Original Article

POST-THYROIDECTOMY SORE THROAT: A COMMON PROBLEM

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ABSTRACT

Objective: To determine the frequency of postoperative sore throat after thyroidectomy under general anaesthesia with endotracheal intubation.

Methodology: This study was carried out at two private hospitals including a teaching University hospital i.e. Isra University Hospital, Hyderabad over a period of three years from April 2005 to March 2008. All patients who underwent different types of thyroid surgeries during above mentioned period were included in this study. All relevant data especially age, sex, weight, American Society of Anesthesiologist's (ASA) physical status of patient, type & duration of Surgery, operative duration, number of intubation attempts and size of cuffed endotracheal tube (ETT) used were recorded on a standard form. The patients were asked direct questions on first post operative day regarding sore throat.

Results: Post operative sore throat was observed in 112 (80%) patients. The ETT having diameter of 7.5 mm or more, extensiveness of thyroidectomy, age of more than 35 years and operative duration of more than one hour were the statistically significant factors contributing in the occurrence of post thyroidectomy sore throat. There was no statistically significant impact of gender and number of intubation attempts on the occurrence of post thyroidectomy sore throat.

Conclusion: Postoperative sore throat is a common complication after thyroid surgery. Larger size of ETT, more extensive surgery, increased age and prolong operation are the main contributing factors for the occurrence of post operative sore throat.

KEY WORDS: Thyroid surgery, Sore throat, Endotracheal intubation.

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INTRODUCTION

Sore throat is a common postoperative complaint. It, at times becomes even more distressing than pain due to the surgical procedure, but fortunately resolves within a few days by simple gargles and analgesics. Though regarded as minor complication, but this can lead to discomfort and dissatisfaction after emergency and can prolong the hospital stay and patient's activities after leaving hospital.

A broad range of symptoms is encountered in clinical scenario and may be associated with hoarseness, respiratory distress and difficulty in swallowing in severe cases.[1] Several factors contribute to postoperative sore throat. Report-

ing a sore throat can be affected by whether this symptom is asked about directly or indirectly.[2] The incidence varies with the methods of airway management; tracheal intubation is associated with a greater incidence of sore throat than laryngeal mask airway or face mask.[2] Since sore throat resolves spontaneously most of the time within few days after operation, so less attention is given to this issue. Sore throat is also an increasingly common clinical problem after thyroid surgery and throat related surgery.[1] It is known that movement of tube and cuff in the trachea at the time of positioning and manipulation of goiter during surgery are the main factors responsible for sore throat. During thyroidectomy, neck is hyperextended which may inverse the tracheal axis to ETT and may induce lesions of vocal cords and tracheal walls.[3,4]

The purpose of this study was to determine the frequency of postoperative sore throat after thyroidectomy under general anaesthesia with endotracheal intubation.

METHODOLOGY

This descriptive study was carried out at a private teaching university hospital i.e. Isra University Hospital, Hyderabad and another private non-teaching hospital i.e. Memon Charitable Hospital, Hyderabad over a period of three years from April 2005 to March 2008. One hundred and forty patients undergoing different types of thyroid operations during the above mentioned period were included.

The age, sex, weight, American Society of Anesthesiologist's (ASA) physical status of patient, type & duration of surgery, intubation time, number of intubation attempts and size of cuffed endotracheal tube (ETT) used were recorded on a standard form. All ETTs were lubricated with lignocaine ointment before insertion. At the end of surgery, the ETT were removed when patients were able to open their eyes on verbal commands. Vocal cords were also checked at that time. The patients were asked direct questions on first post operative day regarding sore throat. In this regard, the simplified classification of postoperative sore throat was used as proposed by Martis and Athanamassiades.[1] Mild sore throat was defined as mild hoarseness but no dyspnoea. Moderate sore throat was considered when the patient was having hoarseness of voice with some degree of respiratory distress. Severe sore throat was labeled when there was hoarseness of voice along with dyspnoea, orthopnoea, cyanosis, stridor or a feeling of suffocation.

The data was entered and analyzed in SPSS 16.0 version statistical program software to determine the impact of various factors on frequency of sore throat.

RESULTS

Of the 140 patients, the female to male ratio was 9:1 with the mean age of about 32 years and range of 16-68 years (SD ± 8.224). The two commonly performed thyroid operations were subtotal thyroidectomy (57, 40.7%) and hemithyroidectomy (52, 37.1%).

Post operative sore throat was observed in 112 (80%) patients. Out of these 112 patients, 80 (71.4%) had mild sore throat whereas 32 (28.6%) had moderate type of sore throat. None of the patients had severe sore throat. The higher frequency of postoperative sore throat was seen in patients having age between 30-40 years. The detailed account of frequencies of operation type, sore throat and ETT size are mentioned in Table-I.

The frequency of sore throat was less in patients who had hemithyroidectomy as compared to those who underwent subtotal, near total or total thyroidectomy. The frequency of postoperative sore throat was found higher in cases of patients who had larger size (7.5mm or more) of ETT. Patients having age of more than 35 years had increased frequency of post operative sore throat as compared to the younger patients. The frequency of sore throat was about 1.5 times more in patients having duration of operation more than sixty minutes as compared to those having operative duration of 60 minutes or less. There were statistically significant differences in the occurrences of sore throat between age groups, various types of operations, ETT sizes and

Table-I: Frequencies of operation type, sore throat and ETT size (n= 140)

Parameters		*No. of patients (%)*
Type of Operation	Hemithyroidectomy	52 (37.1%)
	Subtotal	57 (40.7%)
	Near total	11(7.8%)
	Total	19 (13.5%)
	Isthmusectomy	1 (0.7%)
Sore Throat	Mild	80 (57%)
	Moderate	32 (23%)
	Severe	0
	No	28 (20%)
ETT Size (mm)	7	31 (22%)
	7.5	49 (35%)
	8	41 (29%)
	8.5	19 (14%)

duration of operation. The impact of gender and number of intubation attempts on the occurrence of sore throat was not statistically significant. The detailed account of impact of age, gender, size of ETT, type & duration of operation and number of intubation attempts on the frequency of sore throat is mentioned in Table-II.

DISCUSSION

Sore throat is a common complication of anaesthesia after surgery. The overall incidence of sore throat after general anaesthesia, as reported from 1960s to 1980s, was from 6% to 70%.[5,6] It is still reported to be between 59% to 76% in 2002.[2] The incidence varies with the method of airway management. Tracheal intubation is associated with a greater incidence of sore throat compared with the use of laryngeal mask airway or face mask.[7] The incidence ranges between 14.4% to 50% after tracheal intubation and 5.8% to 34% after laryngeal mask insertion.[2,8,9] Method of questioning, type of airway and anaesthetist's experience may be the different reasons for this wide range of variation in incidence.[10] Direct questioning about sore throat reveal more incidence as compared to indirect questioning. After indirect

Table-II: Impact of age groups, gender, ETT Size, operation type, number of intubation attempts and duration of surgery over frequency of sore throat (n=140)

Parameter		*Patient having sore throat(n=112)*	*P-value*
Age group	35 years or less (n=109)	83/109 (76.1%)	0.04
	More than 35 years (n=31)	29/31 (93.5%)	
Gender	Male (n=14)	13/14 (92.9%)	0.205
	Female (n=126)	99/126 (78.6%)	
ETT Size	7mm (n=31)	12 /31 (38.7%)	<0.001
	7.5mm (n=49)	43/49 (87.7%)	
	8mm (n=41)	38/41 (92.7%)	
	8.5mm (n=19)	19/19 (100%)	
Operation Type	Hemithyroidectomy (n=52)	31/52 (59.6%)	<0.001
	Subtotal(n=57)	50/57 (87.7%)	
	Near total(n=11)	11/11 (100%)	
	Total(n=19)	19/19 (100%)	
	Isthmusectomy(n=1)	1/1 (100%)	
No. of intubation attempts	One (n=126)	100/126 (79.3%)	0.736
	Two or more (n=14)	12/14 (85.7%)	
Duration of operation	Sixty minutes or less (n=53)	32/53 (57.1%)	< 0.001
	More than sixty minutes (n=87)	80/87 (91.9%)	

questioning of 129 patients, only two complained of sore throat whereas after direct questioning of 113 patients, 28 complained of sore throat.[11] This wide variation may be due to the fact that patients concentrate on symptoms directly related to the operative site and do not immediately relate sore throat with anaesthesia and surgery.

Factors contributing to the development of sore throat include trauma to pharyngolaryngeal mucosa from laryngoscopy, placement of nasogastric tube or oral suctioning, cuff design, pressure affecting the tracheal mucosal capillary perfusion and contact of the tracheal tube with the vocal cords and posterior pharyngeal wall.[12] The highest incidence of sore throat and airway related symptoms tend to occur in patients who have undergone tracheal intubation. In a series of 1325 patients, the incidence of sore throat was found to be14.4%.[9] Two local studies have reported post incidence of operative sore throat in about 26% and 60% of the Pakistani patients respectively.[13,14] An increased incidence of postoperative sore throat following thyroid surgery has been reported in literature.[8,9] Christensen reported a higher incidence of sore throat after thyroid surgeries due to greater movements of endotracheal tube within the trachea.[9] In this study, about 80% of the patients had postoperative sore throat after different types of thyroid surgery. This frequency of post operative sore throat is higher as compared to an international study reporting about 68% incidence of post intubation sore throat after thyroid surgery.[1] Some studies have also shown a greater incidence of post intubation sore throat after thyroid surgery when compared to those patients who had other elective procedures done under general anaesthesia with ETT.[1,8] Edomwonyyi et al also observed a higher incidence of sore throat (78%) among patient having thyroid surgery as compared to various other general surgical procedures (34.6%), orthopaedic procedures (35.7%), cardio-thoracic procedures (28.5%), gynecological & obstetrical procedures (24.6%) and urological procedures (10.7%).[3] None of the patients in this study had severe sore throat and this observation is consistent with the findings of an international study.[1] In this study it was also observed that extent of the thyroid procedure and size of ETT used had significant difference on the occurrence of sore throat. Movement of ETT during positioning and traction on the trachea during mobilization of gland during surgery are the possible factors responsible for this.

Smaller ETT reduces the incidence of post operative sore throat, presumably because of decreased pressure at the tube – mucosal interface.[8] In this study, the incidence of post operative sore throat was higher in patients who had ETT size of 7.5 mm or more. This is consistent with the findings observed in the international studies.[1,15] The smaller size of ETT has an advantage of producing less trauma to the tracheal mucosa. The tracheal cuff pressure also seems to be an important contributing factor in the occurrence of sore throat. In this study though cuffed ETT were used but tracheal cuff pressure were not measured in any patients. Higher cuff pressure more than 30 mmHg (39 cm H_2O) is known to cause greater mucosal ischemia by impairing the tracheal mucosal blood flow.[11] In contrast, some different studies have shown even higher incidence of sore throat with non-cuffed ETT as compared to cuffed ETT.[8,9,16] The impact of gender on the occurrence of sore throat was not statistically significant in this study. This observation is consistent with findings of an international study.[1] However some studies have shown a significantly higher incidence of sore throat among female patients[3,14,17] and this was attributed to size of female trachea and softer mucosa walls. The number of intubation attempts as well as the duration of intubation has both been proven as causative factors for sore throat which is consistent with the findings observed by Kloub[18] and Rieger et al.[19] This observation is self explanatory. However this has not been confirmed by some other studies.[9,11] Lidocaine jelly is still widely used in clinical practice to lubricate the endotracheal tube. Local anaesthetic jelly along with its lu-

bricating properties limits the potential damage to the tracheal mucosa by suppressing bucking on the tracheal tube but its role in prevention of postoperative sore throat is inconclusive.[8,9] Different studies have shown that application of lidocaine jelly to ETT cuff reduces the incidence of sore throat.[15,19] However McHardy et al and Selvaraj et al had found an increased incidence of sore throat with application of 2% lignocaine gel.[8,21] The use of intravenous[22] and transdermal ketoprofen[23] has been found to reduce the severity of sore throat after general anaesthesia with laryngoscopy and tracheal intubation.

Limitations of the study: Tracheal cuff pressures were not measured in this study and high cuff pressures are considered to be contributing to the occurrence of sore throat by causing mucosal ischaemia. Another limitation of this study was that its findings can not be applied to all types of surgical procedures as this study was confined to only thyroid operations. Lidocaine may be considered as a confounding factor as there are studies reporting variables results in terms of the effect of lidocaine gel over frequency of sore throat.[8,9,15,19,21]

CONCLUSION

Postoperative sore throat is a common complication after thyroidectomy. Larger size of ETT and more extensive surgery (like subtotal, near total or total thyroidectomy) are the main contributing factors for the occurrence of post operative sore throat.

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