INTRODUCTION

Tonsillectomy is one of the commonest procedures in ENT practice. It is defined as removal of pharyngeal tonsils along with its fibrous capsule. It is performed to alleviate the recurrent tonsillar infections leading to recurrent ear and sinus infections.

The procedure is performed under general anaesthesia. It consists of application of mouth gag (Boyle’s Davis) for exposure of pharyngeal tonsils. There are various methods for tonsillectomy. Dissection method, diathermy method, KTP laser and use of harmonic scalpel.

Postoperative trismus and pain in TM joint at rest and on chewing is mainly attributed to prolonged application of mouth gag. It leads to accumulation of lactic acid in the muscles leading to feeling of pain and trismus. Prolonged mouth opening also has stretch effect on joint capsule which causes pain. Moreover, subluxation of TM joint is a known complication of tonsillectomy. Although effective analgesia is administered during anaesthesia. But postoperative pain and trismus is an indicator of prolonged application of mouth gag.

The objective of this study was to determine the effect of duration of application of mouth gag on Temporomandibular (TM) joint pain and trismus after tonsillectomy.

METHODOLOGY

A total of 40 patients were selected from February to July 2012, by random sampling. Sample size was selected on the basis of patient turnover in ENT Department of Combined Military Hospital, Nowshera, undergoing tonsillectomy in the pre-defined period of study. This was calculated from statistical records of the hospitals. Informed consent was taken from the patients for participation in the study and permission was obtained from hospital’s ethical committee. All the patients were healthy individuals with no pre-existing developmental orofacial deformity. None of the patients was suffering from myopathy, mandibular bone and joint disorder. Patients below 10 years of age were excluded.
due to difficulty in recording the pain severity. All the patients underwent tonsillectomy by dissection method. Patients were given tablet Acetaminophen 2 tablets thrice daily or its suspension 5 ml thrice daily or given to patients under 12 years of age for pain relief.

Frequencies were calculated for gender of the patients included in the study. Mean was calculated for age of the patient and time of application of mouth gag. Time from start of application of mouth gag (Boyles Davis) to its removal was recorded with the help of a stop watch. Time above 30 seconds was rounded off to full minute.

Distance between upper and lower incisor teeth was set as yardstick for measurement of degree of trismus. Two readings were recorded one before and one 06 hours after tonsillectomy. Their difference was calculated. Severity of trismus was graded as mild (1 cm), moderate (2 cm) and severe (3 cm), reading more than 0.5 was rounded off to full.

All the patients were interviewed 06 hours after surgery. They were asked to provide feedback on degree of pain felt by scoring on a visual analogue scale (0 - 9). Patients with score 1 - 3 were grouped as having mild pain; 4 - 6 as moderate pain and 7 - 9 as severe pain.

Data analysis was done with the help of SPSS version 20. P-value less than 0.05 was taken as significant. Variables like time of application of mouth gag was compared to the outcome (pain and trismus). Spearman's rank correlation was used for finding correlation between time of mouth gag application and study outcome.

RESULTS

Out of 40 patients, 18 (45%) were males and 22 (55%) were females. Mean age of the patients undergoing tonsillectomy was 21 ± 9 years. Mean time of application of Boyles Davis mouth gag was 47 ± 12 minutes. Degree of trismus out of 40 patients 06 hours after the surgery was shown in Figure 1. Frequency of patients who had mild pain over temporomandibular joint was 11 (27.5%). Fifteen (37.5%) had moderate and 14 (35%) had severe pain 06 hours after the surgery. Significant strong correlation between duration of application of mouth gag with postoperative pain and trismus was observed \( r_s = 0.738; p < 0.001 \). It was also evident that trismus and pain over TM joint were also related to each other. In patients with duration of application of mouth gag more than 55 minutes, the degree of trismus and pain was severe in all the cases postoperatively.

DISCUSSION

Tonsillectomy is performed frequently in our set up. In expert hands, it is thought to be day-care procedure with patient going home in the evening. Patients frequently complain of severe pain in temporomandibular joint (TM joint) after tonsillectomy on mouth opening. The reason for this is prolonged mouth opening during the surgery and use of mouth gag. It is well established fact that prolonged mouth opening causes stress on the muscles involved in mastication and the TM joint. After surgery, patient feels pain in the pharyngeal region due to removal of tonsillar tissue which is aggravated by the pain in temporal region and TM joint. However, no data was available about the severity of pain and trismus after tonsillectomy.

In this study, 40 patients above 10 years of age were selected randomly and time duration of application of mouth gag was compared with postoperative pain and trismus. The result showed that severity of postoperative pain and trismus was higher with longer time of application of mouth gag and vice versa. Furthermore, it was observed that there was relationship between duration of mouth gag with pain and trismus. Those patients who complained of pain after prolonged application of mouth gag also complained of trismus. The analgesics used were the same for same period of time. Patients below 10 years of age were not included due to problems in obtaining results regarding pain perception. These results may vary in different age groups, gender and races due to variation in development of muscles of mastication. Those with different eating habits and type of diet may also influence the development of muscles of mastication and TM joint. Hydri tried to find out the long-term effects of tonsillectomy on mouth opening in children, which showed transient trismus in immediate postoperative period with no permanent effects on mouth opening. This study result is consistent with it. At the end of surgery postoperative throat pain is the most important concern for surgeon but sometimes pain and trismus due to use of mouth gag is the biggest issue faced by the patient. Hence the expertise evolved for
minimizing the duration of mouth gag application is essential to minimize the postoperative trismus and pain.

**CONCLUSION**

Duration of mouth gag application should be reduced to cause less TM joint pain and trismus in early postoperative period in tonsillectomy.

**REFERENCES**


