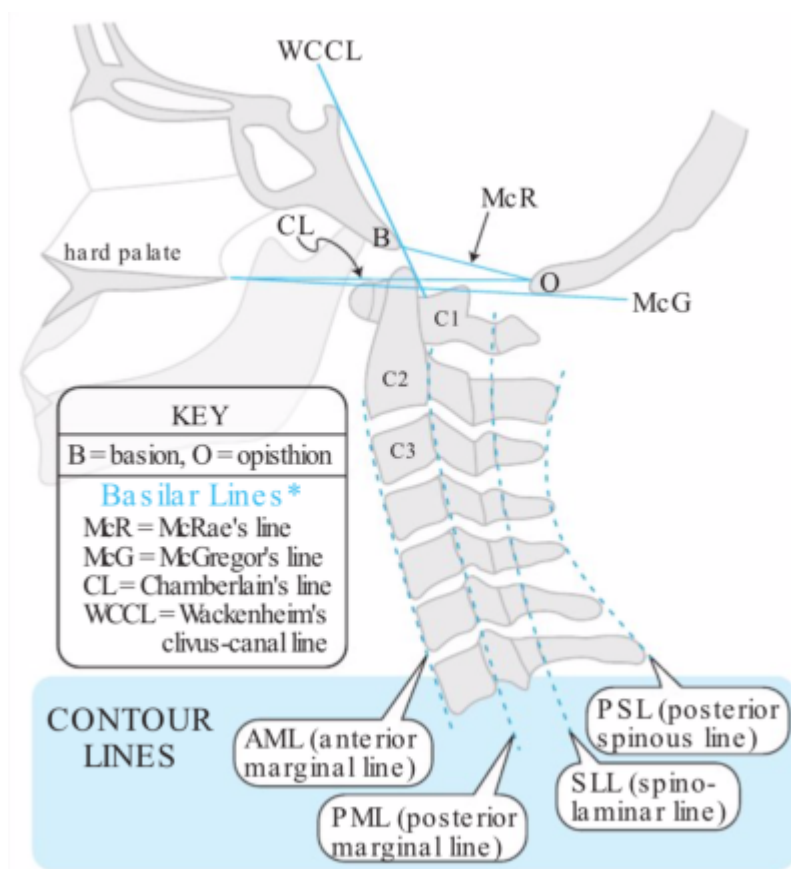


Chamberlain's line



To draw Chamberlain's line, a line is drawn from the **hard palate** (the bony roof of the mouth) to the posterior margin of the foramen magnum (the opening at the base of the skull where the spinal cord enters). If the tip of the odontoid process (a bony projection from the second cervical vertebra) lies above this line, it suggests basilar invagination.

Chamberlain line is a line joining the back of **hard palate** with the **opisthion** on a lateral view of the craniocervical junction.

Less than 3 mm or half of dens should be above this line, with 6 mm being definitely pathologic. Seldom used because the opisthion is often hard to see on plain film and may also be invaginated. On CT ¹⁾ and MRI ²⁾ the normal odontoid tip is 1.4 mm (± 2.4) below the line

Significance

It helps to recognise **basilar invagination** which is said to be present if the tip of the dens is >3 mm above this line.

McGregor developed a modification of the Chamberlain line for when the opisthion could not be identified on plain radiographs.

see [McGregor's line](#).

¹⁾

Cronin CG, Lohan DG, Mhuirheartigh JN, Meehan CP, Murphy J, Roche C. CT evaluation of Chamberlain's, McGregor's, and McRae's skull-base lines. Clin Radiol. 2009; 64:64-69

²⁾

Cronin CG, Lohan DG, Mhuirheartigh JN, Meehan CP, Murphy JM, Roche C. MRI evaluation and measurement of the normal odontoid peg position. Clin Radiol. 2007; 62:897-903

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