# Tonsillectomy and nasal surgery: integrated or separated

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**Back ground and objectives:** ***Tonsillectomy is the most common surgical procedure in specialty of otorhinolaryngology. Tonsillar pathology may be associated with nasal problems which indicate the nasal surgical intervention. There are two opinions , one is preferred the nasal surgery first and then after 3-6 months the tonsillectomy can be done , while the other claimed that the both surgical procedures can be done at same time safely without any increasing in the risk of postoperative complications .***

***Therefore this study was conducted prospectively to confirm that there is no significant difference regarding the incidence of the postoperative complication and the period of hospitalization if the tonsillectomy was performed in combination with nasal surgeries as compared to the tonsillectomy surgery alone.***

**Patients and methods:** ***35 patients aged 21-40 years presented at ENT department – Althowra central hospital – Albedya – libya with chronic tonsillitis associated with nasal problems namely deviated nasal septum and hypertrophied inferior turbinates, which was either the main predisposing factor of the chronic tonsillitis or just co-existing problem, who underwent tonsillectomy, in combination with nasal surgery either in form of septoplasty or turbinate surgery as group – A, and was compared to group –B which included 50 patients of same age group who were operated by tonsillectomy only , and in both groups the sampling was by simple random distribution. The both groups compared in relation to operative time consumption, intra operative bleeding, postoperative dysphagia and odynophagia, postoperative oral intake, vomiting tendency, referred otalgia, fever, otitis media, septicemia, airway obstruction; the period of postoperative hospitalization and healing process.***

**Results:** ***80% of patients of group –A showed non-significant intra operative and postoperative bleeding, non-significant dysphagia, odynophagia, referred otalgia, fever, and vomiting tendency as compared to group –B with percentage of 82% who showed same results. 96% of patients of group-A stayed less than 24 hours postoperatively in hospital as compared to group-B in which 98% stayed same period in the hospital after surgery. Regarding otitis media, airway obstruction and septicemia, in the both groups no cases were registered. The local throat healing process after both procedures completed by one week.***

**Conclusion:** ***Generally speaking combined tonsillectomy and nasal surgical procedures, technically appear, safe, and effective, with low economic values and less risk of anesthesia exposure as compared to the other opinion where the patient will go tonsillectomy and after 3-6 months will be operated for the nose which create higher risk of handicapping and complications of the anesthesia and in the same time has higher economic values.***

**Keywords:** ***Synchronous tonsillectomy and nasal surgery, integrated tonsillectomy and nasal surgery.***

## INTRODUCTION

Tonsillectomy is the most common surgical procedure in the specialty of otorhinolaryngology.[1,2] General otorhinlaryngologists commonly evaluate patients with concomitant oropharyngeal and nasal complaints .sometimes the chief concerns are distinct in the case of recurrent tonsillitis and nasal obstruction, whereas other times they are related, as in cases of obstructive sleep apnea when the obstruction is present at multiple levels.[3]

One of the hotly debated topics is whether oropharyngeal and nasal surgery should be staged or performed in a synchronous manner. Supporters of synchronous surgery cite a decreased number of procedures under general anesthesia, shorter hospital stays, lower cost, and shorter postoperative recovery time, whereas their adversaries cite increased morbidity, specifically pain, post-tonsillectomy hemorrhage, and oxygen desaturation.[4-6] The increased morbidity, presumably secondary to nasal packing, often mandates admission to the critical care unit or a monitored ward with continuous pulse oximetry.[4-6]

In 2003, a retrospective review compared 71 patients who underwent synchronous tonsil and nasal surgery with 398 patients who underwent tonsillectomy alone. This study demonstrated a significant increase in post-tonsillectomy hemorrhage with synchronous surgery.[7] To our knowledge, this is the only study that has looked at the rate of post-tonsillectomy hemorrhage with synchronous nasal surgery. Because this sample size is small, the results may have shown a statistical difference when in fact there was none.

On the other hand Mary, etal in 2009 stated that there is no difference in postoperative hemorrhage when combining tonsillectomy or uvulopalatopharyngoplasty with tonsillectomy (UPPPT) with synchronous nasal surgery.[8]

To formally address this variable with a larger sample size, they performed a retrospective review of all patients who underwent tonsillectomy or UPPPT and synchronous nasal surgery at Madigan Army Medical Center during a 5-year period.[8]

***The specific aims of the study were:***

a) To assess the effect of combined tonsillectomy with nasal surgery namely septoplasty and turbinate surgery on the incidence of the postoperative nociceptive effect and the sequel of this effect.

b) To compare the tonsillectomy alone and synchronous nasal surgery with tonsillectomy regarding development of postoperative complications namely pain, dehydration, hemorrhage, upper air way obstruction, otitis media, septicemia, postoperative hospitalization, process of healing and metabolic disturbances.

## PATIENTS AND METHODS

35 patients aged 21-40 years presented at ENT department –Althowra central hospital – Albedya – libya with chronic tonsillitis associated with nasal problems namely deviated nasal septum and hypertrophied inferior turbinates, which was either the main predisposing factor of the chronic tonsillitis or just co-existing problem, who underwent tonsillectomy, in combination with nasal surgery either in form of septoplasty or turbinate surgery as group –A, and was compared to group –B which included 50 patients of same age group who were operated by tonsillectomy only , and in both groups the sampling was by simple random distribution. The both groups compared in relation to operative time consumption, intra operative bleeding, postoperative dysphagia and odynophagia, postoperative oral intake, vomiting tendency, referred otalgia, fever, otitis media, septicemia, airway obstruction; the period of postoperative hospitalization and healing process. An informed consent was taken from the patients involved in the research prior to their participation.

Data were expressed by using descriptive analysis as means + standard error of mean (s. e. m) and percentages, test of significance was curried out, using Chi-squar test and two way analysis of variance. A probability less than 0.05 was considered as significant, the degree of significance was determined by using level of standard deviation test. Student -t- test was used for dependent sample, as well as contingency coefficient was calculated as measurement of association between nominal variables.

## RESULTS

Table I postulated the demographic presentation of the patients included in this study. Table II showed different varieties of nasal disorders associated with chronic tonsillitis. The results presented in the Tables III and IV showed non-significant difference in postoperative throat pain and otalgia at both groups ($P > 0.5$). Therefore the amount of ingested fluids was non- significantly changeable by performing tonsillectomy alone as compared to other group ($P > 0.5$).In addition Table V demonstrated non-significant difference in vomiting tendency by performance of both techniques ($P > 0.5$).On the other hand Table VI illustrated non- significant difference in the risk of bleeding after tonsillectomy by comparison to other techniques where tonsillectomy was done in combination with nasal surgery ($P > 0.5$). Table VII presented the period of hospitalization which was non- significantly different by comparison of both groups ($P >0.5$). It was less than 24 hours after tonsillectomy alone as well as the combined surgeries. In fact there were no any recorded complications in form of otitis media, upper air way obstruction, and septicemia in this presenting study.

**Table I. Demographic factors distribution namely age and sex.**

| Demographic factor | Age | | Sex | |
|---|---|---|---|---|
| | 21-35 | >35-40 | M | F |
| No. | 51 | 34 | 68 | 17 |
| Percent | 60 | 40 | 80 | 20 |

**Table II. Type of the associated nasal pathology with chronic tonsillitis.**

| Type of the nasal pathology | NO. | % |
|---|---|---|
| Chronic hypertrophied inferior turbinates | 23 | 66 |
| Deviated nasal septum | 12 | 34 |

**Table III. Relationship between type of procedure and postoperative throat pain (P > 0.5).**

| | Type of procedure | | | | Total |
|---|---|---|---|---|---|
| | Tonsillectomy alone | | Combined | | |
| | N | Percentage % | N | Percentage % | |
| Have no pain | 40 | 080 | 28 | 082 | 68 |
| Have pain | 10 | 020 | 7 | 018 | 17 |
| Total | 50 | 100 | 35 | 100 | 85 |

**Table IV. Relationship between type of procedure and postoperative otalgia (P > 0.5).**

| | Type of procedure | | | | Total |
|---|---|---|---|---|---|
| | Tonsillectomy alone | | Combined | | |
| | N | Percentage % | N | Percentage % | |
| Have no pain | 36 | 073.3 | 25 | 072 | 61 |
| Have pain | 14 | 026.7 | 10 | 028 | 24 |
| Total | 50 | 100.0 | 35 | 100 | 85 |

**Table V. Relationship between type of procedure and postoperative vomiting tendency (P > 0.5).**

| | Type of procedure | | | | Total |
|---|---|---|---|---|---|
| | Tonsillectomy alone | | Combined | | |
| | N | Percentage % | N | Percentage % | |
| **No** | 43 | 086.7 | 29 | 085 | 72 |
| **Yes** | 7 | 013.3 | 06 | 015 | 13 |
| **Total** | 50 | 100.0 | 35 | 100 | 85 |

**Table VI. Relationship between type of procedure and bleeding incidence (P > 0.5).**

| | Type of procedure | | | | Total |
|---|---|---|---|---|---|
| | Tonsillectomy alone | | Combined | | |
| | N | Percentage % | N | Percentage % | |
| **No** | 46 | 093.3 | 32 | 094 | 78 |
| **Yes** | 04 | 006.7 | 03 | 006 | 07 |
| **Total** | 50 | 100.0 | 35 | 100 | 85 |

**Table VII. Relationship between type of procedure and period of hospitalization (P > 0.5).**

| | Type of procedure | | | | Total |
|---|---|---|---|---|---|
| | Tonsillectomy alone | | Combined | | |
| | N | Percentage % | N | Percentage % | |
| **<24 hours** | 50 | 100 | 33 | 094.2 | 83 |
| **> 24 hours** | 00 | 000 | 02 | 005.8 | 02 |
| **Total** | 50 | 100.0 | 35 | 100 | 85 |

## DISCUSSION

Oropharyngeal surgical procedures are the most common surgical procedures in the specialty of otorhinolaryngology.[1,2] Postoperative pain is significant problem that continues to be untreated in the pediatric as well as adult population.[1,2,9,10] This leads to the inability to tolerate oral intake and unplanned hospitalization.

Although as it is well-known that the demographic factors are considered as one of important variables which affect the pain tolerance, (i.e.) the younger age groups are able to accommodate throat pain as compared to older ages. This can be explained by three facts, the first is that the younger ages are physiologically provided by less sensitive sensory nervous system which will develop further by going of age to reach the maximum sensitivity

at adult age group and then return to decrease in its sensitivity due to normal degenerative aging process. The second is that the immune system at younger ages is more active than those of older age group therefore the healing process among younger ages is faster. The third is that the dissection of the tonsils is more difficult at older ages as compared to younger patients because of extensive fibrosis this will increase incidence of postoperative pain as well as bleeding.[1,2,9,10] On the other hand the males have more tolerance to the pain as compared to females. Thus from the previous concepts if they are used to discuss the results of our study, we can conclude to that the most of the cases which conducted at our study were of young ages (less than 35 years) and in same time the most of them are males. This can explain the high tolerance of patients in this study to combined tonsillectomy and nasal surgery at same session.

Prostaglandins contribute to pain and inflammation after tissue injuries, resulting in local free nerve endings stimulation and upper air way inflammatory reactive oedema[1,10] and the anti-nociceptive action of (NSAID) is attributed usually to the peripheral inhibition of prostaglandin synthesis.[1,2,11-13]

The pain intensity will affect the swallowing ability and therefore will affect the amount of oral liquid intake, the local healing process, and thus, the incidence of postoperative complications as dehydration, septicemia and otitis media. This will affect the time of hospitalization.[1,2,9,10]
On the other hand, the vomiting tendency can be correlated with the pain intensity, that the pain severity is directly proportionate to the induction of vomiting tendency. This can be explained by the relationship between the pain and vaso-vagal attack, (i.e.) the pain is an important inducing factor of vaso-vagal attack, thus will induce vomiting.[3-6,14] This may explain the non-significant difference of vomiting tendency after tonsillectomy alone as compared to synchronous procedures.

In our study, the pain problem at both procedures was over came by using of potent systemic NSAID which acting by inhabitation of cycloxygenase enzyme which responsible for prostaglandin synthesis and therefore the risk of all subsequent pain complications will be reduced.[9,10] Our anecdotal experience has not shown an increase in postoperative pain or postoperative recovery time for synchronous nasal surgery , and this was in accordance with Marry , etal study in 2009 and in contrary with other study by Murray , etal in 2003.

By the same explanation, once there is tissue damage, this will result in increased bleeding tendency, and local upper air way edema .In our study the proper postoperative administration of systemic antibiotics as well as the systemic steroids was playing important rule in reduction of incidence of postoperative hemorrhage and edema .In addition to the proper control of the bleeding intra-operatively either by pack pressure or bleeder ligation or cauterization of tinny oozes also is constituting important contributing factor for the postoperative bleeding limitations.[15-17] Our data failed to demonstrate any significant difference in the postoperative hemorrhage rate of patients who undergo synchronous nasal surgery. In fact, our hemorrhage rate was lower with synchronous nasal surgery. These results were in agreement with Marry etal, study and against the Murray etal, study. This can be explained by induction of the pharyngitis and local infection and thus further exposure of mucosa and blood vessels as sequel of oral cavity dryness due to application of nasal packs and mouth breathing therefore this will increase risk of postoperative pain and hemorrhage. In Marry study this overcame by application of Doyle splints which allow nasal breathing.[7,8] In our study this managed by remove of nasal packs as soon as much as possible i:e time of nasal packs insertion not exceed 24 hours in the same time potent analgesics will reduce the pain and enhance the swallowing and subsequently the dehydration controlled, this will reduce risk of local infection and edema.

Finally Further studies need to be conducted to assess morbidity and patient satisfaction after concomitant nasal and pharyngeal surgery versus pharyngeal surgery alone. On the basis of these findings, we believe that a concern for post-tonsillectomy hemorrhage should not be a deterrent to the performance of synchronous procedures.

## REFERENCES

1. Bofares KM, Salem AM. Comparative study of indomethacin and paracetamol for treatment of pain after adeno-tonsillectomy in children. GMJ. 2006;2:41-7.

2. Bofares KM. Laser oropharyngeal surgeries versus non- laser oropharyngeal surgical procedures. JMJ. 2009;5:327-33.

3. Roy A, Deal Rosa C. Veechio TA Bleeding following tonsillectomy, a study of electro – coagulation and ligation techniques. Arch otolaryngol. 1996;102:9-10.

4. Windfuhr JP, Chen YS. Post-tonsillectomy and -adenoidectomy hemorrhage innonselected patients. Ann Otol Rhinol Laryngol. 2003;112:63-70.

5. M. Hasham, F. Mahmmoud. evulation of Co2 laser platoplasty in snoring due to palatal flutter . Msc – degree thesis Alexandria University. 1997.

6. Nunes DA, Provan J, Crawford M. Postoperative tonsillectomy pain in pediatric patients. Arch otolaryng Head and Neck Surg. 2000;126:837-41.

7. Murray DP, El-Hakim H, Ahsan F, Nunez DA. Does synchronous nasal surgery increase the risk of post-operative hemorrhage in adult patients undergoing tonsillectomy? J Laryngol Otol. 2003;117:707-9.

8. Mary T A, Michael J, Sean M, Wayne J. Effects of Synchronous Nasal Surgery on Posttonsillectomy Hemorrhage. arch otolaryngol Head Ncck Surg. 2009;135:936.

9. Bear GA, Roaius HG, Koleh Ms. The effect of paracetamol or diclofenac administered before operation on postoperative pain behavior after adenoidectomy in small children. Anaesthesia. 1997;47:1078-80.

10. Arthur CG, John E H. Somatic sensation: II. Pain, headache, and tenth edition, Harcourt health sciences. 2000:554-556.

11. Tawalbeh MI. Comparative study of diclofenac sodium and paracetamol for treatment of pain after adeno-tonsillectomy in children. Saudi Medical Journal 2001;22:121-3.

12. Gary AT, Kevin TP, Central Nervous system: In: Anatomy and physiology fourth edition, Mosby and imprint of Elsevier science. 1999:384.

13. Colbert SA, Mc Crory C, Hanlon Dm, Scully M, Tanner A, Doyle MA. Prospective study comparing intravenous tenoxicam with rectal diclofenac for pain relief in day case surgery. Eur J. Ana Sthesiol. 1998;15:544-8.

14. Wei JL, Beatty CW, Gustafson RO. Evaluation of post-tonsillectomy hemorrhage and risk factors. Otolaryngol Head Neck Surg. 2000;123:229-35.

15. Randall DA and Hoffer MF. Complications of tonsillectomy and adenoidectomy. Otolaryngol Head and Neck Surg. 1998;118:61-8.

16. Clark MP, Waddell A. The surgical arrest of post-tonsillectomy haemorrhage: hospital episode statistics. Ann R Coll Surg Engl. 2004;86:411-12.

17. Krishna P, Lee D. Post-tonsillectomy bleeding: a meta-analysis. Laryngoscope. 2001;111:1358-61.