Computed tomography (CT) cisternography is an imaging technique used to diagnose CSF rhinorrhea or CSF otorrhea (CSF leaks), as CT allows the assessment of the bones of the base of skull.

Procedure

pre-contrast CT is performed with thin slices 3-10 mL of an iodinated non-ionic low-osmolar contrast agent is installed into the thecal sac after lumbar puncture the patient is then tilted with foot-end elevation and a CT scan is performed with thin slices; manoeuvres that provoke an active leak, such as head hanging or sneezing, are performed to visualize intermittent or occult leaks post-contrast images are then compared with the pre-contrast image to see where the CSF and the contrast are leaking out radionuclide cisternography is more sensitive but has poor anatomic resolution compared to CT cisternography

While radionuclide cisternography has been the historical standard, recent imaging techniques have emerged considering the low sensitivity. Computed tomography cisternography (CTC) with contrast also has low sensitivity, even in active leaks. While high-resolution CT is commonly the initial study of choice, MRI methods, particularly 3D imaging, may prove to be a more sensitive study of choice. CT/MRI combination methods may show promise in localizing CSF leaks. Stratifying by status and etiology may be an important determinant. Further studies investigating various imaging techniques for localizing CSF leaks are needed [1].

1)
Eljazzar R, Loewenstern J, Dai JB, Shrivastava RK, Iloreta AM Jr. Detection of CSF Leaks: Is There a Radiologic Standard of Care? A Systematic Review Detection of CSF Leaks: A Systematic Review. World Neurosurg. 2019 Feb 21. pii: S1878-8750(19)30434-6. doi: 10.1016/j.wneu.2019.01.299. [Epub ahead of print] Review. PubMed PMID: 30797912.