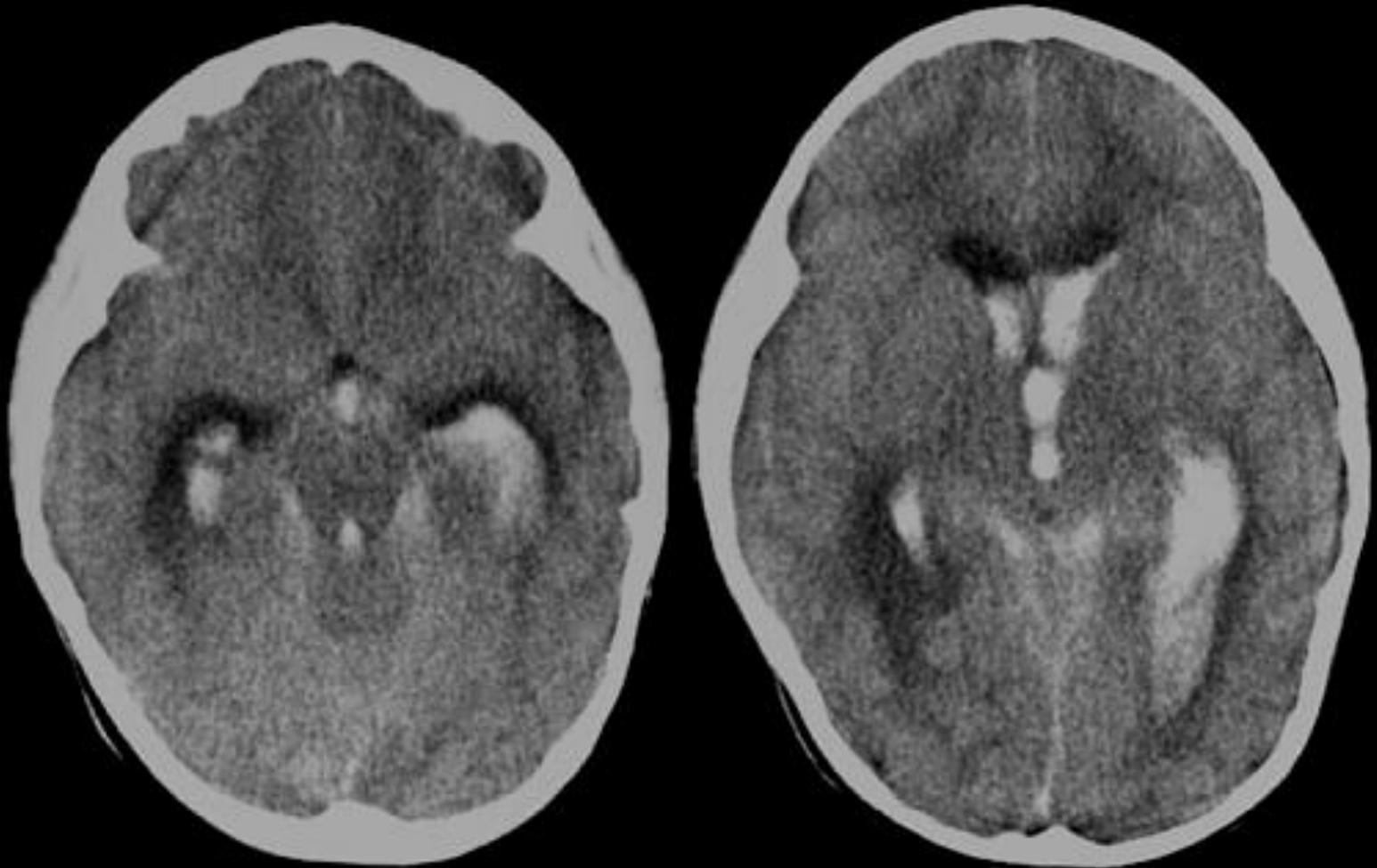
**Subfalcean herniation
(midline shift) due to SDH**

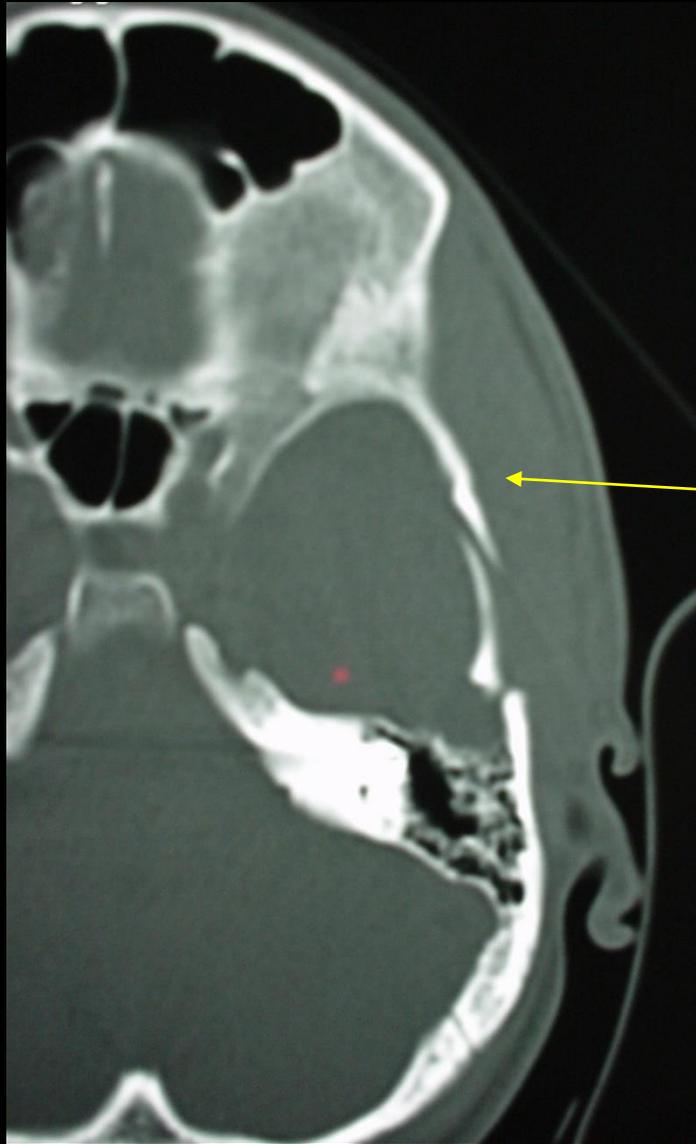


Uncal herniation (EDH & subfalcean herniation)



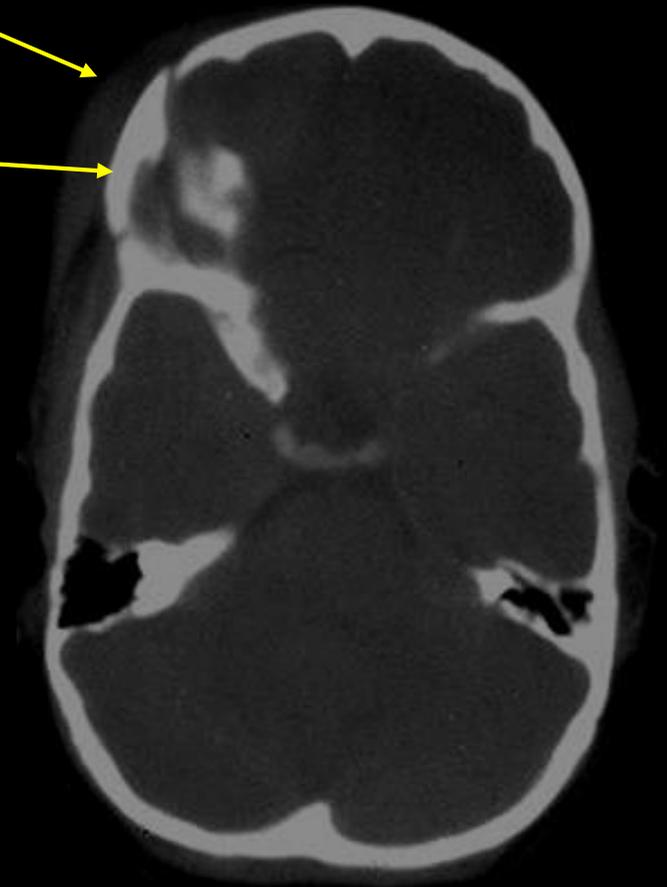
Diffuse Edema s/p SAH





Soft-tissue swelling

Fracture



Thank You!

