

Original Research Article

Coblation tonsillectomy: our experience as a day care procedure

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ABSTRACT

Background: A prospective study to cite our experience in adult and pediatric patients undergoing coblation tonsillectomy. We emphasised on the intra operative and post operative morbidity in coblation tonsillectomy and its feasibility as a day care procedure.

Methods: It is a prospective study done on both paediatric and adult cases presenting to our tertiary care centre between January 2018 to February 2020. Study was done to analyse operating time, intraoperative blood loss, post-operative pain, post-operative haemorrhage and post-operative return to home and normal diet.

Results: 114 cases were selected where bilateral tonsillectomy was performed using Coblation technique. 83 were adult patients and 31 paediatric. 56 were females and 58 males. 1 case presented with secondary haemorrhage, none with primary haemorrhage. No other complications were noted.

Conclusions: Coblation tonsillectomy yielded good results in reference to patient morbidity and low complication rate. It turned out to be a success as a day care procedure. Short operating time, minimal blood loss, less post-operative pain specially in the early post-operative period, minimal chance of complication and short stay at hospital as a day care surgery, Coblation tonsillectomy stood out as a hands down winner in our study. In this fast paced life, where consumerism demands everything instant, coblation tonsillectomy as a day care procedure provides good alternative to the patient requiring tonsillectomy. yroidectomies.

Keywords: Coblation tonsillectomy, Haemorrhage, Coblator

INTRODUCTION

Tonsillectomy is a widely performed procedure by otolaryngologists around the world. The procedure is performed in both adults and children and is associated with significant postoperative morbidity. Multiple surgical techniques are used in practice, without consensus on the optimal technique or instrumentation.

For more than a century, traditional dissection tonsillectomy has remained gold standard for tonsil removal.¹ Since the first tonsil removal was performed by Celsus in 30 BC, multiple surgical techniques and a variety

of instruments have evolved: electrocauterization, laser dissection, cryosurgery, bipolar dissection scissors, coblation-assisted tonsillectomy, and ultrasonic scalpel tonsillectomy.²

Coblation is a technique that utilizes bipolar radiofrequency energy for soft tissue dissolution. Two electrodes are immersed in a medium of normal saline, which produces a plasma field of sodium ions. Many highly charged ionized particles are contained in the plasma field, resulting in coagulation of vessels and vaporization of tissues. In contrast to electrocautery, which works at a temperature of up to 400°C, coblation devices work at a temperature of 60°C.³

Coblation tonsillectomy has gained momentum in recent times as it is a latest technique of tonsillectomy. This technique is said to be associated with less intra-operative bleeding and less postoperative morbidity but there is hardly any study that advocates one technique as the best one.

METHODS

We did prospective study at Silchar Medical College and hospital, Silchar on 114 patients in which bilateral tonsillectomy was performed by a single surgeon in the duration of January 2018 to February 2020.

We performed bilateral tonsillectomy by single method of coblation by single surgeon only.

We evaluated the procedure on various parameters so as to consider its viability as a day care procedure.

The evaluated parameters were operating time, intra operative blood loss, post operative pain and post operative haemorrhage.

We compared these parameters to other studies as well.

Age and gender are mentioned in figures as discussion through pie chart.

Type of study

The type of study was prospective observational.

Number of cases

Number of cases in this study was 114.

Duration of study

Study duration was 2 years.

Place of study

This study was placed at tertiary care hospital Silchar Medical College and Hospital.

Inclusion criteria

All cases of chronic tonsillitis were included.

Exclusion criteria

Cases where tonsillectomy was performed in adjunct with other surgery like uveo-palatopharyngoplasty and styloid removal.

Ethical approval

All the necessary ethical clearance points were discussed with ethical committee of the institution and ethical

clearance was granted before initiation of recruitment of subjects. Thorough written informed consent was taken from the parents of patients. Present study was a non funded study.

RESULTS

Outcome was measured on the following pointers

Operating time

Surgery was performed by a single right-handed surgeon. Average operative time for right tonsillectomy was 3.5 minutes and left 4 minutes.

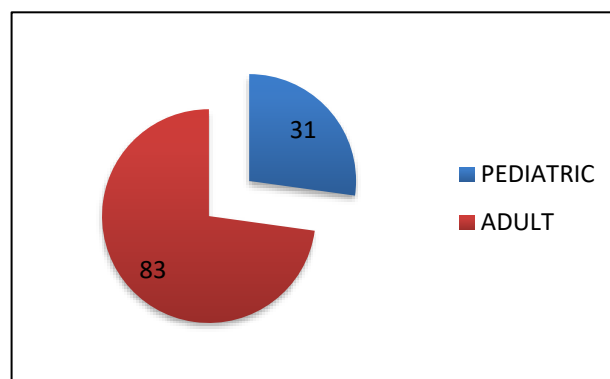


Figure 1: Age distribution in the study.

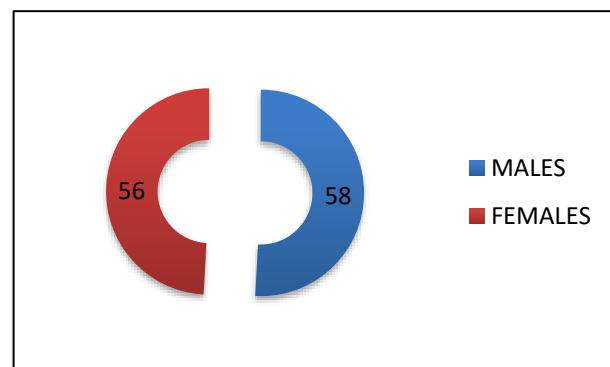


Figure 2: Gender distribution in the study.

Intraoperative blood loss

It was measured by calculating the content of the suction machine and deducting the amount of normal saline used during the Coblation procedure. The average blood loss was 5 ml in total.

Post operative pain

Average pain score on day 1 to 3 was 3. It increased to average score of 6 on day 7. It can be attributed to inflammation. We managed the pain by local anaesthetic Gargle and oral painkillers. There pain was well tolerated.

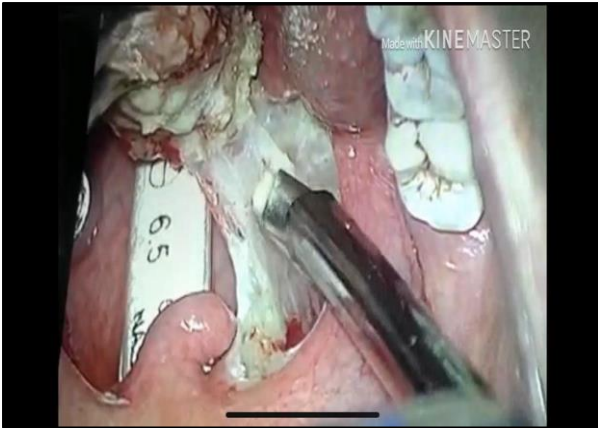


Figure 3: Excision of tonsil by coblator (intra op picture).

Post operative hemorrhage

Only one patient had secondary hemorrhage on day 8. He was taken to operating room and managed. He was a known case of diabetes and was on insulin.

Post operative return to normal diet

Soft diet was advised from day 2 and normal diet after day 10. All patients achieved normal food intake (solid food intake) by 11 postoperative days.

31 out of 114 cases were pediatric and 83 adult. Age had no significant difference in morbidity outcome. Although it was noticed children tolerated pain better than adults. Age distribution is displayed in the below mentioned figure.

Out of the total number of cases 56 were females while 58 males. It is shown in the figure below.

DISCUSSION

We performed coblation tonsillectomy as a day care procedure. Our emphasis was to observe coblation as a preferred method of tonsillectomy over others like dissection and bipolar diathermy which was performed at our institution.

We observed the time taken for the procedure was significantly different from the other methods performed. In Blunt dissection and ligation method, the average time taken to complete the procedure was more than 30 minutes, whereas in coblation tonsillectomy average time to complete the whole procedure was only 15 minutes only.

We observed significant lesser blood loss compared to cold dissection and cautery dissection.

We observed less pain in the initial 3 days which increased on 7th day. Pain grading varied with other studies.

A Cochrane review by Pinder et al showed that postoperative hemorrhage was unaffected by the surgical method.¹ The present study, however, bedded to differ on this regard.

In the presnt study post operative haemorrhage rate was 0.8 % which was lower than other studies. Kim et al reported an overall bleeding rate of 2.9% in 1082 patients, Söderman et al reported an overall bleeding rate of 13.8% in 1424 adult and pediatric patients, and He et al reported an overall postoperative bleeding rate of 1.9% in 2045 children. This could be attributed to larger sample size by other studies.⁵⁻⁷

Coblation causes lesser tissue trauma, thus resulted in the quick return to the normal diet.

To sum up we were driven by the thought of mechanism of coblation which generates lesser heat we assumed lesser heat trauma as compared to the bipolar dissection of tonsils, probably coblator tonsillectomy may cause lesser post operative pain thus lesser morbidity to the patient. Derived from “controlled ablation,” the name refers to the non-heat driven process of surgically dissociating soft tissue using bipolar radiofrequency energy to excite electrolytes in a conductive medium (such as saline solution) to create a precisely focused plasma field with a surface temperature of 40-70°C.⁴ (Figure 1).

Patients fared very well with the procedure with minimal complications.

Apart from being a satisfactory method of tonsillectomy, it proved to be a day care procedure. This reduced the hospital stay, patient morbidity and hospital costs to the patient. The following points led to the better surgical outcomes in our study. Preoperative, just before the commencement of the surgery, a single shot of steroid was given intravenously which led to lesser post operative inflammation. Optimum coblator settings with adequate suction and irrigation. A layer of fascia over the tonsillar bed was kept intact. Injury to the muscles were avoided. Intravenously tranaxemic acid was administered intra operatively. Course of oral tranaxemic acid was given for 10 days. Gargle was given with lidocam, hydrogen peroxide and betadine for ten days.

The limitation of the study is number of cases. The more the number of cases, better statistical analysis can be done and accurate results can be tabulated.

CONCLUSION

Coblation tonsillectomy yielded good results in reference to patient morbidity and turned out to be a success as a day care procedure. I advocate this procedure to consider as first choice of method of tonsillectomy in tertiary care center where availability of coblator is present.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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