جامعة القاهرة
كلية الطب
قسم الجراحة العامة

دور الحاجــز الأنفــي في الأنف المنحــرف

رسالة
مقدمة لنيل درجة الماجستير في الجراحة العامة

مقدمة من

الطبيبة/ مريم طاهر إسماعيل أحمد إسماعيل

تحت إشراف

أ.د/ مـأمــون إسمـاعيــل
أستاذ الجراحة العامة والتجميل
كلية الطب– جامعة القاهرة

أ.م.د/ هشــام المنــاوي
أستاذ الجراحة العامة والتجميل
كلية الطب– جامعة القاهرة

أ.م.د/ طــارق أحمـد عامـر
أستاذ الجراحة العامة والتجميل
كلية الطب– جامعة القاهرة

جامعة القاهرة– كلية الطب
٢٠١٠

Cairo University
Faculty of Medicine
Department of General Surgery

Role Of The Septum In Management Of Deviated Nose

Thesis

Submitted for Masters Degree in General Surgery

By

Mariam Taher Ismail Ahmad Ismail

(M.B.B.Ch)

SUPERVISED BY

Prof. Dr. Maamoun Ismail
Professor of General and Plastic Surgery
Faculty of Medicine
Cairo University

Ass. Prof. Dr. Hisham El-Minawi
Professor of General and Plastic Surgery
Faculty of Medicine
Cairo University

Ass. Prof. Dr. Tarek A. Amer
Professor of General and Plastic Surgery
Faculty of Medicine
Cairo University

Faculty of Medicine
Cairo University
2010

Role Of The Septum In Management Of Deviated Nose

دور الحاجــز الأنفــي في الأنف المنحــرف

رسالة

مقدمة لنيل درجة الماجستير في الجراحة العامة

مقدمة من

الطبيبة/ مريم طاهر إسماعيل أحمد إسماعيل

تحت إشراف

أ.د/ مـأمــون إسمـاعيــل

أستاذ الجراحة العامة والتجميل

كلية الطب– جامعة القاهرة

أ.م.د/ هشــام المنــاوي

أستاذ الجراحة العامة والتجميل

كلية الطب– جامعة القاهرة

أ.م.د/ طــارق أحمـد عامـر

مدرس الجراحة العامة والتجميل

كلية الطب– جامعة القاهرة

المناقشون:

أ.د/ أحمد جميل الشرقاوي

أستاذ الجراحة العامة والتجميل

كلية الطب– جامعة القاهرة

(ممتحن داخلي)

أ.د/ مأمون إسماعيل

أستاذ الجراحة العامة والتجميل

كلية الطب– جامعة القاهرة

(مشرف وممتحن)

أ.د/ فؤاد محمد غريب

أستاذ الجراحة العامة والتجميل

كلية الطب– جامعة المنوفية

(ممتحن خارجي)

وذلك يوم الخميس الموافق ٢٠١٠/٢/١١م بمركز المؤتمرات بجامعة القاهرة– قاعة (ب)

ABSTRACT

The deviated nose is a common problem. It's almost always associated with a deviated septum.

In order to correct deviated nose, a thorough study of different shapes of the septum, the effect of septal deviation on the shape of the septum and degree of nasal obstruction. Clinical cases with various types of septal deviation were studied and concluded that most of septal deviation can be corrected by simple methods such as freeing, scoring, suturing, and submucous resection.

Keywords:

Deviated Septum

Septoplasty

Acknowledgments

I would like to thank:

- **Prof. Dr. Maamon Ismail** for his guidance and Paternal support throughout this work.
- **Ass. Prof. Dr. Hisham El-Minawi** for his most generous help, advice and his kind assistance.
- **Ass. Prof. Dr. Tarek A. Amer** for his continuous encouragement and guidance.
- **Prof. Dr. Taher Ismail** for his contribution in the clinical cases.
- **And to all senior surgeons and stuff** whom I listened to and in the process I found my own path.

Dedication

I Dedicate this work to my Family. My Father for always being there for me, pushing me to be better and I only want to make him proud of me. My mother who took care of me through out my life. My husband and my son who tolerated me during preparation of this thesis.

last but not the least my brother and sister who were always there for me.

Table of Contents

List of Abbreviation

SMR	:	Submucous resection
ASR	:	anterior septal reconstruction
Rt.	:	Right
Lt.	:	Left
No.	:	Number

INTRODUCTION

The deviated nose is one that varies from the straight vertical orientation of the face. Correction of this deformity presents a challenge because frequently a functional (air way obstruction) as well as an aesthetic problem must be addressed[1,2].

A deviated nose almost always is associated with a deviated septum. Crooked noses treated without addressing a deviated septum may lead to persistent deviation[16].

Consistently attaining good aesthetic and functional results when correcting the deviated nose requires a thorough understanding of nasal anatomy and physiology, accurate pre-operative analysis and intra-operative diagnosis[5], an understanding of the skill to precisely execute the surgical steps required to alter and control the nasal septum.

AIM OF WORK

The aim of this work is to evaluate the mechanism by which the septum causes nasal deviation, to show how septal pathology affects the airway and to describe different methods of its correction both functionally and aesthetically.

CHAPTER I

NASAL ANATOMY

A thorough understanding of normal nasal anatomy is a prerequisite for the surgeon to achieve a good functional as well as aesthetic result.

The anatomy of the nose is composed of two parts:

1) Nasal vaults.
2) Internal nasal anatomy.

1) <u>Nasal vaults</u>:

The nose possesses three vaults:

a) Bony Vault.
b) Upper Cartilaginous Vault.
c) Lower Cartilaginous Vault[7].

(a) <u>Bony vault</u>:

The bony vault is the principle structural base for the nose. It is generally pyramidal in shape and comprises one third of the external hose. It consists of the paired nasal bones and the ascending frontal process of the maxilla. The bony vault supports the upper nose and the upper lateral cartilages. The maxillary process extend in a cephalad direction from the piriform aperture to the lacrimal crest, uniting with the frontal and nasal bones. The nasal bones articulate with each other medially, the frontal bone superiorly, the maxilla laterally, the perpendicular plate of the ethmoid posteriorly, and the upper lateral cartilages inferiorly.

The nasal bones are average 2.5 cm in length, much thicker and denser above the level of the medial canthus at the radix (areas of junction between the frontal bone and the dorsum of the nose), and thin progressively toward the tip. They are also widest, at the nasofrontal suture, narrowest at the nasofrontal angle, and tend to widen again inferior to the radix before narrowing near their inferior margin, a transition zone of bony thickness exists along the fontal processes of the maxilla, from the piriform aperture to the radix along the lateral nasal wall. The bone in this region is less than 2.5mm thick.

Osteotomies may be performed to narrow or widen the nasal base, repair an open, roof deformity after dorsal hump resection, and correct symmetrical or asymmetrical bone deformities. Osteotomies may be executed at the transition zone of relatively thin bone along the frontal processes of the maxilla, from the piriform aperature to the radix along the lateral nasal wall. Osteotomies are rarely indicated above the canthal level because this area is quite narrow and has thick bone[(8)].

Osteotomies may be relatively contraindicated in some patients with short nasal bones (distal border 1cm beneath the intercanthal line) and in certain non-Caucasian races with extremely low and broad noses, because of the risk of middle vault collapse and the associated functional airway compromise. Elderly patients with excessively thin nasal bones, patients with heavy glasses, and patients with thick skin over the dorsum should be approached with caution[(8)].

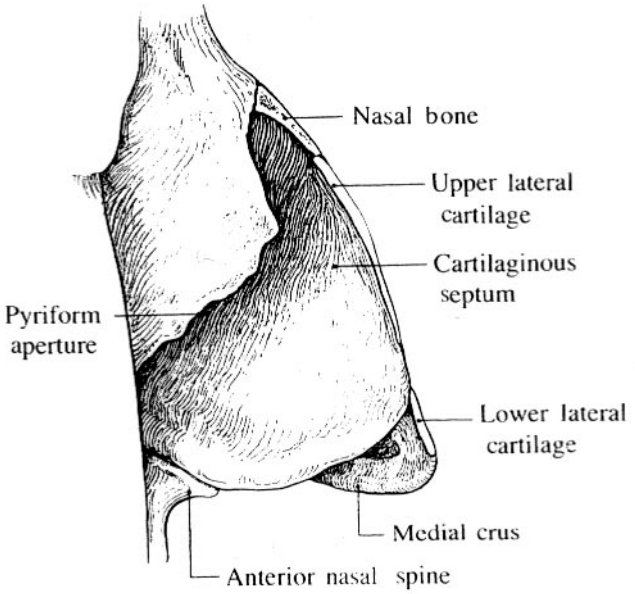

Fig.(1): lateral view showing nasal structure: nasal bone, septum, upper lateral cartilage, and lower lateral cartilage[57].

(b) <u>Upper Cartilaginous Vault:</u>

The most important component of the upper cartilaginous vault is the internal nasal valve, which is bordered by the septum (medially), the nasal floor (inferiorly), the inferior turbinate (laterally), and the caudal border of the upper lateral cartilage (superiorly).

The junction of the upper lateral cartilages with the nasal bones and the septum defines the keystone area, which has a T-shaped contour. The nasal bones actually overlap the cephalic upper lateral border by 6 to 8mm, thus producing a firm adherence between both structures, enhancing support. The junction between the septum and upper lateral cartilage is normally 10 to 15 degrees. Caudally the junction of the upper lateral cartilages with the cephalic edge of the lateral crus defines the scroll areas. Most patients have some overlap of the cartilages, which may enhance support at this level.

Studies have indicated that the nasal valves contribute much more to, obstruction than previously realized and that the septum may play a much smaller overall role. Therefore injury and/ or destabilization of the keystone area during rhinoplasty must be avoided at all costs because deformation of the normal 10-15 degree angle between the upper lateral cartilages and the septum will result in impaired airflow through the internal valve [6,9]. For example, dorsal reductions greater than 1 to 2mm should be performed using an incremental component dorsal septal reduction technique, which avoids excessive resection of the upper lateral cartilage. This will tend to preserve the internal valve, avoiding disruption of the dorsal aesthetic lines, an inverted v deformity, and airway compromise. In secondary Rhinoplasty patients with these deformities, grafting, osteotomy and suture techniques may be used to increase the cross-sectional area of the internal valve, improving the functional and aesthetic status of the nose[8].

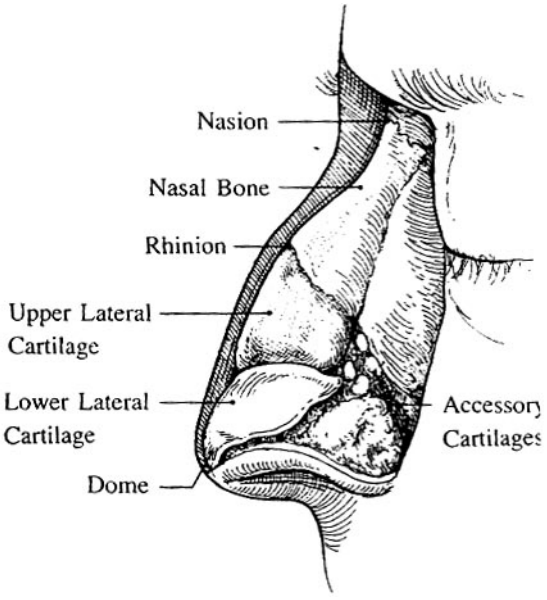

Fig.(2) lateral view showing the position of upper lateral cartilage[57].

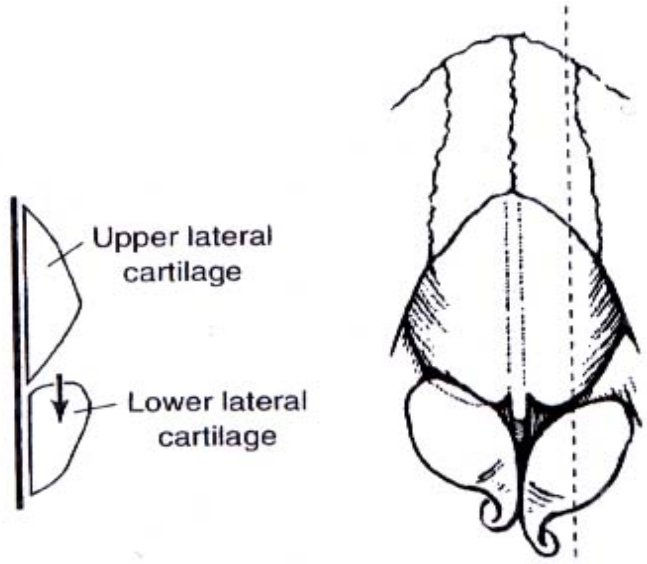

Fig.(3) Showing relation between nasal bone, upper lateral cartilage and lower lateral cartilage[8].

(c) <u>Lower lateral cartilaginous vault</u>:

The external nasal valve exists at the level of the inner nostril. It is formed by the caudal edge of the lateral crus of the lower lateral cartilage, the soft tissue alae, the membranous septum, and the sill of the nostril. The framework of the nasal tip is formed by the medial, middle, and lateral crura of the lower lateral cartilages. The accessory cartilages connect each lateral crus to the piriform aperture. All of these cartilages are bound together by a continuous perichondrium, which gives stability to the cartilages and causes them to act as a single structural and functional unit. This unit will be referred to as the lateral crural complex. The shape and position of this unit, the thickness of the overlying skin, and the fibrous attachments to the adjacent anatomic structures are interrelated and determine the appearance of the tip[10].