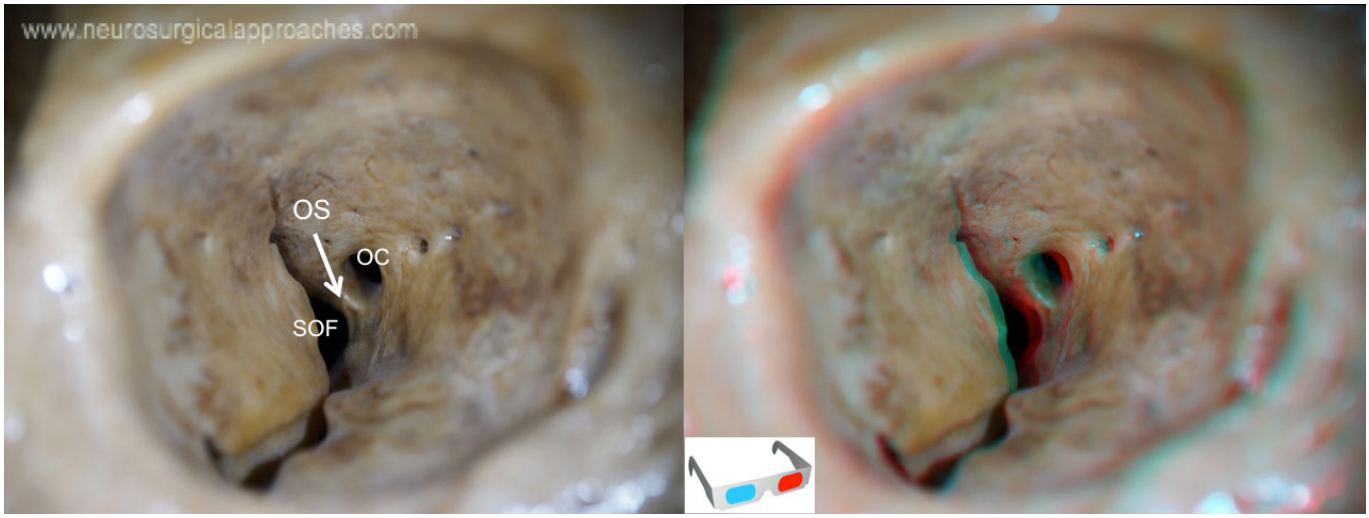
Optic canal



http://www.3dneuroanatomy.com/wp-content/uploads/2014/12/orb6.jpg

optic canal (OC)

optic strut (OS)

superior orbital fissure (SOF)

The optic canal (OC) opens into the superomedial corner of the orbital apex at the junction of the roof and medial wall. It is separated from the superior orbital fissure (SOF) by the optic strut (OS), a bridge of bone, also referred to as the posterior root of the lesser wing, which extends from the lower margin of the base of the anterior clinoid process to the sphenoid body.

The optic foramen is the opening to the optic canal.

The superior surface of the sphenoid bone is bounded behind by a ridge, which forms the anterior border of a narrow, transverse groove, the chiasmatic groove (optic groove), above and behind which lies the optic chiasma; the groove ends on either side in the optic foramen, which transmits the optic nerve and ophthalmic artery (with accompanying sympathetic nerve fibers) into the orbital cavity.

The left and right optic canals are 25 mm apart posteriorly and 30mm apart anteriorly. They are funnel-shaped (narrowest anteriorly).

Increasing use of endoscopic endonasal surgery for suprasellar lesions with extension into the optic canal (OC) has necessitated a better endonasal description of the OC.

Ten fresh human head silicon-injected specimens underwent an endoscopic transtuberculum transplanum approach followed by 2-piece orbitozygomatic craniotomy to allow identification of 20 OCs. After completing up to 270° of endonasal bony decompression of the OC, a dural incision started at the sella and continued superiorly across the superior intercavernous sinus. Subsequently the dural opening was extended anterolaterally across the dura of the prechiasmatic sulcus, limbus sphenoidale, and planum.

Endonasally, the length of the osseous OC was approximately 6 mm and equivalent to the length of the lateral opticocarotid recess, as measured anteroposteriorly. The ophthalmic artery arose from the supraclinoidal carotid artery at approximately 2.5 mm from the medial osseous OC entrance. Transcranial correlation of the endonasal dural incision confirmed medial detachment of the falciform ligament and exposure of the preforaminal ON.

The lateral opticocarotid recess allows distinction of the preforaminal ON, roofed by the falciform ligament from the intracanalicular segment in the osseous OC. This facilitates the preoperative surgical strategy regarding the extent of OC decompression and dural opening. Extensive endonasal decompression of the OC and division of the falciform ligament is feasible [1)].

1)
Abhinav K, Acosta Y, Wang WH, Bonilla LR, Koutourousiou M, Wang E, Synderman C, Gardner P, Fernandez-Miranda JC. Endoscopic Endonasal Approach to the Optic Canal: Anatomic Considerations and Surgical Relevance. Neurosurgery. 2015 Jul 14. [Epub ahead of print] PubMed PMID: 26177488.