Nasal Steroids Use in the Prevention of Symptomatizing Adenoid Regrowth after Adenoidectomy

Thesis

Submitted for Partial Fulfillment of Master Degree in Otorhinolaryngology

By

Eman Mohamed Ahmed Ahmed Mohamed Ali
M.B.B.Ch.
Faculty of Medicine - Ain Shams University

Under Supervision of

Prof. Dr. Waleed Farag Ezzat
Professor of Otorhinolaryngology
Faculty of Medicine- Ain Shams University

Prof. Dr. Tamer Abd Elwahab Abo Elezz
Professor of Otorhinolaryngology
Faculty of Medicine- Ain Shams University

Dr. Ahmed Mahmoud Marouf
Lecturer of Otorhinolaryngology
Faculty of Medicine- Ain Shams University

Faculty of Medicine
Ain Shams University
2020

Acknowledgement

First and foremost, Thanks to ***Allah****, to whom I relate any success in achieving any work in my life.*

I would like to express my deep gratitude and sincere appreciation to **Prof. Dr. Waleed Farag Ezzat,** *Professor of Otorhinolaryngology, Faculty of Medicine- Ain Shams University for his sustained support, continued encouragement and for his precious time and effort that made this thesis possible. It was great honor to me to do this thesis under his supervision.*

I owe special feeling of gratitude to **Prof. Dr. Tamer Abd Elwahab Abo Elezz,** *Professor of Otorhinolaryngology, Faculty of Medicine- Ain Shams University for his great help, close supervision, wise opinions, guidance and his continuous encouragement and for his precious effort. Without his support, this work would not have been completed.*

My deep appreciation to **Dr. Ahmed Mahmoud Marouf,** *Lecturer of Otorhinolaryngology, Faculty of Medicine- Ain Shams University for his valuable instructions, unlimited help and great deal of support, his endless patience with me and for his experienced guidance and helpful suggestions that make the completion of this work possible.*

A special word of thanks goes to my supportive ***Husband*** *without his help this work wouldn't come to light.*

Eman Mohamed

Contents

List of Abbreviations

Abb.	Full term
ALARA	As low as reasonably achievable
CBCT	Cone-beam computerized tomography
CHL	Conductive hearing loos
CT	Computed tomography
E.T	Eustachian tube
GERD	Gastro Esophageal Reflux Disease
MPEC	Monopolar electrocautery
MRI	Magnetic resonance image
OSA	Obstructive Sleep Apnea
PGY3	Postgraduate year 3
SNOT	Sino nasal outcome test
URTI	Upper respiratory tract infection

List of Tables

List of Figures

Abstract

Background: Regrowth of the adenoids is a well-recognized entity. Intranasal steroids for children with adenoid vegetation can provide an alternative to revision surgery. ***Objective***: To assess the effect of using nasal steroids to prevent recurrence of adenoid hypertrophy and related symptoms after adenoidectomy. ***Methods***: Controlled clinical trial. One hundred patients after adenoidectomy were divided randomly into 2 groups. Group I were patients performing surgery on odd days of the month received postoperative intranasal steroid [fluticasone propionate (50 mcg/metered dose per nostril per day)] and Group II were patients performing surgery on even days of the month received intranasal saline spray starting at postoperative week 2 after wound healing. Both medications will be administrated for 8 weeks postoperatively. Patients will be followed up for minimum of 6 months by using modified SNOT Score to suit children in reporting the degree of the symptoms and if needed nasopharyngeal lateral X-rays. ***Results*:** Highly significant difference between both groups after 6 months postoperatively. ***Conclusion*:** The use of intranasal steroids may obtain successful results in children to prevent adenoid regrowth and recurrence of related nasal symptoms after adenoidectomy. The most appropriate drug, the most efficient dose, and optimal treatment duration need to be investigated and determined.

Keywords: Adenoid hypertrophy, Adenoidectomy, Adenoid regrowth, Nasal steroids.

Introduction

Adenoidectomy is one of the most common surgical procedures performed in children. The adenoid tissue is part of the Waldeyer's ring and is located at the nasopharynx. It is the most frequent cause of upper respiratory tract obstruction among children. The most frequent symptoms of adenoid hyperplasia are snoring, mouth breathing, nasal discharge, sleep apnea and hyponasal speech **(Tankel and Cheesman, 1986)**. Hyperplastic adenoid tissue may also be a source of recurrent infection **(Potsic, 1992)**. Adenoidectomy performed for the above mentioned indications is one of the most frequent surgeries conducted in children along with tonsillectomy **(Paradise, 1996)**.

The persistence of nasal obstruction and recurrent infection symptoms following adenoidectomy was reported in the range of 19–26% in a study **(Joshua et al., 2006)**.

Over the past few years, adenoid re-growth after adenoidectomy has received much attention. The recurrence of adenoid growth after adenoidectomy is well known to occur in 5-10% of patients. Previously published studies suggested that the rate of this phenomenon varied

between 0.55% **(Monroy et al., 2008)** and 1.6% **(Liapi et al., 2006).**

Regrowth of the adenoids is a well-recognized entity, the cause of which is vulnerable and uncertain, Adenoid regrowth may be partially attributable to surgery that is performed under indirect view. Also, the fact of lymphoid tissue does not have a clear delineation may be contribute.

There are 2 difficulties that have been described to prevent complete adenoidal removal. Firstly, lymphoid tissue in the pharyngeal recess is considered by many authors as difficult to remove **(Buchinsky et al., 2000)**, the second difficulty is the bulging adenoidal tissue into the posterior choanae, which was addressed by Pearl and Manoukian **(Pearl and Manoukian, 1994)**; they found choanal adenoids in 9% of their study group which might be missed in blind removal by the classic method.

Other hypotheses on what causes the recurrence of adenoid obstructive symptoms include the contribution of other pathologic conditions such as allergies, gastro-esophageal reflux disease **(Monroy et al., 2008),** an un-recognized intranasal pathologic condition **(Lesinskas et al., 2009),** or tubal tonsil hyperplasia **(Emerick and Cunningham, 2006)**. In addition, young age may lead to

an increased rate of repeated adenoidectomy through a mechanism that remains uncertain **(Dearking et al., 2012)**.

There are several studies suggesting the use of intranasal corticosteroids for children with adenoid vegetation as an alternative to revision surgery **(Demirhan et al., 2010)**. However, a limited number of studies have addressed strategies followed to prevent regrowth after adenoidectomy **(Sobhy, 2013)**.

Aim of Work

The study aims at evaluation of the value of using intranasal steroids to prevent recurrence of adenoid hypertrophy and related symptoms after adenoidectomy.

Review of Literature

1. Pathogenesis of Adenotonsillar Disease:

"Adenoids", the common term for hyperplasia of the pharyngeal tonsil, is a very widespread condition in children 3-6 years of age. The proliferation of lymphatic tissue in this region is so common in children that it can hardly be considered an abnormal condition and nearly all children have some degree of adenoid hypertrophy due to the immunologic activity of that tissue. Thus, enlarged adenoids should be considered abnormal and treated accordingly only if they are causing symptoms. The presence and severity of adenoidal symptoms depend on the relationship between the size of the nasopharynx and that of the adenoids **(Probst et al., 2005).**

The pathogenesis of infectious/inflammatory disease in the tonsils and adenoids has its basis in their anatomic location and inherent function as organs of immunity, processing infectious material and other antigens and then becoming, paradoxically, a focus of infection/ inflammation. Viral infection with secondary bacterial invasion may be one mechanism of initiation of chronic disease, but the effects of the environment as overcrowdings and lack of fresh air, host factors as low

immunity and malnourished children, the widespread use of antibiotics, ecologic considerations and diet may all play a role **(Brodsky et al., 2006).**

Lymphoid tissue of the Waldeyer ring is very small in infants. It increases in size in association with immunologic activity, since tonsils and adenoids are the first lymphoid organs in the body to encounter ingested and inhaled pathogens. Tonsillar and adenoid tissues have many specialized immunologic components responsible for humoral and cellular immune response. Therefore, hypertrophy of the lymphoid tissue as a whole occurs in response to colonization with normal flora as well as with pathogenic microorganisms. Second-hand smoke exposure in the home environment has also been linked to adenotonsillar hypertrophy **(Tom and Jacobs, 2002).**