Surgical Anatomy of the Nose : Update

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Intranasal surgery of the paranasal sinuses has been significant improvements as a result of the introduction of various optical aids and our improved understanding of nasal physiology. However, because of the variations and complexities of the nasal cavity anatomy, many surgeons remains hesitant to perform the surgery.

In order to overcome such problems, it is essential to have full knowledge of the anatomical structures and furthermore, newly discover anatomical informations that can be put to practical use based on the established facts. The authors performed anatomical microdissections of 100 midsagittal sections from adult cadaver head specimens to find out several facts about the important landmarks during nasal surgery and summarized the results as following for clinical applications.

Fontanelle and Uncinate Process

The anterior portion of the fontanelle has the thicker layer of connective tissue between the two epithelial layers than the posterior portion. Therefore the anterior portion of the fontanelle is more prone to stenosis than the posterior portion. A antrostomy in the posterior fontanelle may be more ideal for a middle meatal antrostomy of the maxillary sinus.

Basal Lamellas in the Ethmoid Sinus

The lamellas of the ethmoid sinus have relatively uniform patterns although there is variability in shape. This study will provide surgeons with a more detailed structure of the basal lamellas for better surgical results and lower complication rates.

Nasofrontal Duct : Anatomical and Computed Tomographic Analysis

To widen the nasofrontal communication, removing the upper portion of the ground lamella of the ethmoid bulla, which is the posterior boundary of the nasofrontal duct, with cutting forceps seems to be a safe and easy method.

Anterior Ethmoidal Canal (AEC)

The AEC is usually located between the second and third lamella and is attached to the skull base in a protruding form, running diagonally in an anteromedial direction, when viewed from the superior side.

Natural Ostium of the Sphenoid Sinus

The posteroinferior end of the superior turbinate is the best landmark for identifying the natural ostium of the sphenoid sinus. Furthermore, the natural ostium should ideally be searched from a superior and medial aspect in relation to the posteroinferior end of the superior turbinate.

Sphenopalatine Artery in Lateral Nasal Wall

The study provides detailed information concerning the sphenopalatine artery, which we hope will help explain the arterial bleeding that may occur during ethmoidectomy, middle meatal antrostomy, conchotomy, and endoscopic ligation of the sphenopalatine artery.

A Modified Antrostomy Technique Removing Palatine Bone for Improved Patency

The key point of our modified MMA technique is to remove the perpendicular plate of the palatine bone located posterior to the posterior fontanelle.

Endoscopic Frontal Sinusotomy Using the Suprainfundibular Plate (SIP) as a Key Landmark

A complete understanding of the anatomy of the SIP and the uncinate process can result in surgical access to the frontal sinus. We propose a new concept for a simplified surgical approach in which the frontal sinus opening is easily found by using the SIP as a valuable landmark.

The Risk of Olfactory Disturbance from Conchal Plate Injury during Ethmoidectomy

The olfactory nerves originated from the olfactory mucosa lining the middle and superior turbinates and ran upward within the bone of the conchal plate. These results suggest that the olfactory nerve may be injured inadvertently in the conchal plate during ethmoidectomy and that this injury is likely to be one of the possible causes of olfactory disturbance.