

# Complications of microdebrider assisted endoscopic adenoidectomy.

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## Abstract

**Background:** The adenoid is part of lymphoid tissue called Waldeyer's ring. Pathological effects include rhinitis, rhino sinusitis, otitis media and otitis media with effusion. Failure of medical therapy in these conditions may need surgical intervention. Adenoidectomy is one of the most common surgical procedures in children, but many complications can occur as bleeding, velopharyngeal incompetence, and re growth of the adenoid.

**Aim of the study:** To assess the complications of microdebrider assisted endoscopic adenoidectomy.

**Methods:** This study is a prospective in nature consisted of 100 patients. They were 55 males and 45 females. They had been assessed at the Al-Diwaniyah Teaching Hospital, Al-Diwaniyah city, Iraq, during the period of March 2017 to January 2020, the age ranges from 5-15 years. An inclusion criterion is adenoid hypertrophy causing one or more of the following: nasal obstruction, recurrent upper respiratory tract infections, recurrent acute otitis media, otitis media with effusion, or sleep apnea, not responding to adequate conservative therapy. Exclusion criteria are: small asymptomatic adenoid, bleeding tendency, patient required tonsillectomy and patient with craniofacial anomalies as cleft palate. All the patients had microdebrider assisted endoscopic adenoidectomy.

**Results:** The post-operative pain was mild, reactionary haemorrhage recorded in 3 patients while secondary haemorrhage was not recorded. 2 patients developed adenoid recurrence. 1 patient developed nasopharyngeal blood clot. Infection occurred in 2 patients. Velopharyngeal incompetence occurred in 3 patients. Eustachian tube injury occurred in only 1 patient.

**Conclusion:** Microdebrider Assisted Endoscopic Adenoidectomy (MAEA) provides direct visualization and controlled surgery so it is safe and decrease the rate of complications, and can be carried as day case surgery.

**Keywords:**

Microdebrider, Endoscopic adenoidectomy.

## Introduction

The adenoid or nasopharyngeal tonsil is part of lymphoid tissue called Waldeyer's ring at the entry of the respiratory tract. This is first site of contact with inhaled antigens in early childhood [1]. The adenoid may cause upper respiratory tract disease due to partial or complete obstruction of the nasal choanae or as a result of infection. Pathological effects include rhinitis, rhino sinusitis, otitis media and otitis media with effusion [2]. Failure of medical therapy in these pathological conditions may need surgical intervention [3,4]. Adenoidectomy with or without tonsillectomy is one of the most common surgical procedures in children [5]. The most common complications of adenoidectomy include:

- Bleeding: The reactionary bleeding (bleeding within 6–20 hours after adenoidectomy), is less than 0.7% [6,7]. Secondary bleeding after adenoidectomy is rare. It may be caused by aberrant ascending pharyngeal artery injury [8].
- Dental trauma, damage to the teeth during adenoidectomy may be accidental due to slipped mouth.
- Retained pack, a swab may be missed in the nasopharynx or slipped to the hypopharynx. Early post-operative risk is airway obstruction by swab, later present with infection [9].
- Infection, infection following adenoidectomy is uncommon, the parents may report bad odor from child mouth in the first week after surgery [10].

- Non-traumatic atlantoaxial subluxation (Grisel syndrome) is a rare condition, but it may associate with adenoidectomy [11].
- Velopharyngeal incompetence is rare after adenoidectomy. It may cause hypernasal speech and nasal regurgitation [12].
- Regrowth of the adenoid, study of children 2-5 years after curettage adenoidectomy found that 71% had no residual obstructing adenoid. The criterion for adenoid to cause nasal obstruction should be occupying more than 40% of the nasopharynx [13].

## Surgical technique

All patients had preoperative assessment in form of blood investigations as complete blood count, bleeding profile, renal function test, virology screening. Flexible nasoendoscopy under local anesthesia was done for those patients who tolerate the procedure, and if not lateral x-ray of post nasal space was done. Operation was done under general anesthesia, with endotracheal intubation. The exposure was done with a mouth gag. The soft palate was retracted with a 10 French suction catheter. 40° curved blade microdebrider introduced through the mouth, under 3 mm 0° nasal endoscopic vision with resection of all adenoid tissue. After that haemostasis was secured using post nasal pack inserted to nasopharynx left for 5 minutes then removed under direct vision.

**Aim of the study**

To assess the complications of Microdebrider Assisted Endoscopic Adenoidectomy (MAEA).

**Methodology**

This study is a prospective in nature, consisted of 100 patients. They were 55 males and 45 females. They had been assessed at the Otolaryngology Department in Al-Diwaniah Teaching Hospital, Al-Diwaniah city, Iraq, during the period of March 2017 to January 2020, the age ranges from 5-15 years. An inclusion criterion is adenoid hypertrophy causing one or more of the following: nasal obstruction, recurrent upper respiratory tract infections, recurrent acute otitis media, otitis media with effusion, or sleep apnea, not responding to adequate conservative therapy. Exclusion criteria are: small asymptomatic adenoid, bleeding tendency, patient required tonsillectomy and patient with craniofacial anomalies as cleft palate. All the patients had Microdebrider Assisted Endoscopic Adenoidectomy (MAEA). The follow up period was 1 year. For all patients met the eligibility criteria their parents agreed to participate and give signed informed consent.

**Results**

The study population consisted of 100 patients. They were 55 males and 45 females. The age ranges from 5-15 years. The indications of adenoidectomy and sex distribution were shown in Table 1.

Indications	Male	Females	Total
Nasal obstruction	53	40	93
Recurrent acute otitis media	12	17	29
Otitis media with effusion	33	27	60
Recurrent upper respiratory tract infections	7	11	18
Sleep apnea	45	32	77

**Table 1.** The indications of adenoidectomy according to sex.

We record the post-operative pain using the Visual Analog Scale (VAS), the median visual analog scale was 2 after 12 hours after operation, and 0 after 24 hours. Residual or recurrent adenoid tissue is evaluated 3 months after operation and it described as more than grade 1 of Clemens clinical grading system [14]. We examine the patient after 3, 12, 24, 48 hours after operation and the monthly for 1 year and any complication was recorded in Table 2.

Complications	Male	Female	Total number
Reactionary haemorrhage	2	1	3
Secondary haemorrhage	0	0	0

Dental trauma	0	0	0
Retained swab	0	0	0
Nasopharyngeal blood clot	0	1	1
Infection	1	1	2
Cervical spine injury	0	0	0
Velopharyngeal dysfunction	2	1	3
Regrowth of the adenoid	0	2	2
Eustachian tube injury	1	0	1

**Table 2.** Show our records.

**Discussion**

Power-Assisted Endoscopic Adenoidectomy (PEA) including Microdebrider Assisted Endoscopic Adenoidectomy (MAEA) is an evolution in the treatment of adenoid hypertrophy and endoscope allows a direct visualization of the adenoidectomy procedure [15-18]. In our study the pain was minimal, this agrees with results of Anand [19], Stanislaw [20], and Alberto [21]. Incomplete removal of adenoid can lead to recurrence and post-operative bleeding [20,22]. In our study 3 patients developed reactionary haemorrhage which treated conservatively with no need for repacking. While Secondary haemorrhage not recorded. Recurrence of adenoid after surgery is common, it described by Emerick [23]. In our study 2 female patients developed adenoid recurrence in form of Clemens grade 2 and 3 respectively. 1 patient developed nasopharyngeal blood clot which dislodged at the 3rd post-operative day without problem. Infection occurred in 2 patients despite post-operative 5 days course of Augmentin® as prophylaxis [20,24-26]. Those patients had recent upper respiratory tract infection. Those patients treated conservatively without complications. Velopharyngeal incompetence occurred in 3 patients with large adenoid, one of them had nasal regurgitation for fluid and 2 patients developed hypernasal speech. All improved and returned to base line after 1 month. Eustachian tube injury occurred in 1 patient with very large adenoid covering the Eustachian cushion in the right side; it was mild with no later complications. From the above the power-assisted endoscopic adenoidectomy can be a day case or outpatient surgery. This is suggested by many authors as Stanisla, Öztürk, Vons and Rose [27-33].

**Conclusion**

Microdebrider Assisted Endoscopic Adenoidectomy (MAEA) provides direct visualization and controlled surgery so it is safe and decreases the rate of complications, and can be carried as day case surgery.

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