



ORIGINAL RESEARCH PAPER

Otorhinolaryngology

OUTCOME OF PATIENTS WITH ADENOID HYPERTROPHY UNDERGOING ENDOSCOPIC GUIDED MICRODEBRIDER - ASSISTED ADENOIDECTOMY

KEY WORDS: adenoid hypertrophy, obstructive sleep apnoea, endoscopic assisted, microdebrider.

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ABSTRACT

Adenoid, a nasopharyngeal lymphoid tissue forming a part of the Waldeyer's ring, was initially described in 1868 by Meyer. Adenoid hypertrophy (AH) can result in upper airway obstruction in children. Children with this condition present with symptoms of chronic nasal obstruction, rhinorrhoea, mouth breathing, snoring, recurrent sinusitis, and recurrent otitis media with effusion. Adenoidectomy is one of the most common surgical procedures performed in children, either alone or in conjunction with tonsillectomy or grommet insertion. The conventional adenoidectomy using curette is performed blindly by most surgeons without visualising the nasopharynx; which leads to uncommon complications such as inadequate adenoid tissue removal, eustachian tube scarring, bleeding and nasopharyngeal stenosis. This has led to development of alternate surgical methods, which has been made possible with the advent of rigid nasal endoscopes, cold light source, fibre optics and powered instruments.

INTRODUCTION

A significant proportion of childhood illnesses and pediatric health care expenditure attributes to infectious and inflammatory diseases involving the pharynx, tonsils, and adenoids. Santorini described the nasopharyngeal lymphoid aggregate or 'Luschka's tonsil' in 1724.¹ Wilhelm Meyer introduced the term 'adenoid' to apply to what he described as 'nasopharyngeal vegetations' in 1870. The adenoid forms part of Waldeyer's ring of lymphoid tissue at the portal of the upper respiratory tract. In early childhood this is the first site of immunological contact for inhaled antigens. Historically, the adenoid has been associated with upper airway obstruction, as a focus of sepsis, and more recently with the persistence of otitis media with effusion.¹

Several adenoidectomy methods had been well described in the literature. The conventional adenoidectomy using curette was first described in 1885.² The completeness of adenoidectomy procedure when performed conventionally was difficult to assess, the advent of endoscopes had made this area more accessible. More procedures are presently performed using nasal endoscopes.

Microdebriders were powered instruments which provide an excellent, safe and thorough technique in endoscopic surgery. They provided atraumatic dissection with minimal bleeding which allowed decreased surgical time and faster post-operative healing.³ Becker et al.⁴ removed the adenoidal tissues transnasally combined with transorally under endoscopic visualization. Although the newer endoscopic-assisted adenoidectomy was safe and effective in providing completeness of removal and less complication rate, it had several limitations such as high cost of the device, the replacement cost of blades and lack of resected tissue for histopathological examination.⁵ In this context, the present study had been undertaken to evaluate the clinico-epidemiological profile of patients with adenoid hypertrophy attending ENT OPD and to assess the outcome of patients undergoing endoscopic guided microdebrider-assisted adenoidectomy.

MATERIALS AND METHOD

1. **Study Type-** Observational Study
2. **Study Design-** Prospective Study
3. **Study Duration-** 18 Months (From 1st October 2019 to 31st March 2021)
4. **Study Place-** Department of ENT, TMC & Dr. BRAM teaching hospital, Hapania, Agartala, West Tripura, PIN-799014.
5. **Study Population-** Paediatric patients aged 3-14 years

with features of adenoid hypertrophy, attending IPD & OPD, department of ENT with following criterias:

a) INCLUSION CRITERIA-

- Patients aged between 3 years and 14 years.
- Patients with history of nasal obstruction, nasal discharge, mouth breathing, snoring, drooling of saliva, adenoid facies, sleep apnoea syndrome, or speech abnormalities.
- Patients with recurrent otitis media with effusion.
- Patients having chronic tonsillitis with adenoid hyperplasia.
- Patients with recurrent rhinosinusitis, dental malocclusion.

b) EXCLUSION CRITERIA-

- Patients with known bleeding disorders.
- Immunocompromised patients.
- Patients having acute infections.
- Children having cleft palate, submucosal cleft and significant septal deviations.
- Patients having down syndrome.

6. Sample Size

From previous records, it has been found that 60 patients with adenoid hypertrophy underwent adenoidectomy in last 3 years in ENT OT of Tripura Medical College. My study period was for one and half year. So, considering the inclusion and exclusion criteria and willingness for surgery, 30 study participants were included in this study.

7. METHODOLOGY-

Patients included in the study were in their chronological order of attending ENT and underwent a pre-operative assessment including: history of complaints, examination of nose, throat, ear, general physical examination, laboratory investigations, radiological assessment, coagulation profile and nasal endoscopy. Operating time for every case in minutes and seconds was recorded using a stop watch. Intra-operative time was defined as the time taken for completion of the procedure from the time patient was handed over by the anaesthetist and included setting up of instruments, operative steps, packing and achieving hemostasis and ended when the patient was handed back to the anaesthetist. During adenoidectomy, an in-line irrigation system of the microdebrider was used. So the exact amount of irrigating fluid from saline bottle was noted. The precise amount of blood loss in milliliters was calculated by subtracting the quantity of irrigating fluid used from the remaining fluid comprising of blood and sucked irrigating fluid. Naso-pharyngeal pack blood soakage was measured by weighing the difference at the beginning and end of the procedure.

Hemostasis time taken in minutes and seconds was recorded in a stopwatch as time taken before applying the post nasal pack and till its removal. The completeness of adenoid resection were recorded as fair, good and excellent depending on extent of resection. It was recorded as:

Excellent: When adenoid tissue was completely resected superiorly upto roof of nasopharynx, posterolaterally till the eustachian tube orifices and anteriorly from the choanae.

Good: When only a few adenoid tags were left behind inadvertently and

Fair: When substantial adenoid remnants were found post operatively.

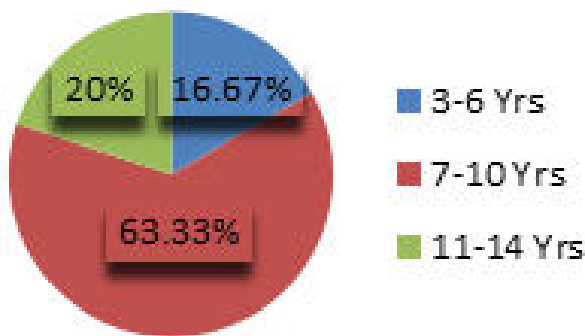
The depth of resection recorded as shallow, adequate or excessive depending on plane of tissue dissection reached. Intra-operative complications such as injury to adjacent structures, if any identified and recorded in OT. Post-operative complications like throat pain, neck pain, neck stiffness, hypernasality, swallowing problems and recovery in terms of time required to return to his normal diet and activities were enquired and noted.

All the cases were followed up after 1 week of discharge, 1 month and 2 months of surgery till 6 months. Adequacy of adenoid removal were assessed through endoscopic examination of nasopharynx on follow up and recorded as complete removal when adenoid tissue was completely resected upto roof of nasopharynx and partial removal/remnant when residual adenoid tissue (>20%) was found above the level of eustachian tube.

RESULTS

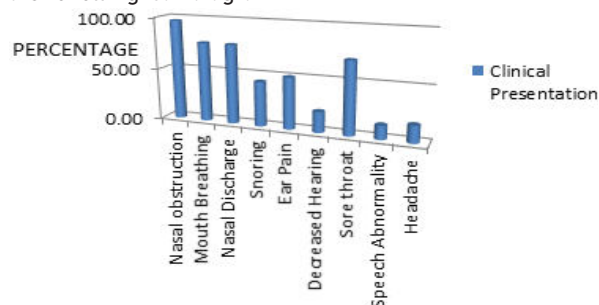
The mean age in our study was 8.5 yrs in female and 9.2 yrs in male patients and 8.9 years in combination. In this study, there is slight female predominance with a ratio of 1.3:1 (female:male) comprising 43.33% male and 56.67% female patients. Age group distribution shown in the following pie chart:

Age-Group Distribution



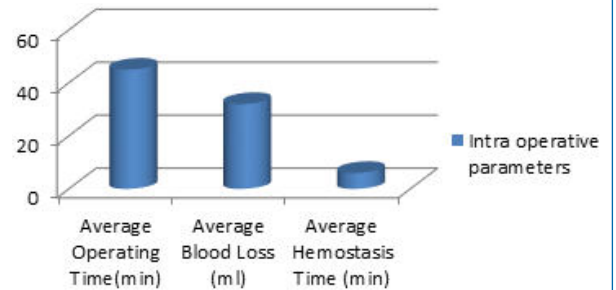
Pie Chart 1- Showing percentage of age group distribution of patients

The results of clinical features of the patients tabulated in the following bar diagram:



Bar Diagram 1- Showing percentage of clinical presentation of patients

All 30 patients with adenoid hypertrophy underwent adenoidectomy under endoscopic guidance assisted by microdebrider. Out of which, 10% underwent adenoidectomy alone, 70% with chronic tonsillitis underwent tonsillectomy along with adenoidectomy and 20% with serous otitis media underwent myringotomy with or without grommet in addition to adenoidectomy. The results of intra-operative parameters shown below:

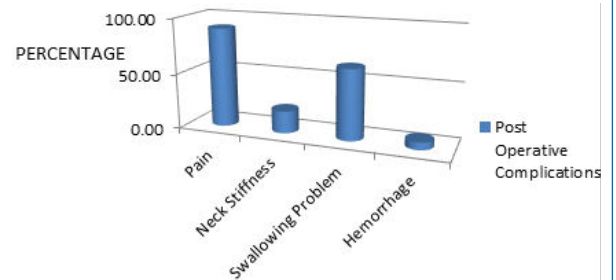


Bar Diagram 2-Showing Intra-Operative Parameters

Depending on extent of resection, 83.33% had excellent extent of resection and 16.67% had good resection. All the 30 cases had adequate plane of tissue dissection.

Adenoidectomy when performed under endoscopic guidance microdebrider assisted, 2 patients had injury to collateral structure, 1 had injury to incisor teeth and other had injury to uvula. Both the patients were managed conservatively.

Post-operative complications shown below in following diagram:



Bar Diagram 3- Showing post-operative complications

On follow-up, 83.33% had complete removal of adenoid tissue, while 16.67% had minimal residual adenoid tissue found in nasopharynx. All such cases were continued with intranasal steroid for 3 months and reviewed thereafter. All the patients were enquired of symptomatic relief and found to be relieved in all 30 patients.

DISCUSSION

In the present study, the highest incidence of adenoid hypertrophy in both male and female was seen in the age group of 7-10 years. Somani SS et al.⁵ also reported 7-15 years age group as most commonly affected group.

The mean age in our study was 8.9 years (8.5 yrs in female and 9.2 yrs in male). Datta R et al.⁷ reported 9.2 years mean age undergoing endoscopic powered adenoidectomy in their study.

In this study, there is slight female predominance with a ratio of 1.3:1 (female:male) comprising 43.33% male and 56.67% female patients. Similar results were also reported by Amr El Badrawy and Mosaad Abdel-Aziz in their study.⁸

In the present study, 16.67% were overweight and 6.67% were obese. Kang et al.⁹ found a positive relation between adenoid size and obstructive sleep apnoea in obese children.

In our study, about 96.67% presented with nasal obstruction as chief complaint, 76.67% had mouth breathing and nasal discharge with nasal obstruction. Anand V et al.¹⁰ also reported 100% incidence of nasal obstruction in their study participants, followed by nasal discharge in 75% cases.

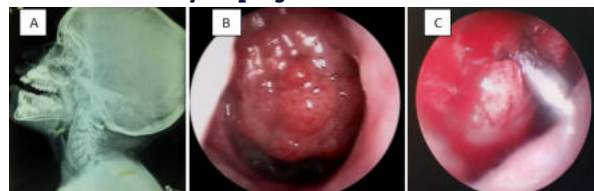
In our study, average operating time of adenoidectomy was 45 minutes, average blood loss was 32 ml and average hemostasis time was 6 minutes. Saifulla M et al.¹¹ noted an average operating time of 34.10 minutes and average blood loss of 29.57 ml in endoscopic adenoidectomy.

83.33% had excellent extent of resection in our study and 16.67% had good resection, 20% patients complained of neck stiffness and 63.33% with neck pain post-operatively. Hussein IA et al.¹² also reported complete resection and minor associated trauma in 25 % cases undergoing endoscopic adenoidectomy. Patient's recovery was found to be of average duration of 3 days for those undergoing adenoidectomy in our study, which is consistent with report of study by Datta R et al.⁸

CONCLUSION

Average operating time and blood loss, completeness and depth of resection were satisfactory due to direct vision with the endoscope and camera. Associated trauma to surrounding structures was also minimal. Post-operative complications on long-term were absent on follow-up and recovery time was also faster. Thus, endoscopic guided microdebrider assisted adenoidectomy is a safe, effective and satisfactory procedure for accurate removal of hypertrophied adenoid cases, whether done alone or in conjunction with any associated procedure, provided with few limitations like expensive equipment with replacement cost of blades.

Figure 1: A- Xray Soft Tissue Nasopharynx lateral view showing Adenoid hypertrophy. B- Endoscopic picture of nasopharynx showing grade 3 adenoid hypertrophy. C- Adenoidectomy in progress.



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