

Coblation Tonsillectomy versus Conventional tonsillectomy a Study from Tertiary Health care unit

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Abstract

Introduction: The traditional methods of tonsillectomy are cold steel techniques metal instruments are used. A study was conducted to compare different parameters of conventional tonsillectomy (COVT) and total subcapsular coblation tonsillectomy (COBT).

Materials and Methods: This was a prospective study, conducted in KIMS, Amalapuram. Chronic tonsillitis patients aged > 5yrs were included in this research. Acute tonsillitis, with bleeding disorders and <5 years were excluded. Routine blood investigations, viral markers, chest radio graph and ECG were carried. The patient was put on general anaesthesia, randomly divided for COVT and COBT. Parameters such as operative time, intra operative complications, intra operative blood loss, post operative complications were compared among the groups. To find the significant difference between the bivariate samples in independent groups, unpaired sample T test was used and chi square test for the categorical data. P < 0.05 was considered to be statistically significant.

Results: Total 50 (100%) members were recruited; 50% each group. Majority (54%) were in <10 years group, male female ratio was 1.08. Statistically there was significant difference in the mean operative time, recovery time, postoperative pain, the mean intra operative blood loss and the mean recovery period.

Conclusions: COBT technique has several advantages such as less operative time, intraoperative blood loss, short duration to attend work as well as job.

Keywords: Coblation, Post-operative, Tonsillectomy

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Background

Tonsillitis is the most common clinical condition in paediatric age group [1]. Tonsillectomy is the common procedure practised in otorhinolaryngology. Primary hemorrhage, postoperative pain and secondary hemorrhage are the

important complications of tonsillectomy [2,3].

The traditional methods of tonsillectomy are cold steel techniques metal instruments are used. Several other techniques such as dissection method, bipolar method,

cryosurgery, coblation, harmonic scalpel, radiofrequency, laser method and so on being used [3] Dissection technique is routinely followed. Reduced bleeding, reduced pain, rapid healing and ease of surgical technique are the advantages of these techniques.

Coblation is a relatively newer technique. This technique utilizes the radio frequency bipolar electrical current [4] With this entire tonsil is removed named as total subcapsular tonsillectomy or some tonsil tissue is left behind, subtotal intracapsular tonsillectomy. With this a study was conducted to compare different parameters of conventional tonsillectomy (COVT) and total subcapsular coblation tonsillectomy (COBT).

Materials and Methods

This was a prospective study, conducted in the department of Otorhinolaryngology, KIMS, Amalapuram. Study was conducted from April to September 2019. Study protocol was cleared by the Institutional ethics committee. Informed consent was taken from all the participants.

Chronic tonsillitis patients aged > 5yrs were included in this research. Acute tonsillitis, with bleeding disorders and aged below 5 years were excluded from this research. After recruiting the study participant, detailed history was taken, recorded and clinical examination was carried. The routine blood investigations, viral markers, chest radio graph and ECG were carried. The patient was put on general anaesthesia. Randomly, the participants were divided to coblation tonsillectomy and conventional tonsillectomy.

Parameters such as operative time, intra operative complications, intra operative blood loss, post operative complications were compared among the groups. The duration of the technique was calculated from the time the Boyle Davis mouth gag was inserted until the time adequate hemostasis was achieved. In the post-operative complications, reactionary

hemorrhage occurs within the first 24 hrs after Surgery and secondary hemorrhage occurs after 24 hrs after surgery upto 7 days were considered.

Post operative pain on day 1, 2 and 7 was compared between the groups using visual analog scale (VAS) [5] The VAS score on the day of surgery was taken into consideration. Recovery time was calculated as the time taken for the normal activity. This was calculated as the number of days the participant used an analgesic to subside postoperative pain and he or she was declared to be recovered when there was no requirement of analgesia.

Statistical Analysis

The data were analysed using SPSS version 23.0. Percentage analysis were used for categorical variables and mean, SD for continuous variables. To find the significant difference between the bivariate samples in independent groups, unpaired sample T test was used and chi square test for the categorical data. $P < 0.05$ was considered to be statistically significant.

Results

Total 50 (100%) members were recruited in this research; 25 (50%) members in each group respectively. Age wise majority (54%; 27) were in <10 years group and male female ratio was 1.08. The mean intra operative blood loss was 43.20 ml and 91.80 ml, respectively in COBT and COVT groups; statistically the difference was significant. The mean operative timings were 26.40 ± 5.02 and 53.88 ± 11.78 , respectively for the groups; statistically there was significant difference. The recovery time was less in COBT, statistically the difference was significant.

Between the groups, statistically the difference was significant in postoperative pain on day 1, 2 and 7, respectively (Table 2). In COBT group, the mean recovery period was 2.48 days and it was 4.12 days

in COVT group; statistically the difference was significant.

Table 1: Comparison of different mean parameters between the groups; n (%)

Operative timings in mnts	26.40±5.02	53.88±11.78	t = 10.674; P = 0.00005
Intra operative blood loss in ml	43.20	91.80	t = 5.882; P = 0.0032
Return to normal activity in days	2.48±0.51	4.12±1.05	P = 0.0005

Table 2: Comparison of the postoperative pain between the groups

Pain score on	Group	Mean	SD	Statistical analysis
Day 1	COBT	5.12	0.726	t value = 6.632; P = 0.00005
	COVT	6.68	0.988	
Day 2	COBT	3.92	0.759	t value = 4.126; P = 0.00005
	COVT	4.88	0.881	
Day 7	COBT	1.28	0.792	t value = 4.466; P = 0.00005
	COVT	2.28	0.792	

Discussion

Tonsillectomy is usually the first surgical procedure among the paediatric age group [6] recurrent throat infection and obstructive sleep-disordered breathing [7] are reported to be the major causes for tonsillectomy. Throat pain, post operative nausea, vomiting, bleeding and so on are the major limitations of tonsillectomy [8,9] In spite of the availability of different techniques, conventional dissection is the gold standard technique [10].

Age wise, 54% (27) were < 10 years age group followed by 34% (17) between 11 – 20 years and 12% (6) in >20 years group; the mean of the study participants in this research was 12 and 13 years, respectively. The mean age was reported to be 10.05 and 9.65 years, respectively, in a study by Sood AS *et al* [11]. The mean age for tonsillectomy was reported to be 8.9 years by Matula T *et al* [12] 8.3 years by Inja RR *et al* [13]. In this research, 48% were female participants and the male female ratio was 26:24. In COBT group, 60% (15) were male participants and it was 44% (11) in COVT group; gender wise statistically there was no significant difference (P = 0.396). In Ton 4 *et al*. report, 65% (20) were male and 35% (11)

were female participants. The mean time required for return to normal activity was 2.48±0.51 days with COBT whereas it was 4.12±1.05 days with COVT; statistically there was significant difference. Return to normal activity is the time period required for job or work. As per the literature, COVT is time consuming [14]. The mean (SD) timings were 26.4 (5.02) and 53.88 (11.78), respectively for COBT and COVT techniques; statistically there was significant difference (P <0.05). As per this, COBT technique is significantly time saving. Mostafa *et al*. also reported that the operative time is 3 times less with COBT technique [10].

The mean intra operative blood loss was 43.20 ml and 91.80 ml, respectively in COBT and COVT groups; statistically the difference was significant. Some researchers also reported no difference between the two techniques regarding intraoperative blood loss [15,16]. Temple and Timms also reported that the average intra operative blood loss was less in COBT technique [17].

In general, when the overall post operative pain was compared, the mean pain was less in COBT, respectively on day 1, 2 and

3; statistically there was significant difference. With this it is clear that there is less post operative pain in COBT technique. Mitic *et al.* also reported that there was less pain score in COBT technique [18]. Investigators also reported that there was no significant differences in post operative pain score [19,20].

Conclusions

COBT technique has several advantages over COVT such as less operative time, less intraoperative blood loss, short duration to attend work as well as job.

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