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| **Title:**Effect of Orbitotomy on Surgical Freedom in Endoscopic Transorbital Approach (ETOA) to the skull base : An Anatomical Study**Authors:** NG Chat Fong1, Stacey Carolyn LAM2, LAM Shek Ching1 , TSE Tat Shing1,Hunter Kwok Lai YUEN2, Calvin Hoi Kwan MAK1**Institution(s):**1 Department of Neurosurgery, Queen Elizabeth Hospital2 Department of Ophthalmology and Visual Sciences, Hong Kong Eye Hospital**Abstract:** ***Objective*:**This is the first anatomical study to investigate the angle of attacks and surgical freedom in different extents of orbitotomy for Endoscopic Transorbital Approach (ETOA) to the skull base.***Method:***This is an anatomical and radiological study in which Digital Imaging and Communications in Medicine (DICOM) of plain cut computed tomography of brain (CTB) is retrieved and analyzed using a commercial medical imaging viewer. 4 types of orbitotomy (Group 1: supraorbital rim with lateral orbital rim resection; Group 2: limited supraorbital rim with lateral orbital rim resection; Group 3: lateral orbital rim resection; Group 4: No orbitotomy) were calculated on both sides of 19 patients. Angle of attacks and surgical freedom were calculated with reference to three dimensional coordinates of 4 target points (1. Foramen ovale ; 2. Foramen rotundum ; 3. End of lacerum segment of internal carotid artery ; 4. Internal acoustic meatus) and compared among 4 groups using paired-sample t-test.***Result:***There is a statistically significant increase in surgical freedom, horizontal and vertical angle (p<0.001) in Group 1 to 3 compared to Group 4. The horizontal and vertical angles for the 4 reference points were the same across Group 1 to 3 and was increased compared to group 4. Whereas, with greater extent of orbitotomy, there is a larger increase in surgical freedom.***Conclusion:***Removal of lateral orbital rim is useful to increase the angle of attack to skull base lesions whereas the area of orbitotomy is the main determinant of surgical freedom in ETOA. Lateral orbital rim removal should be considered when ETOA is used for deep seated skull base pathologies to improve visualization and minimize retraction related morbidities. |