CSF Leak

A nasal cerebrospinal fluid leak (CSF leak) results from an abnormal communication between the intracranial subarachnoid space and the nasal cavity. This may result in clear rhinorrhea and dripping from the nose. This is usually unilateral. There are many potential etiologies of CSF leaks which include traumatic, iatrogenic, congenital, spontaneous, and neoplasm. The most common causes of iatrogenic leaks are endoscopic sinus surgery and neurological surgery such as hypophysectomy/pituitary surgery.

Once a CSF leak is suspected, diagnosis and localization may be somewhat difficult. A fluid sample can be sent for laboratory testing, specifically beta-2 transferrin or beta-trace protein testing to confirm the presence of CSF. Once the presence of CSF is confirmed, imaging studies such as CT, MRI, cisternography, and radionucleotide testing may be ordered.

If the diagnosis of CSF leak is made, repair is usually recommended as persistent leakage may lead to meningitis, brain abscess, seizures, and death. While CSF leak repair was traditionally performed via open craniotomy approaches, endoscopic repair is now considered standard of care.

Endoscopic repair is performed through the nose with the use of telescopes and specialized instrumentation. Once the defect site is identified, meticulous endoscopic surgical repair including the placement of multiple layered grafts is undertaken. A lumbar drain may be placed prior to surgery; fluorescin dye may be administered through the drain to help with localization of the defect. In addition the lumbar drain may be kept in place post-operatively to help alleviate pressure on the repair site. Depending on the etiology of the leak, patients may be kept on strict bed rest for 48-72 hours post-operatively, after which activity is slowly re-initiated. The success rate of endoscopic CSF leak repair is greater than 90%.