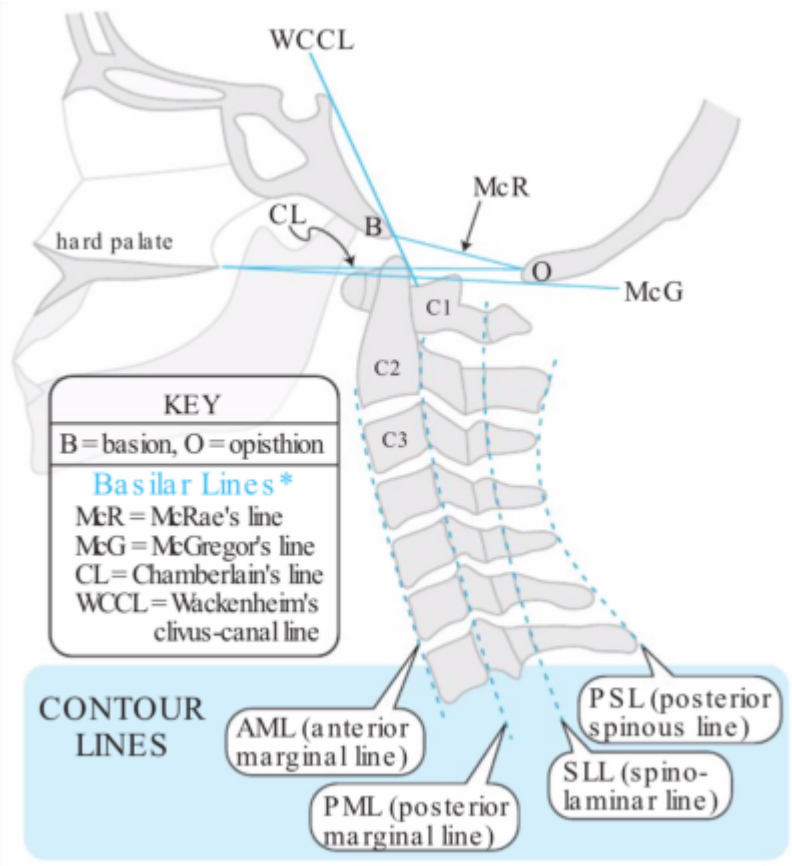
Chamberlain’s line for Basilar invagination diagnosis

- Analysis of Failed Posterior Fossa Decompression and an Effective Revision Surgery in Patients with Basilar Invagination and Atlantoaxial Dislocation
- Effect of the Basilar Invagination (Type B) on Cervical Spine: A Case-control Study with MRI
- Analysis of Failed Atlantoaxial Reduction: Causes of Failure and Strategies for Revision
- The role of clivus and atlanto-occipital lateral mass height in basilar invagination with or without atlas occipitalization
- Evaluation of Craniometric Parameters and Efficacy of Posterior Surgical Intervention Types in Basilar Invagination Patients
- Modified interfacet technique using shaped autologous occipital bone mass for basilar invagination
- Chamberlain's Line Violation in Basilar Invagination Patients Compared with Normal Subjects: A Systematic Literature Review and Meta-Analysis
- Basilar Invagination: A Tilt of the Foramen Magnum



Chamberlain's line is a diagnostic tool used for basilar invagination diagnosis, a condition in which the skull base (occipital bone) invaginates or protrudes into the spinal canal.

I is important to note that Chamberlain's line is just one of several diagnostic tools used to evaluate patients with suspected basilar invagination. Other diagnostic tests, such as magnetic resonance

imaging (MRI) and computed tomography (CT) scans, are often used to confirm the diagnosis and assess the extent of the invagination. A thorough clinical evaluation by a qualified healthcare provider is also essential for making an accurate diagnosis and developing an appropriate treatment plan.

A systematic literature review was performed to identify clinical or radiological studies that expressed the amount of odontoid violation above Chamberlain´s line in patients that harbor Basilar invagination diagnosis. In addition, a Meta-analysis was performed to evaluate normal subjects' values of Chamberlain's line violation (CLV).

Twenty-three studies were included (13 radiological and 10 clinical). Most of them used CT and / or MRI. Eight different cutoff values were used to measure dislocated odontoid apexes above Chamberlain's line regardless of the radiological modality. The described mean measured amount of CLV was 3.95 mm (median of 5, ranging from 0 to 9 mm). In the metanalysis, eight studies (1233 patients) with a normal sample population, a mean normal CLV of -0.63 mm (below the line) (95% IC -0.8; 1.18 mm, random effects model) was reported

Different values were found in the assessed studies used for CLV in BI diagnosis. This variability is especially important for type B BI, since type A BI has other craniocervical diagnostic parameters. Considering the results obtained in this metanalysis, any dens violation above 1.18 mm should be diagnosed as BI [1)]

1)
Joaquim AF, Evangelista Santos Barcelos AC, Daniel JW, Botelho RV. Chamberlain´s line violation in Basilar Invagination patients compared to normal subjects - A systematic literature review and metanalysis. World Neurosurg. 2023 Feb 21:S1878-8750(23)00205-X. doi: 10.1016/j.wneu.2023.02.057. Epub ahead of print. PMID: 36822399.