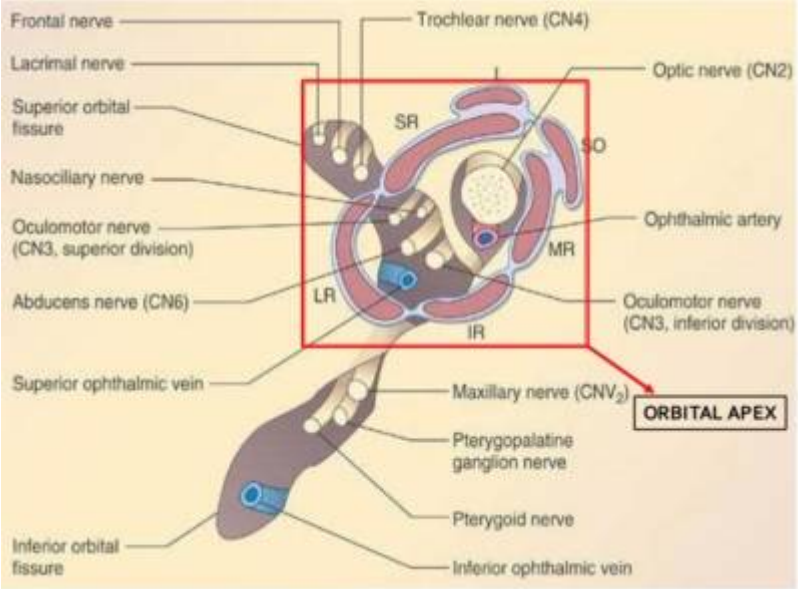
Structures in the orbital apex have complex anatomic relations.



The four rectus muscles originate from the anulus of Zinn, a tendinous ring that encircles the optic foramem and the medial end of the superior orbital fissure.

Passing through the anulus of Zinn via the optic canal are the optic nerve and ophthalmic artery and via the superior orbital fissure are cranial nerves III (superior and inferior branches) and VI and the nasociliary nerve (branch of cranial nerve V1). The superolateral part of the superior orbital fissure contains the frontal and lacrimal nerves (branches of cranial nerve V1), cranial nerve IV, and the superior ophthalmic vein.

The superior and inferior opthalmic veins form the ophthalmic vein, which drains into the cavernous sinus. Within the orbit, cranial nerve IV extends medially to the superior oblique muscle; cranial nerve VI, to the lateral rectus muscle; and the inferior branch of cranial nerve Ill, to the inferior oblique and inferior and medial rectus muscles.

Many of the orbital apex structures were identified on coronal CT/T 9800 scans of cadavers. Although cranial nerves Ill-VI or their branches are just inferior to the anterior clinoid process and above the ophthalmic vein, they could not [1].

1)
Daniels DL, Pech P, Kay MC, Pojunas K, Williams AL, Haughton VM. Orbital apex: correlative anatomic and CT study. AJR Am J Roentgenol. 1985 Dec;145(6):1141-6. PubMed PMID: 3877415.