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# SEPTOPLASTY AND LASER INFERIOR TURBINATE MUCOTOMY: OBJECTIVE ASSESSMENT BY ACOUSTIC RHINOMETRY

Thesis Submitted for The Partial Fulfillment of M.Sc. Degree Otolaryngology Department, Faculty of Medicine Cairo University

By

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تحت عنوان : باللغة الإنجليزية

# Septoplasty and laser inferior turbinate mucotomy objective assessment by acoustic rhinometry .

بـاللـغـة العـربـيـة / تقييم تجميل الحاجز الأنفي وكي غضاريف الأنف السفلية بالليزر عن طريق استخدام الموجات الصوتية .

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بعـد فحـص الـرسـالـة بـواسطـة كـل عضـو منفـردا وكـتابـة تقـاريـر منفـردة لكـل منهـم انعقـدت اللجنـة مجتمعـة في يـوم الثلاثاء - بتـاريـخ ٢١/ ١ / ٢٠٠٣ بقسـم الأذن والأنف والحنجـرة بمركز التعليم الطبي بكلية الطب- جامعة القاهرة وذلـك لمناقشة الطـالـب في جلسـة علنـية في مـوضـوع الرسـالة والنتائج التي تـوصل إليها وكذلك الأسـس العلميـــة الـــتي قـــام عليهـــا البحـــث .

قـــرار اللجنـــة : ----------

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---قـــبـــــول الـــرســـــالـــــة----------

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## ABSTRACT

- Functional septoplasty is successful in alleviating the symptom of nasal obstruction resulting from different patterns of deviated nasal septum. For cases of inferior turbinate hypertrophy, medical treatment should be tried before deciding laser surgery. On deciding laser surgery, the patient should understand that the target of treatment is to relive nasal obstruction not to treat the original condition. Acoustic rhinometry has proved to be an effective tool in quantitatively assessing nasal obstruction. MCA and Req. Are closely related, thus one or both can represent postoperative improvement.



Key Words :

- Acoustic rhinometry - Septoplasty - Laser inferior turbinate mucotomy.

# INTRODUCTION AND AIM OF THE WORK

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The anterior part of the nose, from the nostrils to the apertura pyriformis, is called the nasal valve. It is the narrowest part of the respiratory tract and offers the greatest airflow resistance. Septal deviations in that region as well as mucosal swelling of the inferior turbinates influence airflow in this narrow part and accordingly increase airflow resistance ***( Grymer et al., 1989 and Hilberg et al., 1990).***

Although nasal obstruction is a matter of degree , it is still evaluated in most clinics in a mild, moderate or severe scale, a plus (+) scale or in a numbered scale e.g.) 0-5. The reluctance of objective evaluation of the symptom of nasal obstruction adds to the problem of being mislead by the patient evaluation of his/her symptoms, having no objective scale for treatment follow-up whether for medical or medicolegal purposes and finally loosing an important parameter for predicting the outcome of a treatment policy ***(Roithmann et al., 1955 and Fisher, 1997).***

Several techniques for objectively evaluating the nasal airway have evolved in recent decades, among which acoustic rhinometry is the most recent and is gaining

popularity. Acoustic rhinometry was developed as a means of evaluating the nasal geometry by analyzing reflected sound introduced into the nostril. Its basic physical principle is that the impedance of a rigid tube to a sound pressure wave depends on the local changes in the diameter of the tube ***( Tomkinson, 1997).***

This work aims at using acoustic rhinometry as a tool for objectively evaluating the nasal airway in cases of deviated septum and inferior turbinate hypertrophy; both preoperatively for patient assessment and postoperatively for follow up.