

HANDS ON TONSILLECTOMY BY FIRST YEAR RESIDENTS - A RETROSPECTIVE STUDY

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ABSTRACT:

Tonsillectomy is the most common surgery performed by an ENT surgeon. So far no study has been conducted to assess the surgical skill of the budding ENT surgeons worldwide. Here is an attempt to compare the surgical skills of first year ENT residents of Sri Ramachandra Medical College and Research Institute. The surgical competencies were compared between two groups – independent group and assisted group. The various parameters analysed included surgical skills such as duration of operation,

intra operative bleeding, plane of dissection, preservation of faucial pillars, loss of teeth/injury to lips , usage of diathermy and post operative complications like postoperative pain/oedema, reactionary and secondary hemorrhage and prolonged duration of healing. Study revealed that before performing tonsillectomies first year resident should observe and assist a good number of cases to minimize the morbidity of patients.

Key Words: *Independent tonsillectomy, assisted tonsillectomy, reactionary and secondary bleeding.*

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INTRODUCTION:

Tonsillectomy is the most common operation performed by an otolaryngologist. The first known tonsillectomy was performed by Cornelius Celsus almost 2,000 years ago. He enucleated the tonsil with his fingernails and then suggested that the 'fossae should be washed with a vinegar and painted with a medication to reduce bleeding'¹. A study conducted by Bond et al in UK reveals that sore throats cost the NHS an estimated £60 million in GP (General practitioner) consultations alone, result in 90,000 tonsillectomy procedures, approximately half of which are in children, and a loss of more than 35 million school or work days annually. The incidence of tonsillectomy has risen since the early 1990's, although levels are still much lower than in the 1930's, when 100,000 operations were performed in school children²

Review of literature revealed information mainly on the indications for tonsillectomy, role of tonsillectomy in recurrent tonsillitis, surgical techniques and complications^{3,4,5}. However, to the best of our knowledge, there were no studies in the past made to assess the surgical skills of residents newly enrolled in the otolaryngology training programme. This type of study could highlight their deficiency in surgical skills and techniques which needs correction and improvement. Over the years the technique of tonsillectomy has undergone a sea change from the crude methods to the highly acclaimed laser assisted operations. This was a study done to evaluate the competency of a 1st year resident for performing

tonsillectomies independently versus surgeries done with assistance.

MATERIALS AND METHODS:

This was a retrospective study done on 72 tonsillectomies performed by 1st year residents between April 2007 to December 2007. The duration of study has been decided as nine months assuming that by this given time period first year resident will be competent enough to perform tonsillectomies independently. A comparison of the surgical outcome in the first month and the last month of our study in independent group is also been included for further references. Fifty-five cases were performed independently (under supervision) and 17 were assisted.

The surgical competencies were compared between two groups – independent group and assisted group.

SELECTION CRITERIA:

Independent group consisted of supervised tonsillectomies. In this group tonsillectomy was performed by first year resident in ENT (Ear, nose and throat) who was allowed to operate independently under close supervision (immediate surgical assistance available if required), only after observing five cases and assisting five cases.

Assisted group consisted of assisted tonsillectomies. In this group with the assistance of a consultant, tonsillectomy was performed by a first year resident after observing 5 cases and assisting another 5 cases. At any point of time if the resident is seeking for hands on assistance in performing surgery, that case also will automatically fall in to assisted group.

Cases for tonsillectomy were selected based on established clinical criteria, counseling and a complete

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preoperative work up. The cases included in our study were all performed in service operation theatre of Sri Ramachandra Medical College and Research Institute, done only by first year residents and with no previous experience in performing tonsillectomies.

The various parameters analysed included surgical skills such as duration of operation, intra operative bleeding, plane of dissection, preservation of faucial pillars and loss of teeth/injury to lips. Other parameters assessed included assistance required to complete procedure, usage of diathermy and post operative complications like postoperative pain/oedema, reactionary and secondary hemorrhage and prolonged duration of healing.

ENLARGED PALATINE TONSILS



RESULTS:

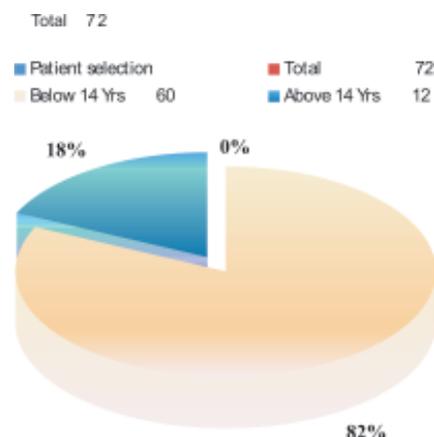
The cases were predominantly in pediatric age group (Graph 1). Results of all the parameters analysed are shown in (Table 1). Duration of operation which was less than an hour in assisted tonsillectomies as compared to 1.2 hours on an average in independent tonsillectomies. Intra operative bleeding was the next parameter which was assessed. Assessment of bleeding was done by measuring the blood collected in the suction apparatus during the procedure. In the assisted group, it was found to be less than 50 ml. In assisted tonsillectomies the level of dissection was always in the right plane (between the capsule and loose areolar tissue). Assessment of pain was done by monitoring how fast the post operative patients returned to their normal swallowing as pain and difficulty in swallowing are constant complaints of post tonsillectomy patients and it is found that patients recover fast in assisted group as compared to independent group. Various intra-operative complications encountered during the surgery were seen mostly in surgeries performed independently (Graph 2). A comparison between the first and last month of independent tonsillectomies are also shown here (table 2) which clearly shows the improvement in surgical skills of first year residents with evolving time.

Table 1: Surgical skills and post-operative complications assessed

Patient selection	Independent group	Assisted group
Duration of procedure (mean)	> 1 hour	< 1 hour
Intra op bleeding	> 50 ml	< 50 ml
Plane of dissection in 1 st attempt	80%	98%
Preservation of pillars (both)	62%	90%
Incomplete removal	12%	2%
Assistance required	18%	0
Post op pain / oedema	More	Less
Reactionary and secondary bleeding	14%	5%
Prolonged healing > 2 weeks	5%	2%
Diathermy usage	7%	1%
Loss of teeth/ injury of lips	3%	1%

The numbers expressed are the % of total number of patients taken for study (tonsillectomy).

Graph 1: Age wise distribution of tonsillectomies performed



Graph 2: Comparison of intra-operative complications between case and control groups

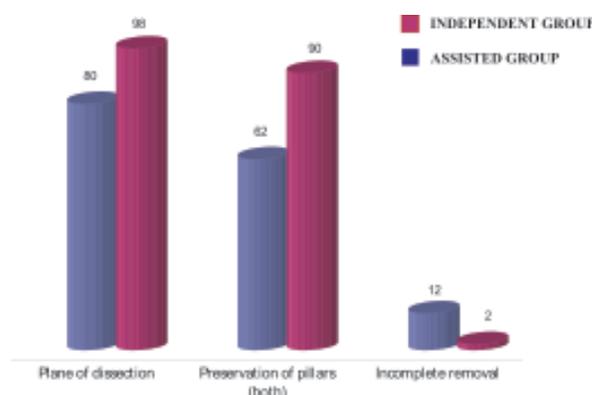


Table 2: Comparison of tonsillectomies done in independent group in the first and last month of study.

Month	April	December
Total number of tonsillectomies	11	12
Duration of procedure (mean)	1.2 hours	45 minutes
Intra op bleeding	> 75 ml	< 30 ml
Plane of dissection in 1 st attempt	4	11
Preservation of pillars (both)	7	12
Incomplete removal	3	0
Post op pain / oedema	10	7
Reactionary and secondary bleeding	9	3
Prolonged healing > 2 weeks	2	0
Diathermy usage	7	1
Loss of teeth/ injury of lips	3	0

DISCUSSION:

Most of the tonsillectomies are done in pediatric age group⁶. Similar age distribution pattern was found in our study as majority (83.3%) of patients were below 14 years of age) as chronic tonsillitis are frequently encountered in pediatric age group. During the initial few months of the study most of tonsillectomies were done under assisted group as we almost always needed assistance. Later, as the confidence level of the resident went up the number of tonsillectomies done under independent group has also come up. By the end of the study there were no assisted tonsillectomies performed which indicates significant improvement in the competency of the first year residents in performing tonsillectomies.

Duration of surgery was less in assisted tonsillectomies as compared to all independent tonsillectomies which needed more than one hour for completion. Reason for prolonged duration of surgery in independent tonsillectomies could be attributed to various reasons such as extra time taken for adjusting head light, positioning of patient and getting synchronized with instruments.

Intra operative complications, tissue damage and incomplete removal of tonsils were found to be much more in independent tonsillectomies. As a result of dissecting in an inappropriate plane, bleeding was more and excessive bleeding which obscured proper visualization of bleeders. This resulted in proceeding blindly which caused more tissue damage. Due to failure to visualize the operating field one may remove anterior pillar or posterior pillar or both along with tonsils. Preservation of faucial pillars needs to be taken care because their removal

may lead to difficulty in swallowing and also in delayed healing causing prolonged post-operative pain. Post operative complications such as pain and oedema of uvula were seen much less in assisted tonsillectomies highlighting the need of experienced hands. Some times one might leave behind part of tonsil which will result in incomplete removal, a cause for recurrence⁷. Incidence of reactionary hemorrhage and secondary bleeding was more in independent tonsillectomies as compared to assisted ones. The number of times diathermy was used to achieve complete homeostasis was also very less in assisted tonsillectomies, a skill gained with experience⁸. Even though injury to the lip and teeth were very rare in it was noticed more in independent tonsillectomies. Healing was much faster in assisted as compared to independent tonsillectomies, this could be due to minimal tissue injury in assisted surgeries.

It is mandatory for a first year resident to observe the various steps of surgery before he starts assisting cases⁹. This is necessary because it is only after few surgeries that one will acquire the correct technique of dissection along with eye and hand coordination and also learn lessons of giving tissue respect¹⁰. To reduce the overall intra operative and postoperative complications it is advisable that the resident witness more than 10 cases before assisting the surgeon and the number of assisted surgery to be increased from 5 to 10 before performing independent tonsillectomy.

CONCLUSIONS:

To conclude a first year resident of ENT department can perform tonsillectomy independently (under supervision) only after observing and assisting a good number of cases.

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