

## PAEDIATRIC IMAGING, briefly

### SKULL X-RAY: only in the investigation of

- skeletal survey, for dysplasia or “syndrome” investigation
- non-accidental injury
- child with boggy swelling, without reduced level of consciousness
- FONTANELLES: Anterior closes at 2 years, posterior and lateral at 9 months.

### HEAD CT:

- Head injury, looking for intracranial bleed.
- If the child is younger than 1 year, you can do a head ultrasound instead.
- **ULTRASOUND** is effective for looking at CSF spaces, but it wont pick up bleeding.

### NECK CT and Xray:

spinal injuries are less obvious in the under-8s

- usually subtle ligamentous injuries
- your spine becomes mechanically adult by about 8 years of age.
- Otherwise, same process as for adults. Look at the 4 lines (should be parallel)
- Soft tissue swelling is most important (check retropharyngeal distances)
- You can X-ray for epiglottitis and croup, but its not very useful, and dangerous. (don't want to hyper-extend that neck: it will probably obstruct an already fragile airway)

### A little ode to HYDROCEPHALUS: its one of the reasons you would order a head CT in a 2 year old.

- incidence is about 4 in 1000
- its either OVERPRODUCTION, UNDERABSORPTION, or OBSTRUCTION.
- **Arnold-Chiari malformation** is a common cause, associated with spina bifida. Not to be confused with Budd-Chiari syndrome, which is thrombosis of the portal veins....

### NON-communicating hydrocephalus: what do they mean? What is communicating with what?

**Well;** communication in this case means the passage of CSF out of the brain spaces.

**Communicating Hydrocephalus** means the aqueduct is communicating, i.e. patent. Thus, its extracerebral (eg. after meningitis). Obstruction anywhere outside the brain qualifies communicating hydrocephalus.

**Non-Communicating Hydrocephalus** is an obstruction of the aqueduct, eg. congenital stenosis. Obstruction anywhere within the brain counts as non-communicating.

### Signs and symptoms:

- increased head size, increasing circumference
- tense fontanelle
- vomiting
- poor feeding
- falling level of consciousness
- seizures and fits

### WHERE TO PUT THE SHUNT:

Ventricle → peritoneum

Ventricle → pleural cavity

Ventricle → atrium of heart

Third Ventriculostomy (drainage hole directly from the ventricle)

### COMPLICATIONS OF CSF SHUNTING: 50% rate of complication over 10 years.

The child will eventually grow; THE SHUNT WILL NOT. Hence it slowly pulls out of where it drains to. This will result in hydrocephalus returning (the shunt is blocked).

### Alternatively:

Proteinaceous debris from the CSF can eventually occlude the narrow shunt tube.

Infection in the abdomen, pleural cavity or bloodstream can migrate into the shunt... and block it if youre lucky; an empyema can get pushed all the way up the shunt by normal respiratory activity. Eeew.

### HYDROCEPHALIC CHILDREN NEED EXPERT FOLLOW-UP:

- involve speech therapists, physiotherapist, occupational therapist, and psychologist.