

## Original Research Article

# A study on otorhinolaryngology related emergency surgical procedures performed under general anaesthesia in a teaching hospital

Krishna P. Koirala\*, Bikram B. Karki, Manita Maharjan

Department of ENT-HNS, Manipal College of Medical Sciences, Pokhara, Nepal

**Received:** 09 June 2020

**Revised:** 06 July 2020

**Accepted:** 08 July 2020

### \*Correspondence:

Dr. Krishna P. Koirala,

E-mail: [gaukrishna9@gmail.com](mailto:gaukrishna9@gmail.com)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

**Background:** Most of the ear, nose and throat related disorders that present in emergency can be managed without anaesthesia. Some of them are potentially life threatening and critical requiring surgical interventions under general anaesthesia, too. Ear, nose, and throat related emergency conditions are in rise due to increased incidence of road traffic accidents, social violence and physical assault. This study was performed to find out common ear, nose, throat and head and neck related emergency conditions that required emergency surgical procedures under general anaesthesia for their treatment.

**Methods:** One hundred and seventy-seven patients were enrolled in this prospective cross-sectional study. Patients who underwent emergency operative procedures under general anaesthesia were assessed to find out the common reasons of admission and the common procedures performed for their treatment.

**Results:** Out of 177 patients enrolled in the study, 26.6% were children below the age of 10 years. About three fourths (74.6%) had presented with foreign body in the ear, nose, or throat, and about 77% of them requiring anaesthesia were foreign bodies of the esophagus. Next most common surgical procedures were performed for different traumatic injuries (23.7%). Rest 1.7% of patients required other procedures like tracheostomy, sphenopalatine artery cauterization and traumatic split lobule repair under general anaesthesia.

**Conclusions:** Foreign bodies in the ear, nose and throat are the most common emergency conditions requiring emergency surgery under general anaesthesia followed by traumatic cut injuries in our institution. Prompt treatment of the emergency condition is required for the better patient outcome.

**Keywords:** Foreign body, General anaesthesia, Otorhinolaryngology emergencies, Surgical procedures, Trauma

## INTRODUCTION

In recent years, there has been an increase in the number of patients seen in emergency services. This is particularly due to better understanding of disease, altered food habits and increased incidence of road traffic accidents. Accidental foreign body ingestion and aspiration, motor vehicle accidents, machinery related accidents and physical assault all lead to otorhinolaryngology related emergencies. Injuries in different subsites of ear, nose and throat and head and

neck constitute the major portion of emergency patients. Most of the emergency conditions can be managed in the emergency room but few of them need to be taken to the operation theatre for definitive treatment. Few of them will require general anaesthesia for the treatment. Injuries like penetrating neck require emergency neck exploration that may be life threatening leading to around 12% chance of mortality.<sup>1</sup>

In a study performed by Adediji et al in Nigeria, epistaxis, trauma to nose and face and pharyngo-

esophageal foreign bodies were found to be the most common indications for emergency otorhinolaryngological admissions. Out of the admitted patients, sixty percent of them had undergone emergency surgical procedures with 86.7% of them having satisfactory outcome.<sup>2</sup> In a similar study done by Bleach et al, 46% of all the admitted patients from emergency department required operation under general anaesthesia.<sup>3</sup> In a study performed on ear, nose and throat injuries in Tanzanian patients, foreign bodies were the commonest cause of injury followed by road traffic accidents. Foreign body removal and surgical wound debridement were the most common treatment modalities performed for the admitted patients.<sup>4</sup> Likewise 65% of all otorhinolaryngological emergency foreign bodies were removed under general anaesthesia in a study performed by Awad et al.<sup>5</sup>

In a developing country like Nepal, where there is still deficiency of the specialized services specially in the rural areas, medical officers come across most of the emergency otorhinolaryngology conditions. They must identify the strata of patients which need no anaesthesia, local anaesthesia or general anaesthesia. If adequately trained, they will be able to refer the patients early to the ear, nose, and throat specialist for definitive treatment. This study also will give us an idea about how many patients need admission from the emergency and how many of them need emergency surgery under general anaesthesia. This provides an idea about workload of otorhinolaryngologists and anesthesiologists, too.

## METHODS

This study was a cross sectional, descriptive study carried in the department of otorhinolaryngology and head and neck surgery, Manipal College of Medical Sciences, Pokhara, Nepal from 1st January 2015 to 31st December 2018. Patients who were admitted from emergency department and underwent emergency procedures under general anaesthesia were included in the study. Patients with incomplete or lost records were excluded from the study.

Proper history taking and clinical examination were carried out regarding the type of trauma or emergency condition and patients were prepared for emergency surgical procedure after relevant investigations were performed. Verbal explanation as well as written consent was taken explaining the type of emergency condition and the type of intervention planned along with the risk and benefits. General anaesthesia in the form of intravenous or endotracheal intubation was given and the procedure performed. A datasheet on age of the patient, cause or type of injury, site affected, and type of procedure all were recorded in Microsoft excel worksheet. Statistical analysis was performed with the help of SPSS software and analysis was done to publish the results. Conclusion were made according to the results.

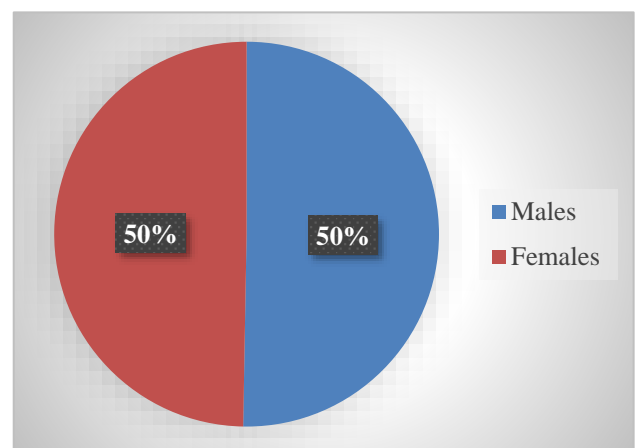
## RESULTS

Two hundred and eight patients were operated on an emergency basis in our department from 1st January 2015 to 31st December 2018. Out of them, 177 patients met the inclusion criteria and thus were finally included in the analysis.

There were 89 males and 88 females with no sex predilection (Figure 1). Age of the patients ranged from 1 year to 92 years with mean age of  $34.2 \pm 24.54$  years (Table 1 and Figure 2). Forty-seven patients (26.6%) who required anaesthesia were children till the age of 10 years, followed by 31 to 40 and 41 to 50 years of age 13% each. People after 70 years till 92 years were 10 in number.

**Table 1: Age range of patients in relation to sex and frequency (n=177).**

Age in years	Males	Females	Total number	Percentage
1-10	25	22	47	26.6
11-20	9	8	17	9.6
21-30	7	9	16	9
31-40	13	10	23	13
41-50	14	9	23	13
51-60	6	15	21	11.9
61-70	10	10	20	11.3
>71	5	5	10	5.6
<b>Total</b>	<b>89</b>	<b>88</b>	<b>177</b>	<b>100</b>

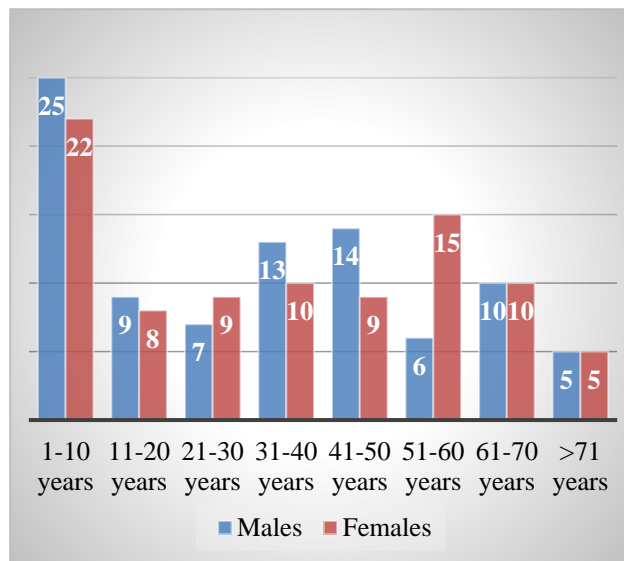


**Figure 1: Number of patients according to sex distribution (n=177).**

Maximum number of patients who needed emergency intervention were children till the age of 10 years. They accounted for 26.6% of all the samples under study. Emergency procedures were less commonly performed in patients after the age of 70 years.

Most of the emergency procedures were performed for foreign bodies. Out of 177 emergency surgery under general anaesthesia, 132 (74.6%) cases turned out to be

of foreign bodies (around three quarters). Esophageal foreign bodies requiring rigid esophagoscopy were the maximum. Ninety-three 77.5% cases required rigid esophagoscopy under general anaesthesia. Out of 27 foreign bodies in the oropharynx and hypopharynx, 15 (12.5%) were removed with the help of rigid hypopharyngoscopy whereas 12 (10%) were removed by the anesthesiologists with the Magill's forceps during intubation. Four patients 3% each of foreign body bronchus, foreign body nose and foreign body ear required general anaesthesia for their removal. There were no complications due to the endoscopic procedures.



**Figure 2: Distribution of patients according to different age groups (n=177).**

Second common types of emergencies requiring general anaesthesia were traumatic conditions of ear, nose, throat and neck including cut injuries, lacerations and penetrating trauma. They accounted for 42 cases out of 177 (23.7%). Out of them, lip and palate injury were the maximum followed by traumatic neck injury and cut injury of nose. Out of traumatic neck injuries 4.5%, there were 4 cases of laryngotracheal trauma, 3 penetrating neck injuries with foreign bodies, and one vascular injury (ruptured hemangioma). There was one mortality of neck injury on the 3rd post-operative day (Table 3).

**Table 2: Lodgement of foreign bodies in different subsites of ear, nose and throat (n=132).**

Site of foreign body lodgement	Frequency (n)
Esophagus	93
Oropharynx and hypopharynx	27
Nose	4
Ear	4
Bronchus	4
Total	132

**Table 3: Traumatic conditions that required intervention under general anaesthesia (n=42).**

Types of injuries	No. of patients
Tongue injuries	5
Traumatic neck injuries	8
Cut injury pinna	6
Lip and palate	10
Cut injury/laceration of face	6
Cut injury of nose	7
Total N (%)	42 (23.7)

Rest of 1.7% required other procedures like tracheostomy, sphenopalatine artery cauterization and traumatic split lobule repair under general anaesthesia.

## DISCUSSION

Main aim of this study was to analyse how many patients of ear, nose and throat related emergency condition required operative intervention under general anaesthesia.

We had 177 samples in the study with no difference between males and females with the age ranging from 1 to 92 years. Mean age of patients in our study was 34.2 years. This is in accordance with the study performed by Herve et al with mean age of 31.8 years although they had slight male preponderance 58% in their study.<sup>6</sup>

Children of 10 years and less were mostly affected in our study. Forty-seven (26.6%) children of less than or equal to ten years required general anaesthesia to manage their emergency problem. Elderly people of more than 71 years were the lowest in numbers. In a study performed by Ibekwe et al, children from 0-10 years constituted the maximum number of cases 31.02% and the least being patients between the age of 61-70 years.<sup>7</sup> Barman et al also found that their majority of patients were children in their first decade.<sup>8</sup>

Foreign body aspiration/ingestion/insertion were the most common emergency (74.6%) followed by trauma (23.7%) in our study. In one study, foreign bodies accounted for 89.60% of all children below 15 years presenting with ENT related emergencies.<sup>9</sup> The commonest causes of emergency admissions were foreign bodies in the oesophagus in 41.3% patients in a study performed by Kitcher et al.<sup>10</sup> Esophageal foreign bodies were a relatively common problem in pediatric patients.<sup>11</sup> Small children have a common curiosity of putting objects into their mouth which might be a common cause for increased incidence of foreign bodies in the aerodigestive tract of children according to Koirala et al.<sup>12</sup>

Rigid esophagoscopy under general anaesthesia was the most performed emergency procedure in 75.5% of foreign bodies. It is a routinely used effective tool to remove foreign bodies from the esophagus both in adults and children.<sup>13</sup> However, rigid hypopharyngoscopy and

Magill's forceps were used in rest of the patients. Blunt foreign bodies like coins in the upper end of the esophagus can be extracted using a Magill forceps technique if visible during intubation.<sup>14</sup>

Other common emergency conditions requiring general anaesthesia were otorhinolaryngology related trauma. Cut injury and lacerations of ear, nose and palatal trauma in children required primary closure under general anaesthesia.

Traumatic neck injuries occurred in 8 patients 4.5%. A child with ruptured vascular malformation of neck had mortality on the 3rd post-operative day. This was within the range of expected mortality in neck injuries.<sup>15</sup>

## CONCLUSION

Foreign bodies in the ear, nose and throat are the most common emergency conditions requiring emergency surgery under general anaesthesia followed by traumatic cut injuries in our institution. Prompt treatment of the emergency condition is required for the better patient outcome.

## ACKNOWLEDGEMENTS

We are thankful to our patients for their willingness to take part in the study and making it possible to complete.

*Funding: No funding sources*

*Conflict of interest: None declared*

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

## REFERENCES

1. Thani AH, Menyar EA, Mathew S, Khawar M, Asim M, Abdelrahman H, et al. Patterns and outcomes of traumatic neck injuries: A population-based observational study. *J Emerg Trauma Shock*. 2015;8(3):154-8.
2. Adedeji TO, Sogebi OA, Tobih JE. Pattern of Otorhinolaryngological Admissions via Emergency Unit in a Suburban Tertiary Centre. *Int J Biomed Sci*. 2015;11(3):146-51.
3. Bleach NR, Williamson PA, Mady SM. Emergency Workload in Otolaryngology. *Ann R Coll Surg Engl*. 1994;76(5):335-8.
4. Gilyoma JM, Chalya PL. Ear, nose and throat injuries at Bugando Medical Centre in north western Tanzania: a five years prospective review of 456 cases. *BMC Ear Nose Throat Disord*. 2013;13:4.
5. Awad AH, Taher EM. ENT Foreign Bodies: An Experience. *Int Arch Otorhinolaryngol*. 2018;22(2):146-51.
6. Herve JF, Wiorowski M, Schultz P, Chambres O, Lannoy L, Rakotobe H, et al. ENT Resident Activity in the Strasbourg Hospital ENT Emergency Clinic. *Ann Otolaryngol Chir Cervicofac*. 2004;121(1):33-40.
7. Ibekwe UM. Otorhinolaryngological emergencies in a Tertiary Hospital in Port Harcourt. *Niger J Clin Pract*. 2017;20:606-9.
8. Barman D, Maridal S, Goswami S, Hembram R. Three years audit of the emergency patients in the department of ENT of a rural medical college. *J Indian Med Assoc*. 2012;110(6):370-4.
9. Ibekwe MU, Lucky OO, Otaigbe B. Foreign body in the ear, nose and throat in children: a five years review in Niger delta. *Afr J Paediatr Surg*. 2012;9(1):3-7.
10. Kitcher ED, Jangu A, Baidoo K. Emergency Ear, Nose and Throat Admissions at the Korle-Bu Teaching Hospital. *Ghana Med J*. 2007;41(1):9-11.
11. Altokhais TI, Saleem AA, Gado A, Qahtani AA, Bassam AA. Esophageal foreign bodies in children: Emphasis on complicated cases. *Asian J Surg*. 2017;40(5):362-6.
12. Koirala K, Rai S, Chettri S, Shah R. Foreign body in the esophagus - comparison between adult and pediatric population. *Nepal J Med Sci*. 2012;1(1):42-4.
13. Mondal PJ, Saha S, Ghosh A, Sengupta M. Removal of Foreign Bodies from Esophagus with Flexible Endoscope - A Case Report. *Indian J Otolaryngol Head Neck Surg*. 2014;66(1):78-80.
14. Mahafza TM. Extracting Coins from the Upper End of the Esophagus Using a Magill Forceps Technique. *Int J Pediatr Otorhinolaryngol*. 2002;62(1):37-9.
15. Mahmoodie M, Sanei B, Bistgani MM, Namgar M. Penetrating Neck Trauma: Review of 192 Cases. *Arch Trauma Res*. 2012;1(1):14-8.

**Cite this article as:** Koirala KP, Karki BB, Maharjan M. A study on otorhinolaryngology related emergency surgical procedures performed under general anaesthesia in a teaching hospital. *Int J Otorhinolaryngol Head Neck Surg* 2020;6:1413-6.