Endoscopic Coblation versus Cold Curettage Adenoidectomy

A Meta-Analysis

Submitted for Partial Fulfillment of Master Degree in Otorhinolaryngology

By

Amany Farid Saad Ibrahim
M.B.B.CH, 2012 Ain Shams University

Under Supervision of

Prof. Dr. Amr Nabil Rabie
Professor of Otorhinolaryngology
Faculty of Medicine - Ain Shams University

Dr. Mohammed Abdelaleem Mohammed
Lecturer of Otorhinolaryngology
Faculty of Medicine - Ain Shams University

Faculty of Medicine
Ain Shams University
2019

سورة البقرة الآية: ٣٢

Acknowledgment

First and foremost, I feel always indebted to ***Allah,*** *the Most Kind and Most Merciful.*

I'd like to express my respectful thanks and profound gratitude to ***Prof. Dr. Amr Nabil Rabie,*** *Professor of Otorhinolaryngology, Faculty of Medicine - Ain Shams University, for his keen guidance, kind supervision, valuable advice and continuous encouragement, which made possible the completion of this work.*

I am also delighted to express my deepest gratitude and thanks to ***Dr. Mohammed Abdelaleem Mohammed,*** *Lecturer of Otorhinolaryngology, Faculty of Medicine - Ain Shams University, for his kind care, continuous supervision, valuable instructions, constant help and great assistance throughout this work.*

I would like to express my hearty thanks to all ***my family*** *for their support till this work was completed.*

Amany Farid

List of Contents

List of Tables

Table No.	Title	Page No.

List of Figures

List of Figures (Cont...)

List of Figures (Cont...)

List of Abbreviations

Abb.	Full term
3D	*3-Dimensional*
Ca	*Choanal Arch*
CA	*Coblation Adenoidectomy*
CBCT	*Cone-Beam Computerized Tomography*
CENTRAL	*Cochrane Central Register of Controlled Trials*
CI	*Confidence Interval*
CS	*Carotid Space*
ICJME	*International Committee of Medical Journal Association*
MD	*Mean Difference*
MOOSE	*Meta-Analysis of Observational Studies in Epidemiology*
MS	*Masticator Space*
NF	*Narrow and Flat*
OSA	*Obstructive Sleep Apnea*
PAA	*Power-Assisted Adenoidectomy*
PMS	*Pharyngeal Mucosal Space*
PPS	*Para Pharyngeal Space*
PRISMA	*Preferred Reporting Items for Systematic Reviews and Meta-Analyses*
PS	*Parotid Space*
Pw	*Posterior Wall of Nasopharynx*
RCTs	*Randomized Controlled Trials*
REM	*Rapid Eye Movement*
RPS	*Retropharyngeal Space*
RR	*Relative Risk*
SD	*Standard Deviation*
SMD	*Standardized Mean Difference*

ABSTRACT

Background: Adenoidectomy remains one of the surgical procedures most frequently performed by otolaryngologist. Adenoid hypertrophy causes nasal obstruction and airway problems such as snoring, obstructive sleep apnea, recurrent sinusitis, and/or Eustachian tube dysfunction. There is also reduced ability to smell and taste, hyponasal speech and craniofacial abnormalities. These complications frequently lead to a need for adenoidectomy.

Aim of the Work: Compare between endoscopic coblation versus cold curettage adenoidectomy as regard operative time, blood loss, post-operative pain and complications.

Materials and Methods: We performed this systematic review and meta-analysis in accordance to the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement and Meta-analysis Of Observational Studies in Epidemiology (MOOSE) statement. PRISMA and MOOSE are reporting checklists for Authors, Editors, and Reviewers of Meta-analyses of interventional and observational studies. According to International committee of medical journal association (ICJME), reviewers must report their findings according to each of the items listed in those checklists.

Results: We performed a comperehensive search of five electronic databases to comperehensively include all eligible studies. In addition, the risk of bias was low among the included studies. However, we acknowledge that the present study has some limitations. Some included studies were observational studies with inherent limitations of possible misclassification and ascertainment bias. In addition, most of the studies were a single-center experience and therefore the results cannot be generalized to the general population.

Conclusion: Endoscopic coblation technique is superior to cold curettage adenoidectomy in pediatric population. The present systematic review and meta-analysis showed that endoscopic coblation technique had better outcomes in terms of intraoperative blood loss and postoperative pain. However, special attention should be paid for operation time with endoscopic coblation. Nevertheless, further studies are still needed to confirm our findings and to identify patient factors that significantly increase the rate of recurrence in both techniques.

Keywords: *Endoscopic Coblation - Cold Curettage Adenoidectomy*

INTRODUCTION

Adenoidectomy remains one of the surgical procedures most frequently performed by otolaryngologist ***(Spencer and Jones, 2012).***

Adenoid hypertrophy causes nasal obstruction and airway problems such as snoring, obstructive sleep apnea, recurrent sinusitis, and/or Eustachian tube dysfunction. There is also reduced ability to smell and taste, hyponasal speech and craniofacial abnormalities. These complications frequently lead to a need for adenoidectomy ***(Agrawal et al., 2016).***

Curette adenoidectomy, which dates back to the earliest attempts at the procedure, is the most widely used technique worldwide. A selection of curette widths, lengths and curvatures are available, all based on Jacob Gottenstein's original design ***(Christopher et al., 2001).***

However the conventional curettage adenoidectomy for removing adenoids is a relatively 'blind' technique which risks nasopharyngeal injury and incomplete adenoid removal ***(Regmi et al., 2011).***

In the last decades, a movement from cold techniques to electrosurgical methods such as electrocautery has taken place ***(Wilson et al., 2009 and Koltai et al., 2002).*** Other different adenoidectomy techniques have been proposed to reduce

morbidity and surgical risk e.g. (microdebrider, bipolar coagulation, stripping under endoscopic control, coblation) ***(Di Rienzo Businco et al., 2012).***

The ideal adenoidectomy procedure should achieve a safe removal of the adenoids with less operative time, blood loss, postoperative morbidity and recurrence ***(El Tahan et al., 2018).***

Coblation may result in less surrounding tissue damage, reduce postoperative pain and improve healing compared with diathermy and also reduce bleeding compared with 'cold steel' techniques ***(Shakeel et al., 2012).***

Aim of the Work

Compare between endoscopic coblation versus cold curettage adenoidectomy as regard operative time, blood loss, post-operative pain and complications.

REVIEW OF LITERATURE

Introduction

Adenoid hypertrophy is common in children. Size of the adenoid increases up to the age of 6 years, then slowly atrophies and completely disappears at the age of 16 years. Adenoid hypertrophy in adults is rare. Present study shows that adenoid hypertrophy is now increasing in adults because of various causes ***(Rout et al., 2013).***

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 etiology of the adenoid hypertrophy is not clear, however frequent infection, allergy, rhinitis and chronic sinusitis play important roles. Adenoid hypertrophy does not appear to affect any gender or racial group more than another. Adenoids has been noted to decrease as age increases and lowest among children from high socioeconomic class. Adenoidal hypertrophy remains one of the most frequent

indications for surgery in children especially when it produces nasal airway obstruction. Chronic sinusitis, recurrent otitis media with effusion, and chronic serous otitis media associated with pediatric adenoidal hypertrophy are common indications for surgical removal of the adenoid ***(Chinawa et al., 2015).***

Function of adenoid tissue:

Tonsils and adenoids trap bacteria and viruses which enters through the throat and nose and produce antibodies to help fighting the body infections. They are not considered to be very important as our body has other means of preventing infection and fighting off bacteria and viruses. Children are born with adenoids which are small and they usually shrink after about 5 years of age, and it practically disappears by adolesence. Some children (and adults) are prone to develop infections of the tonsils and adenoids. These infections can be caused by different kinds of bacteria other than streptococcus ***(Agarwal et al., 2016).***

Endoscopic endonasal exposure of the nasopharynx:

The endoscopic approach to the nasopharynx began with lateralization of the inferior and middle turbinates. This aided in visualization and increased the working space. Following this, the most posterior aspect of the nasal septum was resected to allow panoramic visualization of the entire nasopharynx, including the auditory tori ***(Becker and Hwang, 2013)*** (Fig. 1).