Orbital expansion in Graves’ disease: Our 10 years experience with combined endoscopic transnasal and upper eyelid approach, using a new quantitative method for assessing the degree of axial proptosis

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Graves’ disease is the most common cause of hyperthyroidism, accounting for approximately 85% of the cases. Graves’ orbitopathy (GO) may precede or follow the general manifestations of hyperthyroidism. Manifestations of GO include eyelid retraction, proptosis, chemosis, diplopia, corneal exposure and optic neuropathy. Surgical treatment is recommended in cases of optic neuropathy, excessive proptosis, corneal ulceration, secondary glaucoma, incapacitating pain, and also to relieve the side effects of corticoid therapy. We report our 10 years experience with orbital expansion combining the transpalpebral and endoscopic trans-nasal approach in patients with GO. Technical details of the surgical procedure are discussed. A new method of quantifying axial proptosis in patients with GO is also presented. Despite being a highly complex procedure, requiring a significant knowledge of otolaryngology, ophthalmology and plastic surgery, the combined trans-nasal and transpalpebral orbital expansion is safe and efficient, leading to significant reduction of proptosis with minimal complications.

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Nasal septum and transmission of masticatory forces: Structural comparison of the human skull and gothic cathedral

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The most significant finding of the study, obtained by analysis of coronal CT scans, is the role of the hard palate and the nasal septum in conjunction with the vomer and the perpendicular plate of the ethmoid in the transmission of masticatory forces. It extrapolates, experimentally, the transmission of such forces to the cranium based on the architectural principles of Gothic cathedrals. This study demonstrates that the human skull and Gothic cathedrals have similar morphological and functional characteristics. The load exerted by the roof of the cathedral is akin to the forces exerted by the masticatory forces from the maxillary dentition. The load from the roof of the cathedral is transmitted to the ground by piers and buttresses which also resist the shearing forces exerted by the high winds. Similarly, the nasal septum and other mid-facial bones of the skull transmit the vertical and lateral maxillary forces from the maxillary dentition to the skull base. The non-load bearing walls and stained glass windows of the cathedral correspond to the translucent wall of the maxilla. The passageway between the aisle and the nave of the cathedral is equivalent to the metal openings in the lateral wall of the nasal cavity.

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