



Characteristics and Outcome of Ear, Nose, Throat-Head and Neck Emergency Surgeries in a Tertiary Care Center: An Observational Study

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ABSTRACT

Background

Emergency Surgeries are those that is required to deal with an acute threat to life, organ or tissue caused by different disease process or complication of a surgical or other interventional procedure. Ear, Nose, Throat - Head and Neck emergency (ENT- HNS) surgeries are carried out to reduce morbidity and mortality. This study aimed to analyze the pattern and outcome of ENT-HNS emergency surgeries in a tertiary care center of western Nepal.

Methods

An observational study conducted among emergency surgery patients operated in the Department of ENT-HNS of a tertiary care center from January 2021 to December 2023. Ethical approval was received from the Institutional Review Committee of the Institute (MCOMS/IRC/634/GA). The total sampling method was used. Statistical Package for the Social Sciences (SPSS Version 18) was used for data analysis.

Results

Out of total 458 patients having operation in department, 138 (30.13%) were emergency surgeries. Among 138 patients, 82 (59.42%) were males and 56 (40.58%) were females. Most common emergency surgery performed was rigid esophagoscopy with removal of foreign body 53(38.40%). Regarding outcome of surgery, 130 (94.22%) cases have favorable outcome ($p<0.001$) whereas 8 (5.78%) cases have unfavorable outcome ($p<0.001$).

Conclusions

Though emergency surgical procedures reduce morbidity and mortality but they are also not free of complications. Emergency surgery accounts for one third of the total ENT and HNS surgeries and overall complications rate of the emergency procedures accounts for 3.62% in our center.

Keywords: emergency; foreign body; outcome.

INTRODUCTION

Ear, Nose, Throat - Head and Neck (ENT-HNS) emergency surgeries are common in all tertiary care hospitals. Emergency surgical procedures are essential for addressing life threatening conditions, preserving organ functions and minimizing complications and long-term impact on patient which will ultimately reduce morbidity and mortality.¹⁻³ The Royal College of Surgeons of England state that overall ENT surgical emergency is lower as less than 10% but globally, the number of patients visiting emergency departments, requiring ENT-HNS emergency surgical care, has

recently increased.^{4,5} In Nepal where there are few tertiary centers with ENT-HNS specialty, the gravity of emergency surgery should be understood by all health care workers and appropriate immediate action should be taken for emergency cases to reduce morbidity and mortality. There have been very few studies done in our part of the world that project the characteristics and outcome of ENT-HNS emergency surgeries. Therefore, this study was undertaken to analyze the pattern and outcome of ENT-HNS emergency surgeries in a tertiary care center of western Nepal.

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METHODS

This is an observational study conducted using retrospective data. The operative and discharge summaries of Ear, Nose, Throat, Head, and Neck surgery between January 2021 and December 2023 were the data for this study. This study was conducted at Department of ENT-HNS, Manipal Teaching Hospital, which is a tertiary care teaching hospital. Ethical approval was received on 23/7/2024 from the Institutional Review Committee of the Institute (MCOMS/IRC/634/GA). All emergency surgeries of the department during the study period were included in the study. Elective surgeries of the department and incomplete or missing data were excluded from the study. Since the total population during the study period was taken, therefore, total sampling method was applied. Patient demography, types of emergency conditions, and types of emergency surgeries. types of anesthesia used during surgery and outcomes after emergency surgery were the variables considered for this study. The outcomes were defined as operative complications, reoperation, readmission and mortality.⁶ Data regarding patient demography, types of emergency conditions, types of emergency surgeries and types of anaesthesia used were retrieved from operative note and outcome of surgery is retrieved from operative note and discharge summaries. Descriptive statistics along with Chi-square test was used using Statistical Package for the Social Sciences (SPSS Version 18). p-value <0.05 was considered as statistically significant.

RESULTS

Out of total 458 surgeries between January 2021 and December 2023, 138 (30.13%) were emergency surgeries. Out of 138 patients included in the study, 82 (59.42%) were male and 56 (40.58%) were female. The minimum age of presentation was 8 months and the maximum age was 87 years with a mean age of 32.96±23.63 years (Table 1).

Rigid oesophagoscopy with removal of the foreign body was performed in 53(38.40%) patients, incision and drainage of head and neck abscess in 30 (21.73%) patients and primary repair of head and neck injuries in 18 (13.04%) patients (Table 2).

Table 1. Age and Gender distribution of patients with emergency Ear, Nose, Throat- Head and Neck Surgery (n = 138).

| Age | Gender | | Total n(%) |
|-------|-------------|-------------|-------------|
| | Male n(%) | Female n(%) | |
| ≤10 | 17 (12.32%) | 14 (10.14%) | 31 (22.46%) |
| 11-20 | 10 (7.25%) | 6 (4.35%) | 16 (11.59%) |
| 21-30 | 16 (11.59%) | 7 (5.07%) | 23 (16.66%) |
| 31-40 | 11 (7.98%) | 10 (7.25%) | 21 (15.21%) |
| 41-50 | 7 (5.07%) | 5 (3.62%) | 12 (8.69%) |
| 51-60 | 5 (3.62%) | 4 (2.90%) | 9 (6.52%) |
| 61-70 | 9 (6.52%) | 6 (4.35%) | 15 (10.86%) |
| 71-80 | 5 (3.62%) | 2 (1.45%) | 7 (5.07%) |
| ≥81 | 2 (1.45%) | 2 (1.45%) | 4 (2.89%) |
| Total | 82 (59.42%) | 56 (40.58%) | 138(100%) |

Table 2. Diagnosis and emergency operative procedures of Ear, Nose, Throat- Head and Neck (n=138)

| Diagnosis | Operative procedure | Frequency (%) |
|---|---|---------------|
| Foreign body in food passage | Rigid esophagoscopy | 53 (38.40%) |
| Head and neck abscess | Incision and drainage | 30 (21.73%) |
| Head and neck injury | Primary repair | 18 (13.04%) |
| Epistaxis | DNE with cauterization of bleeding point+/- ESPAL | 11 (7.97%) |
| Emergency indicated tracheostomy | Emergency tracheostomy | 8 (5.79%) |
| Foreign body in bronchus | Rigid bronchoscopy | 6 (4.34) |
| Nasal bone fracture | Closed reduction | 6 (4.34%) |
| Foreign body in nose | Removal | 2 (1.44%) |
| Foreign body in ear | Removal | 2 (1.44%) |
| Acute rhinosinusitis with orbital abscess | FESS | 1 (0.72%) |
| Carcinoma alveolus with oral cavity bleed | Cauterization of bleeding point | 1 (0.72%) |

*DNE: Diagnostic nasal endoscopy, ESPAL: Endoscopic sphenopalatine artery ligation, FESS: Functional endoscopic sinus surgery.

General anesthesia was used in 96 (69.57%) cases, intravenous anesthesia in 25 (18.11%) and local anesthesia in 17 (12.32%) cases of emergency surgeries (Table 3).

Regarding outcome of surgery, 130 (94.22%) cases have favorable outcome (p<0.001) whereas 8 (5.78%) cases have unfavorable outcome (p<0.001). Among 8 cases of unfavorable outcome, 5 (3.62%) cases develop complication, 1 (0.72%) case need reoperation, 1 (0.72%) case was readmitted and 1 (0.72%) mortality occurred after emergency surgery (Table 4).

Table 3. Types of Anaesthesia used in Ear, Nose, Throat-Head and Neck Emergency Surgeries (n=138).

| Anaesthesia | Frequency (%) |
|-------------------------|---------------|
| General Anaesthesia | 96 (69.57%) |
| Intravenous Anaesthesia | 25 (18.11%) |
| Local Anaesthesia | 17 (12.32%) |

Table 4. Outcome of Ear, Nose, Throat-Head and Neck Emergency Surgeries.

| Outcome | Frequency (%) |
|---------------|---------------|
| Favorable | 130 (94.22) |
| Unfavorable | |
| Complications | 5 (3.62) |
| Reoperation | 1 (0.72) |
| Readmission | 1 (0.72) |
| Mortality | 1 (0.72) |

DISCUSSION

In this study, we included a total of 138 patients undergone emergency surgery over two years. Among them 82 (59.42%) were male and 56 (40.58%) were female. The higher proportion of males is consistent with other studies done in various countries.^{5,7} In a similar study done by Gomes PM et al. the age ranged from 6 months to 96 (mean 46) years.⁵ This is similar to our study where age ranged from 8 months to 84 (mean 32.96±23.63) years. In our study, most common emergency surgery performed was rigid oesophagoscopy with removal of foreign body 53(38.40%) followed by incision and drainage of head and neck abscess 30 (21.73%), primary repair of head and neck injuries 18 (13.04%), DNE with cauterization of bleeding point+/- ESPAL 11 (7.97%) and emergency tracheostomy 8 (5.79%). Similar findings were observed in a study conducted by Khan MA et al.⁷ But, Ibekwe found tracheostomy 416 (19.25%), direct laryngoscopy 410 (18.98%), rigid esophagoscopy 340 (15.74%), neck exploration and repair 10(0.46%) and incision and drainage of abscesses 10(0.46%) were the common emergency surgical procedures⁸ which is also supported by the studies conducted by Aremu SK⁹ and Gomes PM et al.⁵ Most of the literatures showed rigid esophagoscopy, incision and drainage of abscesses, repair of wounds, tracheostomy are the common emergency surgical procedures which supports the findings of our study.

Ear, nose and throat emergency procedures demand significant anesthetic challenges. In view of shared airway, the requirement for understanding between the surgeon and the anesthesiologist is doubtless.¹⁰ In our study, common anaesthesia required during the emergency surgery was general anaesthesia 96 (69.57%) followed by intravenous anaesthesia 25 (18.11%) and local anaesthesia 17 (12.32%). Khan MA et al. also found general anesthesia was commonly required 72 (18%) which mostly include foreign bodies in aero digestive tract and severe head and neck injuries.⁷ Bleach et al. in his study with 230 admitted emergency cases, majority 107(46.52%) emergency surgeries were done under GA.⁴ Regarding outcome of emergency surgery, there haven't been any studies done to summarize overall outcome of ENT-HNS emergency surgeries. Most of the studies were done to analyze the outcome of common individual emergency surgical procedure. In our study, 130 (94.22%) cases have favorable outcome (p<0.001) whereas 8 (5.78%) cases have unfavorable outcome (p<0.001). Among 8 cases of unfavorable outcome, 5 (3.62%) cases develop complication in which 3 cases were following rigid oesophagoscopy, one case developed perichondritis following primary repair of pinna injury and one case was complicated as septal perforation following incision and drainage of septal abscess. One (0.72%) case was reoperated (ESPAL) for refractory epistaxis following DNE with cauterization of bleeding point, 1 (0.72%) case was readmitted after primary repair of facial wound for wound infection and 1 (0.72%) mortality occurred after emergency surgery. Out of 53 rigid esophagoscopy cases, 3 (5.66%) cases were complicated as mucosal tear and all are managed successfully with conservative management. Studies have reported that complication rates following rigid esophagoscopy have been 7.2% and 8.33% respectively^{11,12}, which is almost similar to our study. In this study, 30 (21.73%) incision and drainage were done for head and neck abscess without any complications of the procedure which is also supported by the study conducted by Dudhe P et al.¹³ Although, mortality rates remain low at <

0.1% for rigid bronchoscopy as described in many previous studies^{14,15} out of six rigid bronchoscopies, we encountered one mortality case of foreign body in right bronchus complicated with pneumothorax which was referred from another center.

CONCLUSIONS

Though emergency surgical procedures reduce morbidity and mortality but they are also not free of complications. Emergency surgery accounts for one third of the total ENT and HNS surgeries with rigid esophagoscopy with removal of foreign body being the commonest procedure. Regarding outcome of emergency surgery, 5.78% cases have adverse outcome. Overall complications rate of the emergency

procedures accounts for 3.62% in our center. This study was limited to single health care center with small sample size and also doesn't compare with elective surgery. Thus, similar study with larger sample size conducted in multiple health care center may reflect national and global trends in ENT-HNS emergency surgeries. Also, comparisons between emergency and elective surgeries could provide deeper insight into complications rate and outcomes. Even though this kind of study provide data for health care centers and government policy makers for improving surgical protocols and reducing complications rate.

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