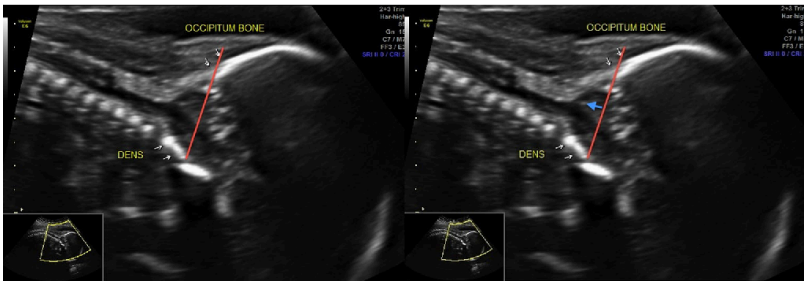
Occipitum dens line

de Sá Barreto et al. described with ultrasonography the normal level of the cerebellum and the brainstem in the posterior fossa in normal foetuses and to compare in pathologic cases.



They proposed a new line cross between the dens cervical and the inferior portion of occipitum (occipitum-dens line-ODL). In a cross-sectional study, a single observer with experience in foetal neurosonography evaluated 54 foetuses (40 normal and 14 with open neural tube defect) between 20 and 28 weeks of gestation. The reference points for the ODL are principally the lower portion of the occipital bone (occipitum) and odontoid process of the second cervical vertebra (dens). The line was considered the level zero (near level of foramen magnum). Structures above it had a positive measurement and below it had a negative measurement.

Moreover, in most foetuses with open neural tube defect (93 %), the end portion of cerebellum was below the ODL associated with different degrees of ventriculomegaly.

The proposed innovation aims to bring to the ultrasound the most likely anatomical parameters of evaluation in normal foetuses and in foetuses with spinal dysraphism [1].

The reference points for ODL may be used to assess cerebellar height. ODL allowed the demonstration of the regression of cerebellar herniation in fetuses that underwent in utero myelomeningocele (MMC) repair [2].

1)
de Sá Barreto EQ, Moron AF, Milani HJ, Hisaba WJ, Nardozza LM, Araujo Júnior E, Cavalheiro S. The occipitum-dens line: the purpose of a new ultrasonographic landmark in the evaluation of the relationship between the foetal posterior fossa structures and foramen magnum. Childs Nerv Syst. 2015 May;31(5):729-33. doi: 10.1007/s00381-015-2621-x. Epub 2015 Feb 21. PubMed PMID: 25700613.
2)
Barreto EQS, Cavalheiro S, Milani HJF, Barbosa MM, Araujo Júnior E, Nardozza LMM, Moron AF. Cerebellar herniation demonstrated by the occipitum-dens line: ultrasonography assessment of normal fetuses, fetuses with myelomeningocele, and fetuses that underwent antenatal myelomeningocele surgery. Prenat Diagn. 2018 Feb 10. doi: 10.1002/pd.5229. [Epub ahead of print] PubMed PMID: 29427561.