

## POSTOPERATIVE SORE THROAT AFTER ELECTIVE SURGICAL PROCEDURES

Aliya Ahmed, Shemaila Abbasi, Hasham Bin Ghafour, Muhammad Ishaq\*

Department of Anaesthesia, The Aga Khan University Hospital, Karachi, \* Shalimar Hospital, Lahore, Pakistan

**Background:** Postoperative sore throat is a common complication of anaesthesia and can lead to dissatisfaction after surgery. Many factors can contribute to postoperative sore throat and the incidence varies with the method of airway management. **Methods:** In this prospective observational study elective gynaecological and general surgical patients were interviewed 24 hours postoperatively to determine the presence of sore throat. Information collected included demographic data, surgical procedure, duration of surgery, airway device used and position of patient during surgery. This study was done over a period of 3 months. **Results:** 312 patients were interviewed. 81(26%) patients suffered with sore throat postoperatively. 28% of patients with endotracheal intubation (ETT) and 3.5% of patients with laryngeal mask airway had a sore throat. Female patients reported more sore throat than male patients (27.1% vs. 19.1%). Sore throat was found to be more common with older age group, grade of difficulty in intubation, duration of surgery and patient's position during surgery. **Conclusion:** Awareness of the factors responsible for increased incidence of postoperative sore throat and appropriate care especially during endotracheal intubation can help to reduce the incidence of postoperative sore throat.

**Keywords:** Anaesthetic complications; Postoperative; Sore throat

### INTRODUCTION

Postoperative sore throat is a common complication of anaesthesia. It can lead to dissatisfaction and discomfort after surgery and can delay a patient's return to normal routine activities. Many factors can contribute to postoperative sore throat and the incidence has been found to vary with the method of airway management<sup>1</sup>. The incidence is the highest after tracheal intubation and varies from 14.4% to 50%, while after laryngeal mask airway insertion the incidence has been found to vary from 5.8% to 34% and it is much less when a face mask is used for the maintenance of anaesthesia<sup>1,2</sup>. The reporting of a sore throat is also affected by the method of interview, i.e., whether the questions regarding sore throat are asked directly or indirectly<sup>3</sup>.

In recent years many studies have been performed to determine the incidence of postoperative sore throat and to find measures for its prevention<sup>1-4</sup>. Most of these studies have been conducted on the western population. The presence of racial differences in the incidence of postoperative complications has been well documented<sup>5-8</sup>. As no published data on the rate of occurrence of this complication in the Pakistani population was available, we planned to conduct a study to determine the frequency of occurrence of postoperative sore throat after elective surgical procedures performed at our hospital. The aim of our study was, in addition to determining the rate of occurrence of postoperative sore throat, to identify the patient, anaesthetic and surgical factors contributing to this complication in our patient population.

### MATERIAL AND METHODS

All patients above 18 years of age undergoing elective general or gynaecological surgical procedures under general anaesthesia as in-patients at our university hospital during the study period were included in the study. Patients having a sore throat preoperatively, patients unable to communicate with the researchers and patients undergoing emergency surgical procedures were excluded. It was a prospective observational study and was conducted over a period of three months, from February to May 2004. Approval was taken from the ethical review committee of our institution.

The age, sex, weight and American Society of Anaesthesiologists' (ASA) physical status of the patients were recorded on a standardised form. Routine informed consent for surgery and anaesthesia was taken before the patient's arrival into the operating theatre. The type and duration of surgery, intraoperative airway device used (Endotracheal tube [ETT], laryngeal mask airway [LMA]), ETT size, grade of difficulty in intubation and patient position during surgery were noted. An aqueous lubricant was applied to the tracheal tube and LMA cuffs in all patients. A 7.5mm internal diameter cuffed polyvinyl chloride (PVC) tube was used for the female patients and 8.5mm tube was used for the male patients. Patient's lungs were mechanically ventilated after intubation while patients with LMA breathed spontaneously. All patients received oxygen 40% in nitrous oxide and isoflurane 0.8-2% for maintenance of anaesthesia. After the end of surgery the airway devices were removed when patients were able to open their eyes to command. The patients were taken

to the post anaesthesia care unit from where they were shifted to the ward after adequate recovery [mostly 45 minutes to one hour]. The patients were interviewed by one of the researchers 24 hours postoperatively. They were asked directly whether they had a sore throat and whether they had any hoarseness of voice.

Data was entered and analysed using the SPSS statistical software version 12.0. Data was analysed to determine the rate of occurrence of postoperative sore throat in the study population. Proportions were calculated for all categorical variables.

**RESULTS**

During the study period 312 patients had elective general and gynaecological surgeries as in-patients at our hospital. The mean age of the patients was 40 years. Two thirds of the patients were female (210). 81 patients (26%) suffered with sore throat postoperatively and 29% (25/81) of these patients also had hoarseness of voice. 28% of patients with endotracheal intubation (ETT) complained of postoperative sore throat while only 3.5% of patients with laryngeal mask airway (LMA) had a sore throat. Female patients reported more sore throat than male patients (27.1% vs. 19.1%).

Sore throat was found to be more common in the older age group (38% in patients above 60 years of age compared to 13% in the 18-30 years age group) [Table 1]. Among the various surgical procedures [Table 2] the highest proportion of sore throat occurred in patients who underwent total abdominal hysterectomy with bilateral salphingo-oophorectomy (14/32). Duration of surgery appeared to have a direct relationship with the occurrence of postoperative sore throat, 37% of the patients having procedures lasting more than two hours complained of sore throat whereas fewer than eight percent of patients undergoing procedures lasting less than one hour developed a sore throat postoperatively. Almost 45% of the patients with grade 2 level of difficulty in intubation developed postoperative sore throat whereas only 23% of patients with easy or grade 1 intubation suffered with sore throat. The proportion of sore throat was highest for patients who were put in the supine head-down position (supine head-down = 40%, supine head-up = 25%, supine = 23%, lithotomy head-down = 22%). Thus, from this data we can conclude that in the study population sore throat was found to be more common with endotracheal intubation. It was also found more commonly in female patients, increasing grade of difficulty in intubation, older age group, duration of surgery and patient’s position during surgery.

**Table 1- Relationship of Age with Sore Throat**

Age(years)	No	Yes	Total
18-30	55	9	64
31-40	68	26	94
41-50	61	26	87
51-60	29	9	38
>60	18	11	29
<b>Total</b>	<b>231</b>	<b>81</b>	<b>312</b>

**Table 2- Type of Surgery and Sore Throat**

Type of surgery	No	Yes	Total
Laparoscopy and dye test	22	1	23
Hysteroscopy	14	0	14
Total Abdominal Hysterectomy	12	6	18
Total Abdominal Hysterectomy & Bilateral Salphingoophorectomy	18	14	32
Caesarean section	1	1	2
Other Gynaecological surgery	42	18	60
Laparoscopic cholecystectomy	45	13	58
Hernia repair	15	4	19
Laprotomy	1	0	1
Antero-Posterior repair	1	3	4
Thyroid Surgery	9	0	9
Other General Surgery	51	21	72
<b>Total</b>	<b>231</b>	<b>81</b>	<b>312</b>

**DISCUSSION**

Sore throat is a well-recognized complication after general anaesthesia<sup>1,3</sup>. The method used for airway management has the strongest influence on its incidence<sup>1</sup>. The incidence of postoperative complications is known to vary among different races<sup>4-8</sup>. We conducted this study as a preliminary step to determine the rate of occurrence of postoperative sore throat in a sub-group of Pakistani population and see if it is comparable to studies done in other parts of the world. We plan to design further trials on larger patient population. Our main aim in subsequent trials would be to analyze the factors involved in the occurrence of postoperative sore throat in more detail and to identify the preventable causes. This would in turn help us to devise guidelines for prevention of this common postoperative complication.

In this study 26% of the patients complained of postoperative sore throat. Studies done in other parts of the world have shown this incidence to range anywhere from 20 to 50%<sup>1,3</sup>. Furthermore, in this study sore throat was found to be more common with

certain patient related, anaesthetic and surgical factors, e.g. age group, gender, grade of difficulty of intubation, duration of surgery and patient's position during surgery. A bigger sample size taken from various surgical specialties and application of more advanced statistical tests would be required to comment on the true association of sore throat with these factors.

## CONCLUSION

Postoperative sore throat is a common adverse outcome after anaesthesia. The method used for airway management has the strongest influence on its incidence, but several patient and operative factors may be involved. By knowing these factors, awareness of the problem will increase and this will help the anaesthesiologists in avoiding combinations of the predictive factors, thus decreasing the incidence of postoperative sore throat and improving patient satisfaction.

## REFERENCES

1. McHardy FE, Chung F. Postoperative sore throat: cause, prevention and treatment. *Anaesthesia* 1999;54:444-53.
2. Joshi GP, Inagaki Y, White PF, Taylor-Kennedy L, Gevirtz C, et al. Use of the laryngeal mask airway as an alternative to the tracheal tube during ambulatory anaesthesia. *Anesth Analg* 1997;85:573-77.
3. Higgins PP, Chung F, Mezei G. Postoperative sore throat after ambulatory surgery. *Brit J Anaesth* 2002;88(4):582-4.
4. Keller C, Sparr HJ, Brimacombe JR. Laryngeal mask lubrication – a comparative study of saline versus 2% lignocaine gel with cuff pressure control. *Anaesthesia* 1997;52:586-602.
5. Racial and gender differences in outcome after carotid endarterectomy. *Am Surg* 1998;64(6):527-32.
6. Pelletier SJ, Isaacs RB, Raymond DP, Carbtree TD, Spencer CE, Gleason TG, et al. Ethnic disparities in outcome from posttransplant infections. *Shock*. 2004; 22(3):197-203.
7. Homer RD, Oddone EZ, Stechuchak KM, Grambow SC, Gray J, Khuri SF, et al. Racial variations in postoperative outcomes of carotid endarterectomy: evidence from the Veterans Affairs National Surgical Quality Improvement Program. *Med Care*. 2002 Jan;40(1 Suppl):135-43.
8. Czerska B, Stewart RW, Hobbs RE, Klein AL, Lever H, Rincon G, et al. Hypertension and left ventricular hypertrophy in black vs white heart transplant patients 1 year after surgery. *Ethn Dis*. 1991 Fall;1(4):335-41.

---

**Address for correspondence:** Dr. Aliya Ahmed, Assistant Professor, Department of Anaesthesia, Aga Khan University Hospital, Stadium Road, P.O Box 3500, Karachi 74800, Pakistan. Phone: 021-4864634  
E-mail: aliya.ahmed@aku.edu