

# SPONTANEOUS INTRACRANIAL HYPOTENSION (SIH)

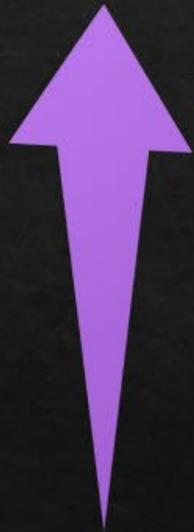
CSF LEAKS

Courtesy of Chiari Bridges



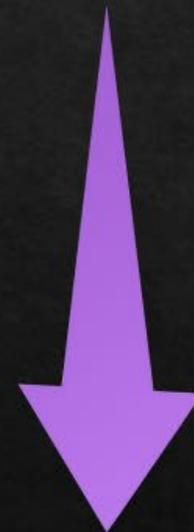
# *Hyper vs. Hypo*

Intracranial **HYPER**tension



**HIGH**  
**pressure**

Intracranial **HYPO**tension



**LOW**  
**pressure**

# IT'S A MATTER OF GRAVITY

## UPRIGHT

- Intracranial Pressure decreases

## Supine

- Intracranial Pressure increases

### With an Intracranial Pressure Problems:

- High pressure
  - Upright decreases
  - Supine increases
- Low pressure
  - Upright decreases
  - Supine increases



# HYDROSTATIC PRESSURE

- Standing causes blood to pool in the lower extremities, leading to increased pressure in veins below the heart.
- This redistribution of blood volume and pressure affects cardiovascular function and can impact overall postural stability.

# POSITIONAL ELEMENT OF LOW-PRESSURE HEADACHES

- Pressure headaches tend to be worse when upright and relieved by laying flat.





## LOW-PRESSURE HEADACHES

- PRESSURE IS USUALLY LOCALIZED AT THE TOP OF YOUR HEAD, LIKE SOMEONE IS PUSHING ON THE TOP OF YOUR HEAD

# S.E.E.P.S.

- Subdural fluid collections?
- Enhancement of pachymeninges?
- Engorgement of my venous structures?
- Pituitary appear to be enlarged?
- Sagging Brain?
  
- Depressions in corpus callosum
- Inferior pointing splenium

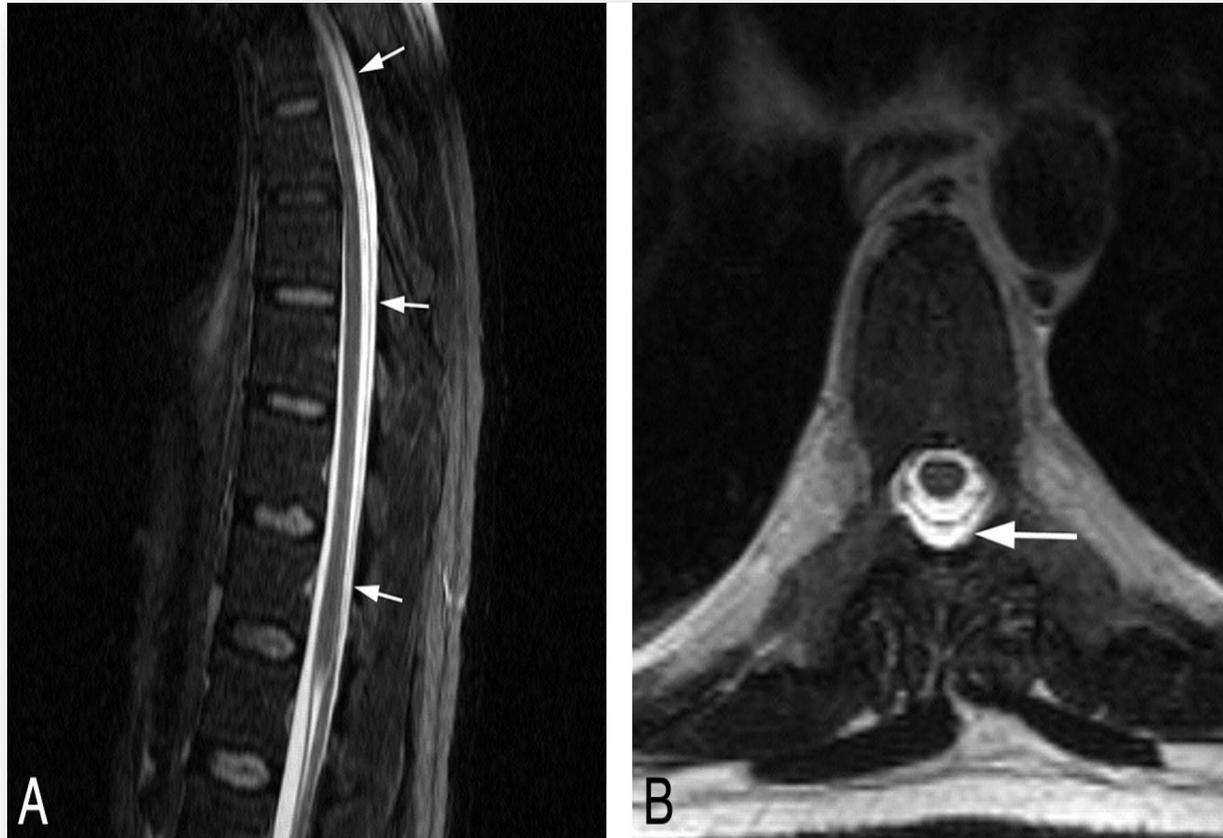


# LEAK PROTOCOL MRI

- Supine position
- T2 weighted w/wo gadolinium
- Less slices overall in specific sequencing

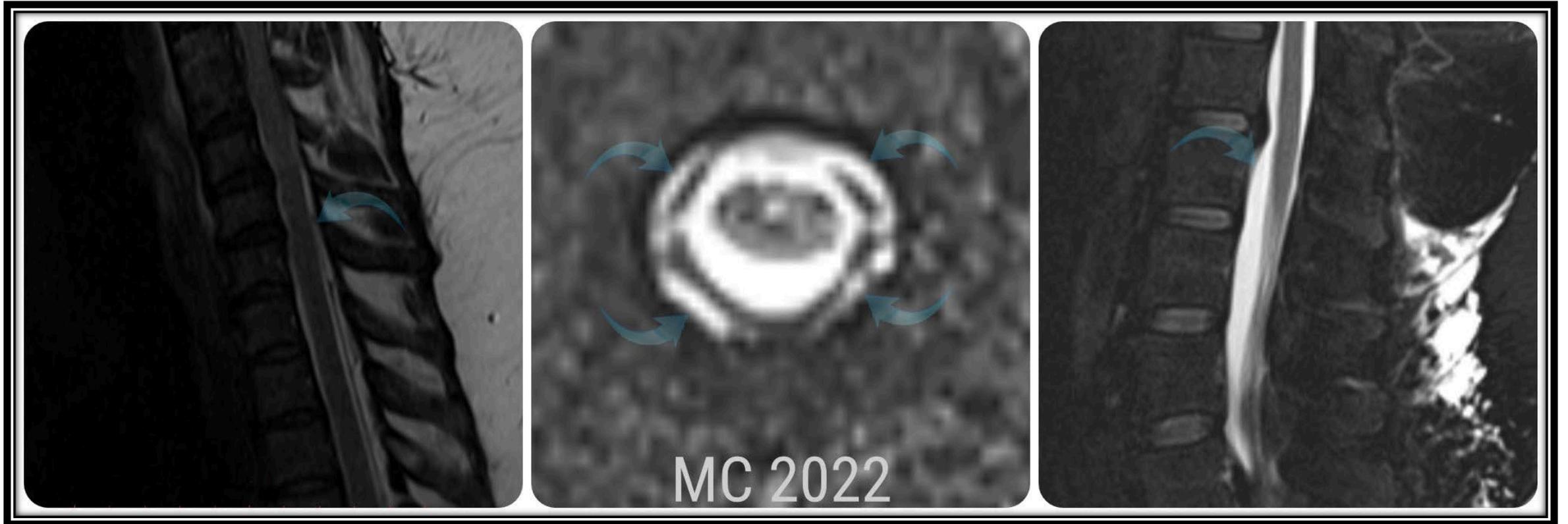


# EXTRA DURAL FLUID

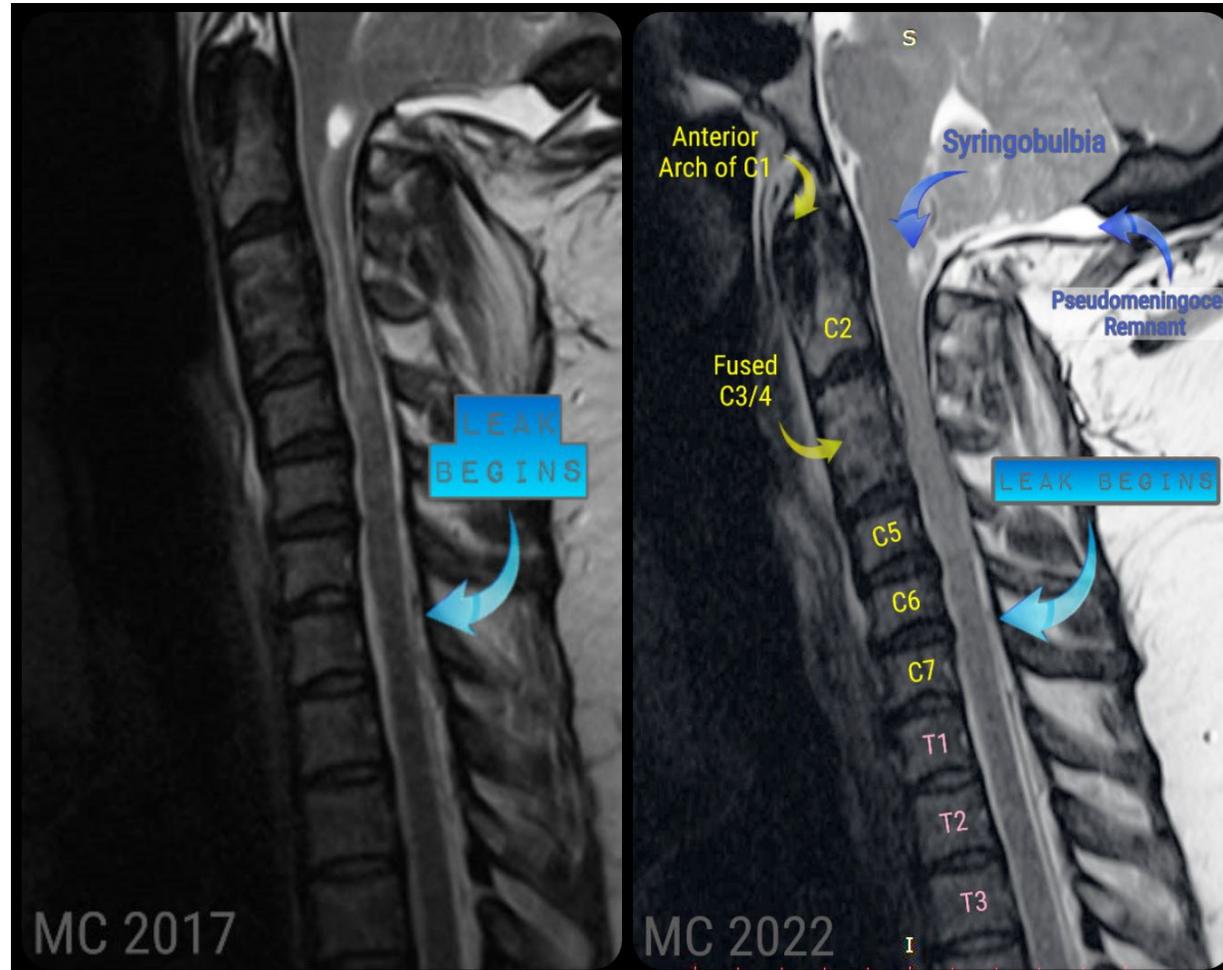


A collection of cerebrospinal fluid outside of the dura mater that should be confining it.

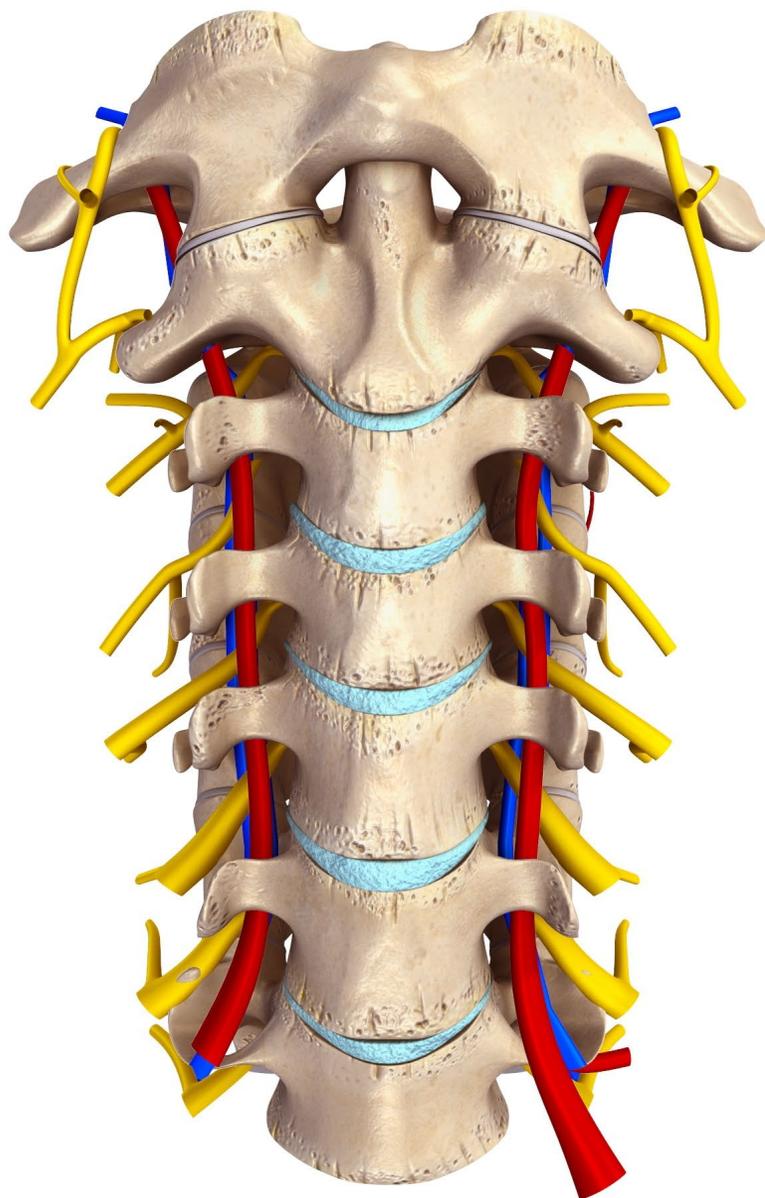
# EXTRA DURAL FLUID IN MY IMAGES



# EXTRA DURAL FLUID IN MY IMAGES



Chiari Bridges



## CSF **VENOUS** FISTULA (CVF)

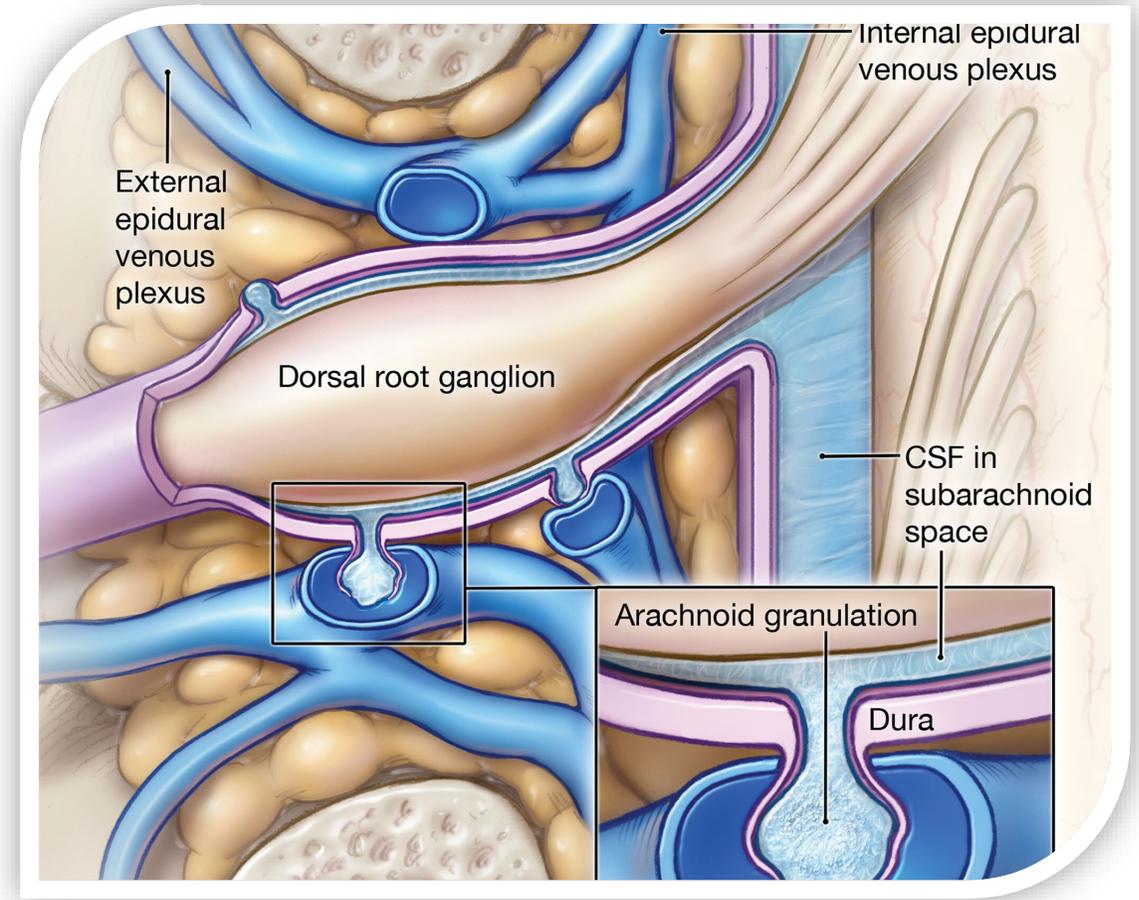
An abnormal connection between the spinal subarachnoid space and adjacent paraspinal veins that allow unregulated egress of CSF into the venous system.

- Cerebrospinal fluid enters the veins as it returns blood to heart.
- Resultant CSF depletion causes intracranial **hypotension**.

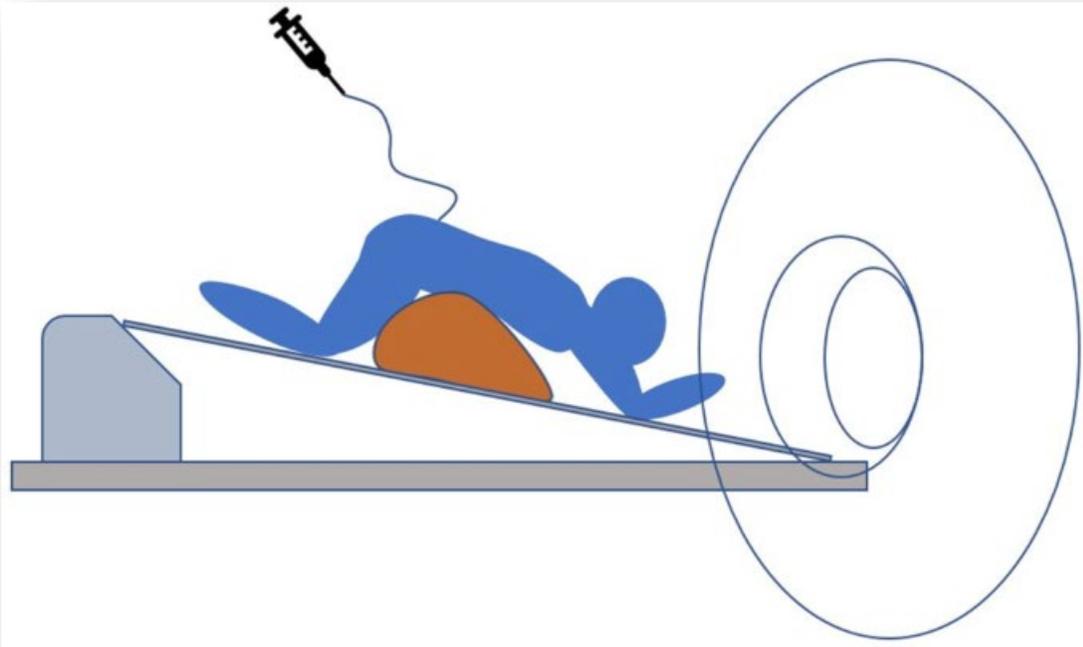
# CSF VENOUS FISTULA (CVF)

## ADDITIONAL FINDINGS

- MRI – Ruptured perineural cysts (like Tarlov cysts)
- Spinal edema



# DYNAMIC CT MYELOGRAM



- Positioned with base of the back elevated above the rest of the spine.
- Contrast dye injected into spinal canal at the base of the back.
- Looking too see if contrast dye exits the spinal canal.

# TALE OF TWO PRESSURES

## SYMPTOMS OF SIH & IH

### SPONANEOUS INTRCRANIAL 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

### 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**

# CSF VENOUS FISTULA (CVF)

## ADDITIONAL SYMPTOMS

Similar to that of Tethered Cord Syndrome (TCS)

- Leg pain, weakness, tingling, numbing, burning
- Back pain
- Changes in bowel or bladder function
- Difficulty walking





# CRANIAL LEAKS

- A high-pressure problem, not low
- Decrease in intracranial pressure symptoms as fluid leaks
- Risk of meningitis

# TREATMENT OPTIONS

- Epidural Blood Patch (EBP)
  - With or without fibrin glue
- Spontaneously heal (rare)
- Dural repair
- Surgical Ligation (CVF)
- Transvenous Embolization (CVF)

