

Frequency Of Post-Operative Laryngospasm In Pediatric During Ent Surgical Procedures Under General Anesthesia In Khyber Teaching Hospital (Kth) Peshawar

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Abstract

The glottic musculature parylsis causes the upper airway to reflexively close, which causes laryngospasm. It occasionally serves as a protective reaction to stop foreign objects like blood, food, or vomit from entering the trachea. However, the reflex occasionally causes a complete glottic closure, which makes breathing difficult. Every effort should be taken to quickly relieve the patient's airway obstruction brought on by the laryngospasm in order to prevent morbidity and mortality from the immediate (hypoxia and hypercapnia) and delayed ("negative-pressure pulmonary edoema") effects of the condition. Identify the prevalence of post-operative laryngospasm in pediatric during ENT surgical procedures performed under general anaesthesia at Khyber Teaching Hospital (KTH) Peshawar, and determine which of the following approaches should be applied for therapy. By using all the related phrases to this topic, a retrospective search investigation was undertaken from various published articles found on Google Scholar and PubMed. In order to determine the prevalence of postoperative laryngospasm following ENT surgical operations, we read and searched roughly 32 articles that were relevant to my issue. About 32 different research publications that were pertinent to the study and issue were analysed and looked for. Both a direct conversation with each patient and a questionnaire are used to gather data from the 126 individuals. Out of 126 individuals, the findings from our data collection indicate that males are more likely than females to experience laryngospasm due to the higher risk of smoking in men, among other factors. On the basis of the

aforementioned findings, it is hypothesised that the removal of the tracheal tube while the patient is still recovering from the anaesthetic contributes to the occurrence of postoperative laryngospasm in pediatric during ENT surgical procedures.

Keywords: Laryngospasm, pediatric, anaesthesia hypoxia and pulmonary edoema

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Introduction

Laryngospasm is a transient and reversible spasm of the vocal cords that temporarily makes it difficult to speak or breath. It is incomplete or through loss of airway[1]. This obstruction is defined at laryngospasm. It is most occurring phenomena in patients. In researches which clearly indicate the phenomena of laryngospasm that is 0.78% over 130000 subjects. Definite groups in a great anesthetic which also includes sub group that where on high risk like airway infection, hypospadias. Adults with a surgery asthmatic and those who undergoes esophagoscopy [2]. In addition that laryngospasm is separate object (surely appreciable) there is different cause and different types of laryngospasm have been reflected a different place in literatures [3]. The clinical set manifestation of laryngospasm add the difficult intubation, nasal and oral pharyngeal surgical site with obstructive sleep apnea. Some time it may be sudden in any patient[4]. So laryngospasm is mostly happening phenomena and easily recognized and handled situation, however it may be (often in poor countries) fatal if managed poorly (improperly). Secondly laryngospasm is fatal because initially condition show no symptoms and may triggered by features that are not early identified, This is the reason which increase factor of harm in patient and which leads toward the condition that are fatal like post operative pulmonary edema and pulmonary aspiration .particularly conditions cause serious morbidity and the patient may need ventilation, intubation and supervision under intensive care place [5]. A crisis managing procedure under cover ABCD-A swift check AB herald's cover of the patient who are non-incubated was desired of systematic tactic to any emergency situation during surgery in GA. Where it is unknown to the fact that where and why unsuccessful to prepare for situation and what should be done, it is not understandable [6]. It was proclaimed that if this laryngospamprocedure had been appropriately pragmatic a good diagnosis would have been handled within 40-60 seconds in 99% of patients [7]. And the cover serving classification of movements suggestion would have run to batten phases to handle the rest 60% of snag pertinent to this ration of procedure [8]. By the study of ABCD-A swift check the 40% of difficult cases by the rest of procedure that were not always managed and diagnosed well. It was displayed that it would be for betterment, For these residual glitches, to process and progress a sub set of algorithms in an easy to use calamity managing blue collar [9]. It is east to diagnose and easy to treat a laryngospam condition but if the symptoms, like minor signs does not appear, It may cause severe illness and death [10, 11]. Hence it is essential to study to diagnose the laryngospam sings after surgeries like ENT surgery with general

anesthesia. Laryngospasm is the upper respiratory tract such as cords reflex blockage, This results in glottis musculature spasm. It is opposite reflex that protects the tracheobronchial tree from entering a foreign substance. This reflex may cause complete or through glottis blockage and consequently restarting respiration. Laryngospasm create morbidity and mortality. May occur due to sudden hypoxemia and hypercapnea. Thus every step effort should be made from management to relieve a patient airway blockage caused by laryngospasm [12, 13]. To determine the incidence of post-operative laryngospasm during ENT surgeries patients age less than years and determine the incidence of laryngospasm in the patient having Surgery under General Anesthesia

Materials And Methods

Study Design and Setting

A cross- sectional study will have to be performed, in which the data will be collected from a group of people who were different in age, height, gender, etc. The study will be conducted at the department of anesthesia in Khyber Teaching Hospital (KTH) Peshawar.

Sample Description:

Subjects are selected from Khyber Teaching Hospital (KTH) Peshawar. Subject are included with the meet the following inclusion criteria.

Inclusion Criteria:

- Elective procedures, ASA physical status class I and II will be included.
- Age less than 15 years.
- All patients who have elective surgeries.

Exclusion Criteria:

- Patients with age above 15 years.
- Emergency cases and regional procedures.
- ASA physical status III and IV
- Those who are not willing to take part in the study
- Smokers, drugs addicts and upper respiratory tract infections.

Sampling Technique and Size

Simple random sampling Technique. The sample size was determined by the formula

$$n = z^2 \cdot p \cdot (1 - p) / m^2$$

n= required sample size, z= confidence level at 95% (standard value of 1.96), p= estimated prevalence of difficult intubation was 9%, m= margin of error at 5% (standard value of 0.05)

Therefore: $n = 1.96^2 * 0.09 * (1 - 0.09) / 0.05^2$, $n = 0.3146 / 0.0025 = 125.851$, $n = 126$. The samples were collected from 126 patients through a direct interview as well as through a questionnaire.

Data Collection

Data Collection Methodology Data was gathered preoperatively by interviewing the parents or guardians and reviewing their anaesthetic records with a prepared checklist that included age, sex, ASA physical status, type of surgery planned, type of anaesthetic technique and induction agents, status of anaesthesia providers, and history of co-morbidities. This was done following approval of the hospital ethics committee and informed patient consent. Each case's intraoperative events, postoperative problems, interventions, and result were noted. Age less than 15 years, emergency patients, and regional procedures were omitted. Elective procedures and ASA physical status classes I and II were included.

Ethical Considerations:

At the start of the trial, the ward administrator and study participants provided written informed consent. The participants and the ward supervisor were given an overview of the research's goals and objectives. They are advised that participation in the study is entirely voluntary and that they can withdraw at any time. While participating in the study, participants will be given assurances regarding their privacy.

Data Analysis:

Analysis is done using Statistical Package for Social Sciences (SPSS version 22) to calculate mean, standard deviation and incidence distribution according to identifying the incidence of post-operative laryngospasm during ENT surgeries patients* age less than 15 years and determine the incidence of laryngospasm in the patient having Surgery under General Anesthesia.

Result And Discussion

Table 1. Gender of the research individuals

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	70	55.6	55.6	55.6
	Female	56	44.4	44.4	100.0
	Total	126	100.0	100.0	

According to data we have the sample size of 126 subjects. 70 (55.6%) of them are male and 56 (44.4%) of them are female. In our data collection we see that the percentage of laryngospasm is

greater in male than the percentage of laryngospasm in female.

Table 2. Age of the research individuals

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	(1-5)	14	11.1	11.1	11.1
	(6-10)	60	47.6	47.6	58.7
	(11-15)	52	41.3	41.3	100.0
	Total	126	100.0	100.0	

In this table we see that patients whose age is between 1 to 5 years the frequency of laryngospasm is 14 (11.1%), patients whose age is between 6 to 10 years the frequency of laryngospasm is 60 (47.6%) and patients whose age is between 11 to 15 years the frequency of laryngospasm in these patients is 52 (41.3%). In our research inclusion criteria the age is less than 15 years. The total number of patients we have is 126.

Table.3. Procedure of the research individuals

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tonsillectomy	93	73.8	73.8	73.8
	Foreign body	12	9.5	9.5	83.3
	Lymph Node Biopsy	8	6.3	6.3	89.7
	Incision and Drainage (I.D)	5	4.0	4.0	93.7
	Cyst	4	3.2	3.2	96.8
	Mostaid	4	3.2	3.2	100.0
	Total	126	100.0	100.0	

In table 3 shows that we have total 126 patients in which the frequency of laryngospasm occur in tonsillectomy procedures is 93(73.8%), frequency of laryngospasm occur due to foreign body is 12(9.5%), laryngospasm occur due to lymph node biopsy is 8(6.3%), laryngospasm occur due to incision and drainage (I.D) is 5(4.0%), laryngospasm occur due to cyst is 4(3.2), and laryngospasm occur due to mostaid procedure is 4(3.2%).

Table. 4. Type of intravenous used for induction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Propofol	126	100.0	100.0	100.0

In table 4 we see that we have total number of 126 patients in which we used propofol iv as an induction agent.

Table 5. Type of inhalation agents used for maintenances

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Isoflurane	75	59.5	59.5	59.5
	Sevoflurane	51	40.5	40.5	100.0
	Total	126	100.0	100.0	

In table 5 we see that we have total number of 126 patients in which we used two types of inhalational agents: isoflurane and sevoflurane. The frequency of laryngospasm occurring in patients using isoflurane is 75 (59.5%) and the frequency of laryngospasm occurring in patients using sevoflurane is 51 (40.5%).

Table 6. Type of ETT used

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Cuff	124	98.4	98.4	98.4
	Uncuff	2	1.6	1.6	100.0
	Total	126	100.0	100.0	

In table 6 shows that the frequency of laryngospasm occurring in patients using cuff ETT tube is 124 (98.4%) and the frequency of laryngospasm occurring in patients using uncuff ETT tube is 2 (1.6%).

Table. 7. History of smoking

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	7	5.6	5.6	5.6
	No	119	94.4	94.4	100.0
	Total	126	100.0	100.0	

In table 7 we see that frequency of laryngospasm occur in patients who have past history of smoking is YES is 119(94.4%) and the frequency of laryngospasm occur in patients who have past history of smoking is NO is 7(5.6%).

Table. 8. Extubation presence secretion in airways

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	95	75.4	75.4	75.4
	No	31	24.6	24.6	100.0
	Total	126	100.0	100.0	

In table 8 shows that in those patients who have presence of secretion in airways at the time of extubation the frequency of laryngospasm occur in these patients is 95(75.4%) and those patients who have no presence of secretion at the time of extubation the frequency of laryngospasm occur in these patients is 31(24.6%).

Table .9. ASA grading

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ASA Class 1	37	29.4	29.4	29.4
	ASA Class 2	89	70.6	70.6	100.0
	Total	126	100.0	100.0	

In table 9 we see that frequency of laryngospasm occur in ASA Class 1 patients is 37(29.4%) and frequency of laryngospasm occur in ASA Class 2 patients is 89(70.6%).

Table 10. Type of laryngospasm are present

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Mild	29	23.0	23.0	23.0
	Moderate	29	23.0	23.0	46.0
	No	68	54.0	54.0	100.0
	Total	126	100.0	100.0	

In table 10 we see that frequency of mild laryngospasm occur in patients is 29(23.0%), frequency of moderate laryngospasm occur in patients is 29(23.0%) and no laryngospasm occur in patients

is 68(54.0%). We have total number of 126 patients in data collection. Laryngospasm is a transient and reversible spasm of the vocal cords that temporarily makes it difficult to speak or breath. It is incomplete or through loss of airway. This obstruction is defined at laryngospasm. Most of research study is based on laryngospasm that who spasm occur and which of the following techniques should be used for treatment. We collect our data in the ENT ward in Khyber teaching hospital (KTH) Peshawar. We collect the data from 126 patients in which we see that frequency of laryngospasm is more in males than females. On the bases of age we see that frequency of laryngospasm is high in children whose age is 6 to 10 years. Our research study also shows that most of the patients have high risk of laryngospasm in tonsillectomy procedures in our data collection frequency of laryngospasm in patients whose procedures is tonsillectomy is 93(73.8%). Those patients who used Isoflourane is a inhalational the frequency of laryngospasm in these patients is high than those who used sevoflourane as a in halation agent see on table5. Those patients who used cuff ETT tube the irrational is high in these patients and frequency of laryngospasm is also high than those who used un cuffed tube. Also smokers have high risk of laryngospasm than those who are un smokers. 75.4 % patients in which laryngospasm occur the presence of secretion in air way in these patients is high than those who do not have any secretion in air ways. 37 of our patients in which no laryngospasm occur is ASA Class1 patients and others are ASA Class2 patients. Now we see that which of the following techniques should be used for treatments. 57 of our laryngospasm patients whose percentage is (45.2%) should treated by oxygenation with positive pressure ventilation, 2 patients whose percentage is (1.6%) should be treated with Airway manure and SADS, 2 of our patients should be treated through pharmacologically and 65 patients whose percentage is (51.6%) have no laryngospasm.

Conclusion

At the conclusion we identified that laryngospasm is caused due to general anesthesia but there is no any specifically indicated surgery of ENT which make the individual to develop laryngospasm, but the review of many researcher show that the actual cause of laryngospasm is anesthesia and removing of the tracheal tube when the patient is not fully recovered for the anesthesia. The age is to be said the third variable because our study indicate the individual with old are more vulnerable to develop but many researchers suggest that the prominent age for the laryngospasm is childhood and mostly the paed. The support therapy such as oxygen support which is to be oxygen mask is also a risk for the patient to develop the laryngospam.

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