



INTRACRANIAL HYPERTENSION

By: Chiari Bridges



WHAT IS INTRACRANIAL HYPERTENSION (IH)?

Intracranial Hypertension (IH) means **high pressure inside of the skull**.

Intracranial Pressure (ICP) is traditionally measured in millimeters of mercury (mmHg). Most scholars agree that on average:

- **Normal ICP: 5-15 mmHg**
- **Mild/Moderate ICP: between 20-30 mmHg**
(Requires treatment in most circumstances)
- **Severe ICP: > 40 mmHg**
(Severe and possibly life-threatening intracranial pressure)



PRIMARY SYMPTOM OF IH

Head pressure that is worse when laying down and relieved by being upright.

MEDICAL MISNOMERS

Benign Intracranial Hypertension

- Blindness isn't all that benign

Pseudotumor Cerebri

- Doctors were looking for tumors

Idiopathic Intracranial Hypertension

- Failing to look for a cause doesn't make it idiopathic
- (90-100%) of those diagnosed with IIH had an underlying venous stenosis problem

What are we calling it this year?



PATHOLOGIES

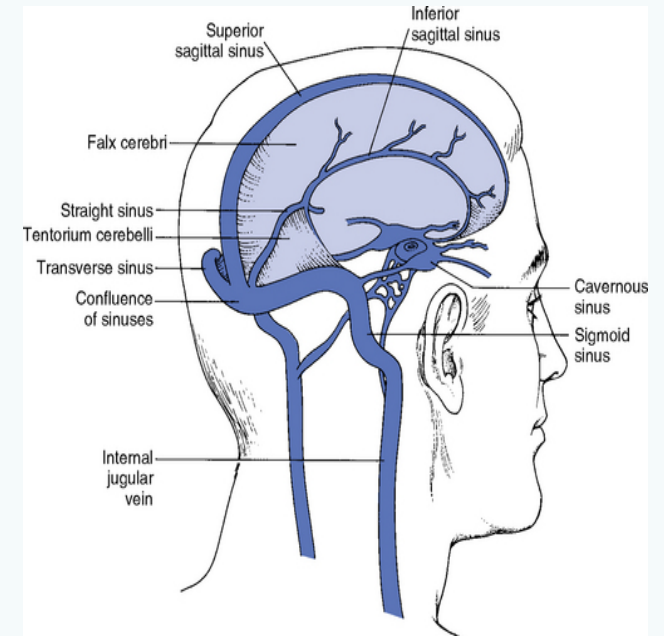


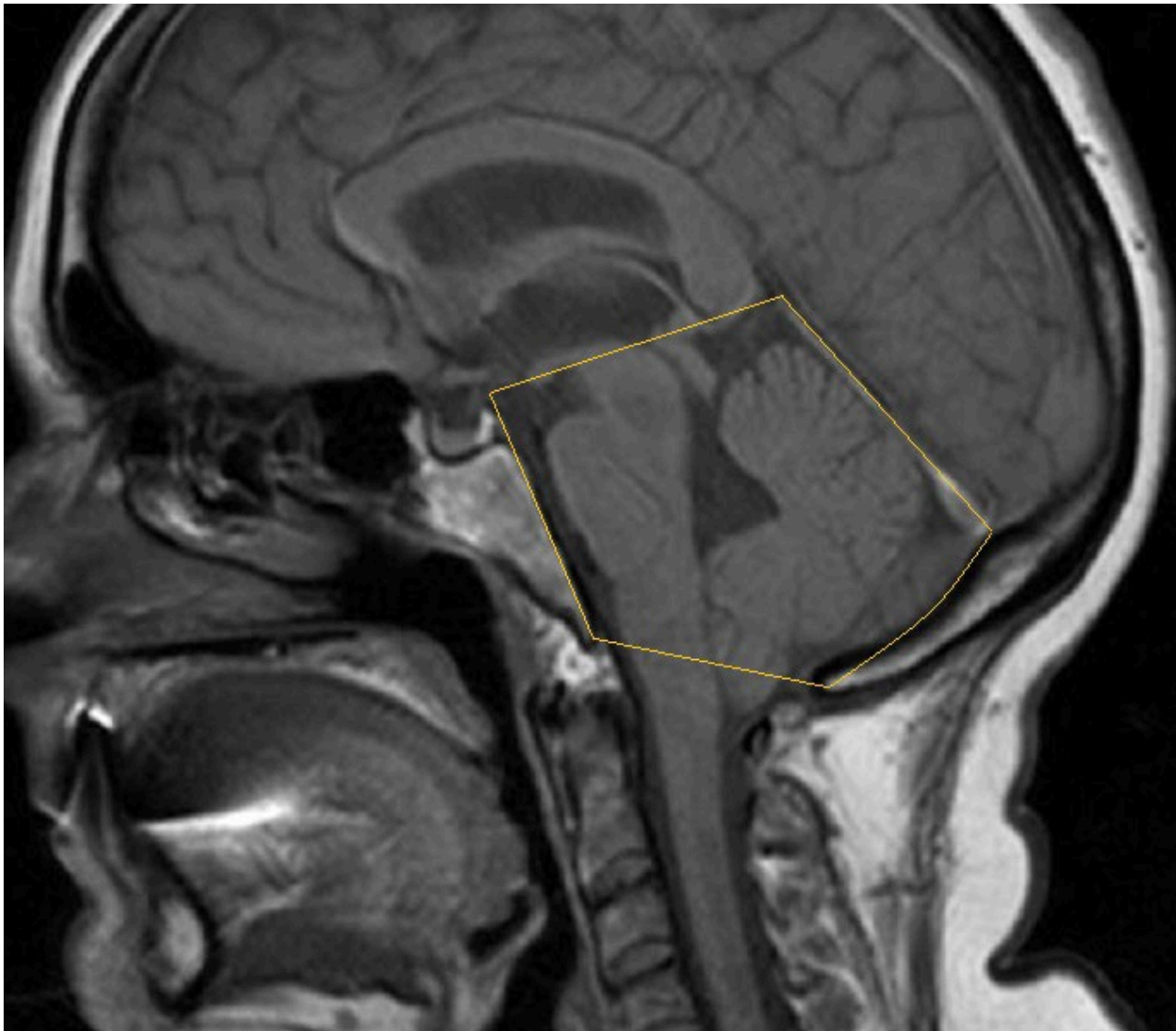
❑ Blockage of CSF at Foramen Magnum (FM)

- Congenital Chiari Malformation
- Acquired Chiari Malformation

❑ Venous Sinus Stenosis

- Transverse Sinus Stenosis
- Internal Jugular Vein (IJV) Stenosis

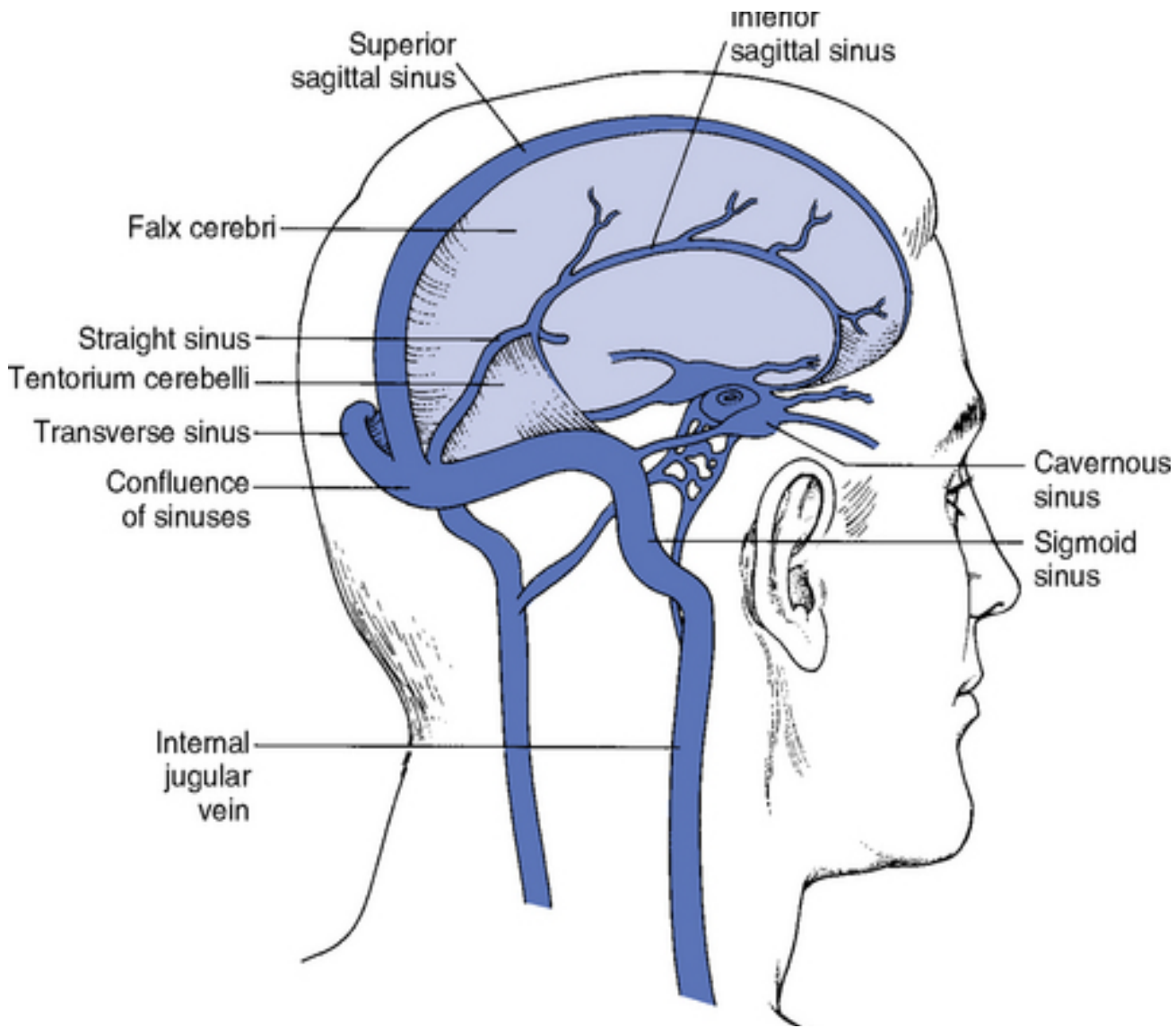




POSTERIOR FOSSA

Other things going on than the posterior fossa:

- Empty Sella (IH)
- Flattened Pons (SIH)
- Elongated medulla (TCS)

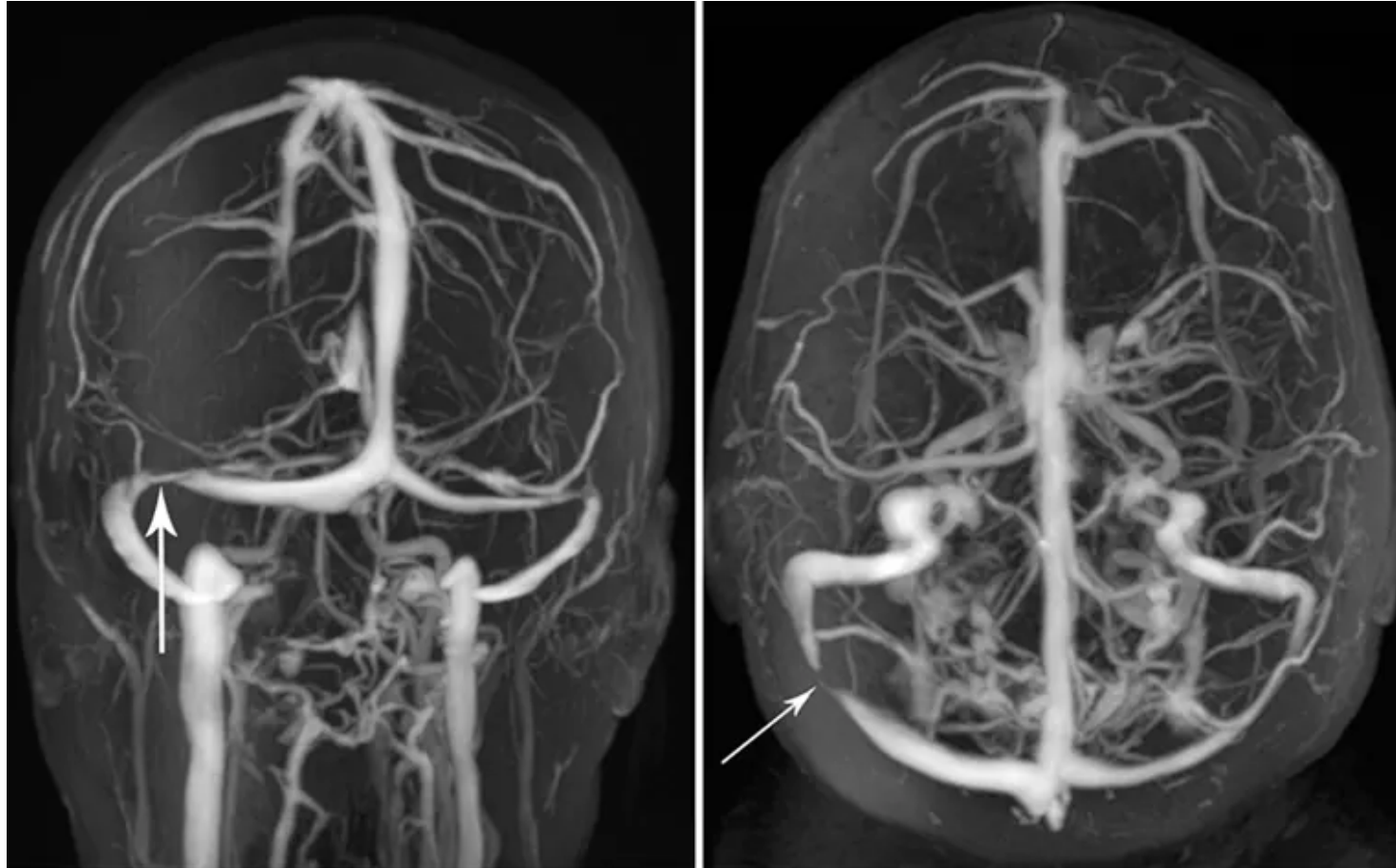


Dural Venous Sinuses

- Transverse Sinus Stenosis (TSS)
 - most common
- Internal Jugular Vein Stenosis (IJVS)

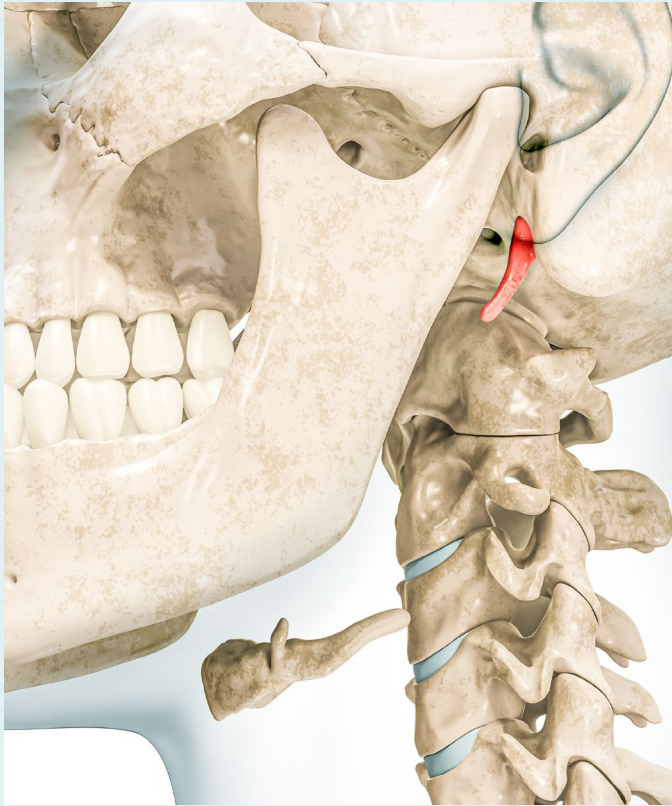
Plethora Factor = both can exist at once

Transverse Sinus Stenosis

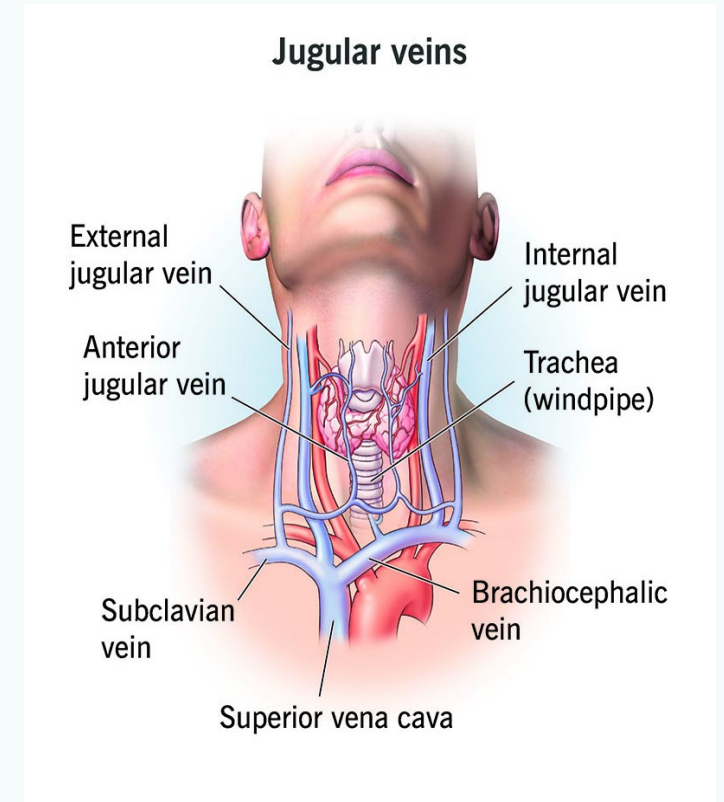


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INTERNAL JUGULAR VEIN STENOSIS (IJVS)



headaches tend to
be worse upright...
commonly
misdiagnosed as a
spontaneous
intracranial
hypotension
problem



TALE OF TWO PRESSURES

SYMPTOMS OF IH & SIH

HIGH PRESSURE (HYPERtension) SYMPTOMS

- Pressure headaches that are worse when laying down and relieved by being upright
 - Except with IJV Stenosis
- You sleep more comfortably when your head is inclined (multiple pillows, recliner)
- Worse in the morning
- Pressure involves most of the head and tends to be worse behind the eyes
- Pressure feels like your head is going to explode
- Feels like the pressure is going to push your eyes out of the sockets
- Problems with hormones (Empty Sella Syndrome)
- Pulsatile Tinnitus

LOW PRESSURE (HYPOtension) SYMPTOMS

- Pressure headaches that are worse when upright and relieved by laying flat
- You sleep most comfortably when you can lay flat
- Worse later in the day (different than occipital headaches)
- Pressure is usually localized at the top of your head, like someone is pushing on the top of your head
- Pressure feels like your head is going implode
- Feels like your eyes are being sucked into their sockets
- Problems with prolactin (lactating hormone)
- Nausea

PRESSURE HEADACHES ARE NOT OCCIPITAL HEADACHES



EMPTY SELLA SYNDROME (ESS)



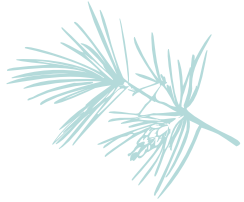
Illustration depicts the pituitary gland flattened at the bottom of the sella, from the cerebrospinal fluid filled arachnoid herniation above it. Sella should have little/no cerebrospinal fluid in it.

94%

Endocrine Dysfunction (50%)

- Fatigue
- Irregular nipple discharge
- Irregular menstruation or absent periods
- Low or no libido
- Unexplained weight gain

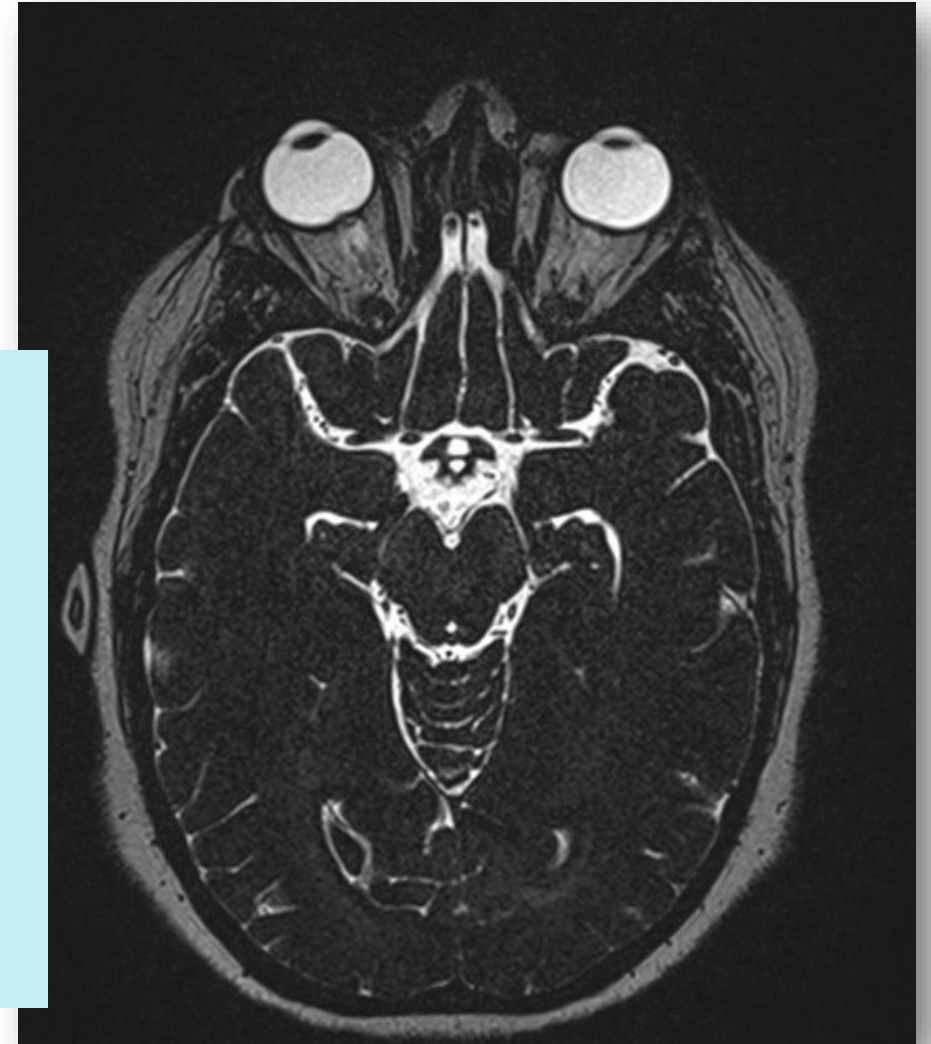
Patients with ESS should routinely be subjected to endocrine evaluation to detect these deficiencies early.



PAPILLEDEMA

95% - 2%

- Eye pain
- Light sensitivity
- Fleeting visual changes
 - Dimmed vision
 - Blurred vision
 - Double vision
 - Flickering/Flashing lights
 - Color blindness (esp. red)
 - Field of vision loss
 - Blindness



CRANIAL LEAKS

CSF Rhinorrhea

- Associated with high-pressure, not low
- When prolonged high pressure wears away the bones (usually the cribriform plate) that separates the nose and brain
- Weak dura mater
- Spontaneous leak through the nose, ears, or throat
- Can offer intermittent relief from the high pressure
- Increased risk of meningitis
- Can spontaneously seal, making diagnosis difficult



TESTING & TREATMENTS



TESTING

- Imaging (MRI, MRV, MRA, Cerebral Venogram)
- Neuro-ophthalmologist (papilledema)
- Lumbar Puncture (LP)

TREATMENTS

- Avoid caffeine
- Change birth control to non-hormonal method (progestin)
- Weight loss
- Medicinal Route (Topamax, Diamox)
- Shunting (Ventricular, never lumbar with herniated tonsils)
- Stenting

PLAN FOR PRODUCT LAUNCH

Planning	Marketing	Design	Strategy	Launch
Synergize scalable e-commerce	Disseminate standardized metrics	Coordinate e-business applications	Foster holistically superior methodologies	Deploy strategic networks with compelling e-business needs



THANK YOU

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