Conchopexy of middle turbinate in endoscopic sinus surgery.

Thesis
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Abstract

A prospective randomized controlled study was performed to assess the role of simple conchopexy suture in maintaining a widely patent middle meatus during the phase of post- operative healing and effect of it on olfaction as compared to FESS with bolgerization of middle Turbinate (MT) and without MT medialization. All the operations were performed by the same surgon at the same institution.The operations have been performed in39 patients of chronic rhinosinusitis(CRS) divided into 13 with MT medialization suturing method, 13 with MT medialization bolger and 13 without MT medialization in ESS. With the technique of suture stabilization of the MT in 26 operated-on sides of 13 patients,26 sides showed the middle meatus to be patent without synechia or maxillary sinus ostium obstruction postoperatively.These patients showed no change or improved in sensation of smell by subjective analysis. The difference was insignificant (p=0.4)by objective analysis.

Keywords:Endoscopic sinus surgery;Middle turbinate medialization; Synechia;Olfaction

Abbraviations

AP	Anteroposterior.
CRS	Chronic rhinosinusitis.
E.I.	Ethmoid infundibulum.
H.S.	Hiatus similunaris.
m.m	Mucus membrane.
MT	Middle turbinate.
OMC	Osteomeatal complex.
PA	Posteroanterior.
PNS	Paranasal sinuses.
U.P.	Uncinate process.
UPSIT	University Penselvania Smell Identification Test.
VAS	Visual analogue scale.

بسم الله الرحمن الرحيم

قالوا سبحانك لا علم لنا الا ماعلمتنا انك انت العليم الحكيم.

صدق الله العظيم

الآية٣٢سورة البقرة

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Introduction

The middle turbinate (MT) lateralization is a common complication of endoscopic sinus surgery that occurs when opposing areas of denuded mucosa form a scar between them. This scar pulls the MT laterally to the lateral nasal wall and may cause obstruction of the middle meatus and the maxillary, ethmoid, or frontal sinuses, which can result in failure of the initial procedure and often necessitate revision surgery ***(Hewitt and Orlandi,2008 &Friedman,2007)***.

Bhalla and Kaushik, 2005 said that endoscopic ethmoidectomy is now one of the commonest surgical procedures performed by ear, nose and throat surgeons. Access to the ethmoid air cells is via the middle meatus following medialization of the MT and uncinectomy. Spontaneous lateralization of the MT during the healing period, with or without synechiae, can compromise the surgical benefit

Friedman and landsberg,2000 suggested that MT medialization is reliable, and should be considered an alternative to turbinate resection.

Friedman and Tanyeri, 1999 found that MT medialization has no detectable adverse effect on olfaction, and turbinate medialization techniques have gained popularity in an attempt to prevent turbinate lateralization.

Thornton, 1996 found that lateralization of the MT with scarring and obstruction of the middle meatus after endoscopic ethmoidectomy has accounted for a high percentage of postoperative complications**.**

Aim of the work

The aim of the work is to assess the role of simple conchopexy suture in maintaining a widely patent middle meatus during the phase of post-operative healing (and effect of it on olfaction), this allows delivery of topical medication and sinus aeration as compared to FESS with bolgerization of middle Turbinate and without middle turbinate medialization .

Embriology

Lateral nasal wall ridges called ethmoturbinals forms the initial paranasal sinuses . Figure 1 shows Development of the fetal face. The first ethmoturbinal regresses during development; its ascending portion forms the agger nasi, while its descending portion forms the uncinate process. The second ethmoturbinal ultimately forms the MT, the third ethmoturbinal forms the superior turbinate, the fourth and the fifth ethmoturbinal fuse to form the supreme turbinate. An additional ridge, the maxilloturbinal, arises inferior to these structures. This ridge ultimately forms the inferior turbinate ***(stammberger, 2000).*** Figure 2 shows nasal development

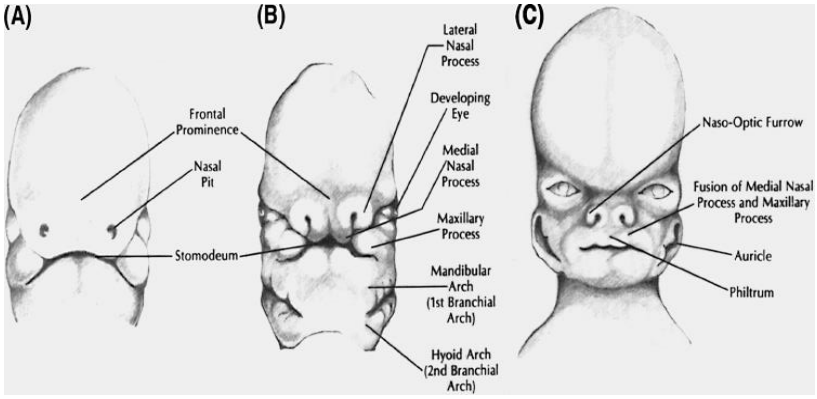

Figure (1) Development of the fetal face, frontal view, at: (A) four to five weeks, (B) five to six weeks and (C) seven to eight weeks. Source: From Naspitz and Tinkelman (1990).

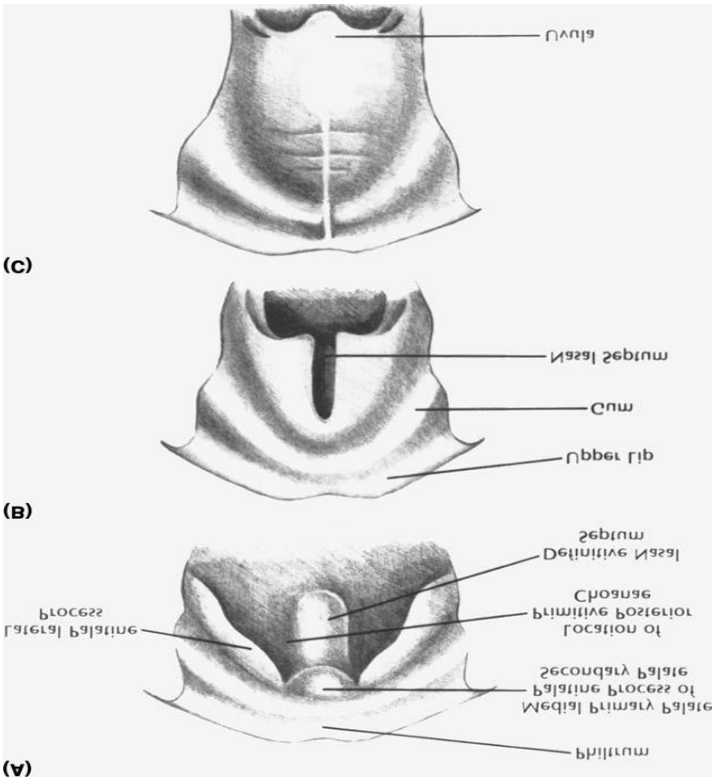

Figure (2) Nasal development, ventral view, at: (A) six to seven weeks, (B) seven to eight weeks and (C) eight to nine weeks. Source: From ***Naspitz and Tinkelman (1990).***

Bingham et al., 1991observed all three turbinates to arise from the lateral cartilaginous nasal capsule. The primary furrows that lie between the ethmoturbinals form the various nasal meati and recesses. The primordial maxillary sinus develops from the inferior aspect of the ethmoidal infundibulum. Figure 3 shows Development of the maxillary and frontal sinuses.

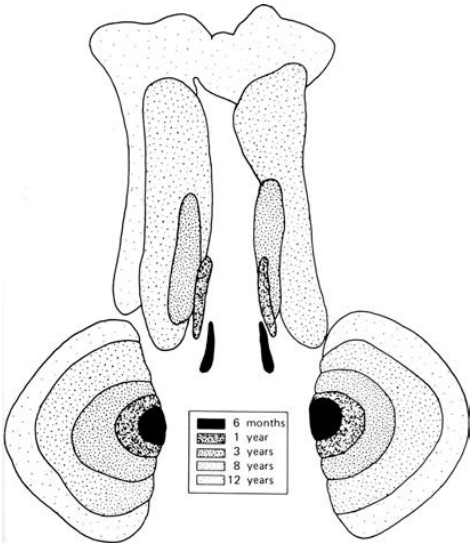

Figure (3) Development of the maxillary and frontal sinuses at various ages. Source: From ***Naspitz and Tinkelman (1990).***

libersa et al., 2001 said that the major sinuses originate in the ethmoid region. Selected ethmoid cells pneumatize into appropriate facial bones to form the major sinuses.

vidic, 1998 &Szolar et al., 1994 and Van Alyea, 1941 showed that during the third month of fetal development, the nasal mucosa invaginates into the posterior portion of the cartilaginous nasal capsule. The wall surrounding this cartilage is ossified in the later months of fetal development and referred to as the ossiculum Bertini which becomes sphenoid. Figure 4 shows Development of the sphenoid sinus. Figure 5 shows Anatomical variations of the sphenoid sinus pneumatization. Sinus