

Spectrum of ENT Emergencies in a Tertiary Care Centre- A Retrospective Study

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Abstract

Background: Ear, Nose, and Throat emergencies are common presentations in the emergency department. The ENT emergency spectrum ranges from simple earache and foreign bodies to critical life-threatening conditions like stridor, penetrating neck trauma and severe respiratory distress syndrome. Early diagnosis and prompt management can significantly reduce both morbidity and mortality associated with ENT emergencies.

Aim: To determine the demographic characteristics of patients presenting with ENT emergencies to our institution, and to determine the magnitude, distribution pattern and outcomes of ENT Emergencies at our institution.

Methods: This is a descriptive, retrospective study was conducted in a tertiary care institution in Kanyakumari district of Tamilnadu, India. The study period was for 24 months and included all the patients who presented to the casualty/ENT outpatient department due to ENT emergencies during the study period. The collected data was stored and analysed using Microsoft Excel.

Results: A total of 1700 patients were included in this study with a Male to Female ratio of 1.1:1. The majority of ENT emergencies were related to the ear (60.4%) with otalgia (35.4%) being the most common presenting complaint, followed by bleeding from nose (21.5%). Acute otitis media (29.2%) was the most observed otological emergency followed by otitis externa (25.3%). Foreign body in the nose (28.2%) was the most observed rhinological emergency. 39 subjects presented with stridor and 84.6% of them required a tracheostomy.

Conclusion: ENT emergencies are frequent occurrences in which timely intervention decreases associated morbidity and mortality.

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Introduction

Emergency services are an integral part of a proactive healthcare system. Ear, Nose, & Throat emergencies are a common occurrence in the emergency department. The ENT Emergency spectrum ranges from simple earache, ear, nose, or throat foreign bodies to critical life-threatening conditions like stridor, penetrating neck trauma and severe respiratory distress syndrome (1). The ears and nose, crucial facial structures, are highly exposed to the external environment, increasing their

susceptibility to trauma and foreign body ingestion. Additionally, the extensive blood supply of the nose renders it more prone to bleeding. While many instances of epistaxis are minor and manageable, severe bleeding can also be life-threatening. (2). Several factors contribute to the increased prevalence of ENT emergencies, including the burgeoning population, the proliferation of high-speed, powerful vehicles that exceed the corresponding traffic conditions, and the occurrence of sports injuries. This escalating

incidence poses substantial challenges for ENT surgeons. The ears and noses are situated in close proximity to the brain, and the nose is also intricately connected to the orbit. Consequently, delayed treatment of infections in these areas can lead to serious intra-orbital or intra-cranial complications, resulting in increased morbidity and mortality. ENT emergencies necessitate specialized anatomical knowledge, skilled personnel and specific instruments and equipment for effective patient management. Early diagnosis and prompt management can significantly reduce both morbidity and mortality associated with ENT emergencies (3). ENT injuries may pose serious risks, particularly if they compromise the airway, potentially resulting in rapid and life-threatening situations (4). The Aims of this study were as to determine the demographic characteristics of patients presenting with ENT emergencies to our institution, and the magnitude, distribution pattern and outcomes of ENT Emergencies at our institution.

Methods

We conducted a descriptive, retrospective study in a tertiary care healthcare institution located in Kanyakumari district of Tamilnadu, India. The study period was 24 months starting from October 2022 to October 2024. All the patients who presented to the casualty/ENT outpatient department with ENT emergencies were included in the study. Data was collected retrospectively from the medical records of the included study subjects. The collected data included basic demographic and clinical details, the site/subsite involved and details about the emergency procedure performed and the outcomes. The collected data was stored and analysed using Microsoft Excel. Case records with incomplete/insufficient data were excluded from the study.

Results

A total of 1700 patients who presented with ENT emergencies during the study period were included in this study, of which, 901 were males

and 799 were females. Among the study population, majority of the patients belonged to the age group of 41-50 years (20.2%), followed by the age group of 31-40 years (17%). On distributing the study population based on the site involved it was observed that the vast majority of ENT emergencies were related to the ear (60.4%), followed by the nose (29.4%). About 10.2% of the emergencies were linked to the throat-including the larynx (Figure. 1).

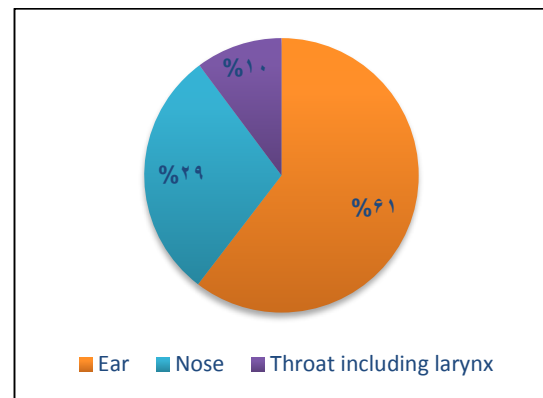


Figure 1. Distribution of ENT emergencies according to site involved

Upon distributing the study population based on the chief complaint at presentation, it was observed that otalgia (35.4%) was the most prevalent presenting complaint, subsequently followed by epistaxis (21.5%) and acute onset vertigo (15.9%). Less frequently, patients presented with trismus (0.7%) and facial nerve palsy (1.1%) (Figure. 2). Among the 365 patients who presented with epistaxis, trauma was the primary etiological factor in the majority (36.4%), followed by hypertension (23.8%) (Table 1). In the subdivision of all ear-related emergencies based on their diagnosis, acute otitis media (AOM) emerged as the most prevalent condition, accounting for 29.2% of the cases. Otitis externa followed closely behind, with a prevalence of 25.3%. Additionally, sudden sensorineural hearing loss (SNHL) was observed in 3.6% of patients, while temporal bone fractures affected 3.2% of the population. Among the 270 patients who presented with acute onset giddiness, the following diagnoses were made: 63 patients

were diagnosed with benign paroxysmal positional vertigo (BPPV), 56 patients with vestibular migraine, 23 patients with

labyrinthitis, and 10 patients with Meniere's disease (Table 2).

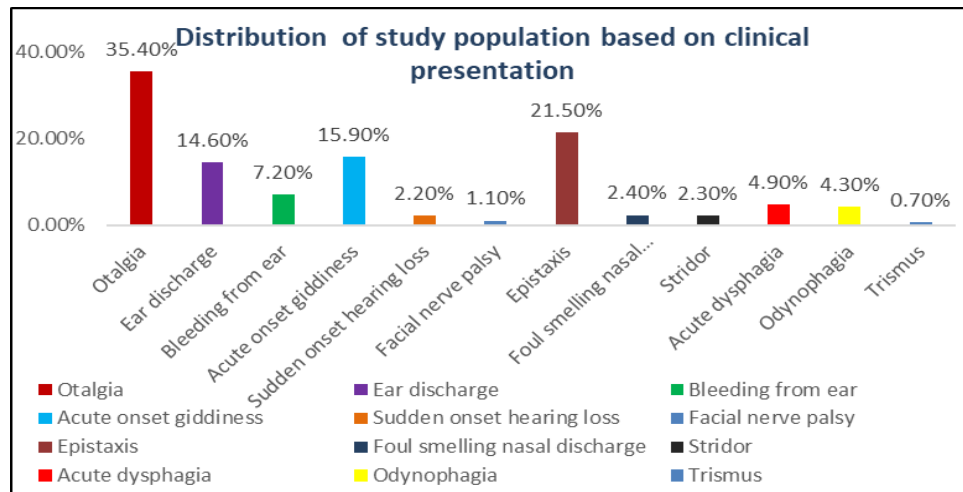


Figure 2. Distribution of study population based on clinical presentation

Table 1. Distribution of patients presenting with epistaxis based on etiopathology

Presenting Complaint	Frequency	Percentage
Traumatic Epistaxis	133	36.4 %
Hypertensive Epistaxis	87	23.8 %
Epistaxis due to inflammatory causes	62	17 %
Epistaxis secondary to Sinonasal tumours	17	4.7 %
Epistaxis secondary to systemic disorders	15	4.1 %
Drug induced Epistaxis	8	2.2 %
Idiopathic Epistaxis	43	11.8 %

Table 2. Distribution of otological emergencies based on diagnosis

Diagnosis	Frequency	Percentage
Acute Otitis Media (AOM)	300	29.2 %
Otitis Externa	260	25.3 %
Sudden Sensorineural Hearing loss	37	3.6 %
Bell's Palsy	12	1.2 %
Pinna Laceration	23	2.2 %
Foreign body in Ear	72	7 %
Traumatic Perforation of Tympanic membrane	19	1.9 %
Temporal bone fracture	33	3.2 %
BPPV	63	6.1 %
Labyrinthitis	23	2.2 %
Vestibular neuritis	11	1.1 %
Vestibular migraine	56	5.5 %
Vestibular paroxysmia	6	0.6 %
Meniere's disease	10	1 %
Vertigo secondary to systemic disorders	80	7.8 %
Vertigo due to central causes	21	2 %

In classifying nasal emergencies, foreign bodies in the nose (28.2%) were the most

prevalent, followed by septal hematomas (4.9%) and sinonasal tumors (4.9%) (Table 3).

Table 3. Distribution of rhinological emergencies based on diagnosis

Diagnosis	Frequency	Percentage
Nasal bone fracture	38	11 %
Foreign body in Nose	98	28.2 %
Sinonasal tumours	17	4.9 %
Infectious/Inflammatory conditions	62	17.9 %
Other Facio-maxillary trauma	95	27.4 %
Septal Haematoma	17	4.9 %
Vestibulitis of nose	20	5.8 %

Similarly, in distributing emergencies related to the throat and larynx, foreign bodies in the throat (55.7%) were the most common, followed by malignancies (17.2%) and deep neck space infections (14.4%) (Table 4). Among the 25 patients diagnosed with deep neck space infection (DNSI), Ludwig's angina was the most prevalent condition, affecting 40% of the cases. Peritonsillar abscesses were the second most common diagnosis, occurring

in 28% of the patients. Retropharyngeal and parapharyngeal abscesses were diagnosed in four cases each. Additionally, two children were admitted to the casualty due to airway foreign bodies, while nine patients presented with foreign bodies in their esophagus. Laryngeal edema was observed in four patients. A total of 39 patients exhibited active stridor (Table 5).

Table 4. Distribution of emergencies related to the throat and larynx based on diagnosis

Diagnosis	Frequency	Percentage
Deep Neck Space infections	25	14.4 %
Foreign body in Throat	97	55.7 %
Foreign body in Oesophagus	9	5.2 %
Foreign body in Trachea/Bronchi	2	1.1 %
Bilateral Vocal cord paralysis	7	4 %
Malignancy	30	17.2 %
Laryngeal oedema	4	2.3 %

Table 5. Distribution of patients with stridor based on etiopathology

Diagnosis	Frequency	Percentage
Malignancy of Larynx	10	25.6 %
Malignancy of Hypopharynx	13	33.3 %
Malignancy of Oropharynx	5	12.8 %
Malignancy of Oral cavity	2	5.1 %
Laryngeal oedema	3	7.7 %
Foreign body in airway	1	2.6 %
Deep neck space infections	5	12.8 %

With regards to the management of stridor 84.6% of subjects required a tracheostomy while the remaining 15.4% patients were managed with the help of endotracheal intubation alone. Out of the 1700 subjects included in the study population, only 25.5%

patients required admission for management of the emergency, while the remainder were managed conservatively in the OPD/casualty or the minor procedure room (74.5%) (Table 6).

Table 6. Distribution of study population based on the mode of management of the emergency

Mode Of Management	Ear	Nose	Throat, Larynx	Total	
				Frequency	Percentage
Managed conservatively in OPD /Casualty/Minor procedure room	929	238	100	1267	74.5%
Required admission for management	97	262	74	433	25.5%

Discussion

ENT emergencies are frequently encountered in the casualty and ENT outpatient department (OPD). We conducted this study to evaluate the prevalence of Ear, Nose and Throat (ENT) emergencies at our institution which is in a semi-rural town in Tamilnadu, India. Our retrospective study included a total of 1700 patients who presented to the casualty / ENT OPD with an ENT emergency during the 2 years between October 2022 and October 2024. The study population included 901 Male and 799 Female patients with a Male to Female ratio of 1.1:1 which is similar to the findings of a UK based study by Bleach et al. (5). Majority of our study subjects belonged to the age group of 41-50 years (20.2%), followed by 31-40 years (17%). This observation was similar to a study conducted in a tertiary care centre in Telangana by G.Sreekanth et al. (1) in which the majority of study subjects were in the age group of 41-60 years.

Jose Santos Cruz de Andrade et al. (6) conducted a study in 2013 in a hospital in Sao Paulo for a period of 12 months and observed that otology was the most common subspecialty involved (65.41%) followed by rhinology (17.99%). In the present study, the majority of the included ENT emergencies were

related to the ear (60.4%), followed by the nose (29.4%), and the remainder were related to the throat and larynx (10.2%). This observation is also consistent with the study conducted by G.Sreekanth et al. (1).

The most common presenting complaint observed in the present study was Otagia (earache) in 35.4% of patients, followed by epistaxis (21.5%) and acute onset giddiness (15.9%). Less commonly, patients presented with trismus (0.7%) and facial nerve palsy (1.1%). When the 365 study subjects who presented with epistaxis were further subdivided based on the primary cause of the epistaxis, we observed that in majority of these patients the epistaxis was due to trauma (36.4%), followed by hypertension (23.8%) and inflammatory/infectious causes (17%). This observation is analogous with a study conducted in Kolkata by Somnath Saha et al. (7) in which 44.3% of all the epistaxis cases were traumatic followed by 23% cases with hypertensive epistaxis.

Sharma Yojana et al. (8) in their study conducted in Gujarat in 2010 observed that Otitis externa and Acute Otitis Media (AOM) were the most common causes of otological emergencies. Similarly, among the various otological emergencies observed in our study, acute otitis media (AOM) accounted for the

majority of cases, comprising 29.2% of the total. Otitis externa followed closely behind, with 25.3% of cases. Additionally, laceration of the pinna was present in 23 cases. Furthermore, among the 270 patients who presented with acute onset vertigo, 6.1% were diagnosed with benign paroxysmal positional vertigo (BPPV), 5.5% with vestibular migraine, 2.2% with labyrinthitis, and 1% with Meniere's disease.

In relation to rhinological emergencies, nasal foreign bodies accounted for the most prevalent occurrence, comprising 28.2% of cases. The majority of these foreign bodies were successfully removed during the casualty or outpatient department (OPD) using an eustachian tube catheter or foreign body hook. Nasal foreign bodies are a common occurrence in the pediatric population, as evidenced by a study conducted by G.Sreekanth et al. (1), which reported 28.1% of cases involving facial trauma. Other rhinological emergencies observed included nasal bone fractures (11%), vestibulitis (5.8%), septal hematoma (4.9%), sinonasal tumors (4.9%), and infectious/inflammatory conditions (17.9%), which encompassed cases of sinonasal polyposis, rhinosporidiosis, and other similar conditions. Facio-maxillary trauma, including cases of maxillary fractures, zygomatic fractures, mandibular fractures, and soft tissue injuries to the face (excluding nasal bone fractures), constituted approximately 27.4% of all nose-related emergencies.

Among the 174 patients who presented due to throat and larynx related emergencies a wide majority of patients presented with a foreign body (FB) in the throat (55.7%), followed by 17.2% patients who presented with malignancies and 14.4% patients who presented with a Deep neck space infection (DNSI) including Ludwig's angina (40%), peritonsillar abscess (28%), parapharyngeal abscess (16%) and retropharyngeal abscess (16%). DNSI are bacterial infections that arise from the upper aerodigestive tract and spread to the deep neck spaces. They commonly develop

after conditions like dental caries, tonsillitis, pharyngitis, head and neck trauma, or in individuals who use intravenous drugs (10). Ludwig's angina was first described in 1836 by German physician Wilhelm Friedrich von Ludwig as a rapidly progressing and often fatal gangrenous cellulitis or necrotizing fasciitis affecting the neck and floor of the mouth. Life-threatening complications of Ludwig's angina primarily include airway obstruction and septic shock, both of which require resuscitation and targeted airway management. The outcome of this condition relies on early diagnosis, timely surgical intervention, and the expertise of the treating team (11). 7 study subjects had bilateral Vocal Cord Paralysis (VCP). Laryngeal oedema was observed in 4 subjects which resulted mostly because of anaphylaxis due to sea food allergy, insect bite, etc.

Out of the 1700 study subjects, 39 presented with stridor. Upon analysing these cases based on the etiology of stridor, it was observed that the majority of cases (25.6%) were associated with laryngeal malignancies, of which 6 cases involved the supraglottis and 4 cases involved the glottis. Other causes of stridor observed at presentation included hypopharyngeal malignancies (33.3%), oropharyngeal malignancies (12.8%), deep neck space infections (12.8%), laryngeal edema (7.7%), malignancy of the oral cavity (5.1%), and one case involving a foreign body in the airway.

Out of the 39 patients who presented with stridor 33 patients (84.6%) required a tracheostomy as part of their management and the remainder were managed with the help of endotracheal intubation to secure the airway.

Upon analyzing and comparing the incidence of foreign bodies in various locations, a total of 278 cases of ENT foreign bodies were identified. Notably, the majority of foreign bodies were observed in the nose (35.3%), closely followed by the throat (34.9%), and the ear (25.9%). Nine patients presented with a foreign body in the oesophagus and all cases were due to accidental impaction of

chicken/meat bone. Two children presented with a foreign body impacted in their airway. In our study, the commonly observed ear foreign bodies included insects, feather, cotton buds, beads, etc. Similarly, pomegranate, pearls, paper balls, etc were commonly observed as nasal foreign bodies. Throat foreign bodies in majority of cases were due to accidentally impacted fish bone. No mortality was reported in our study which is contrasting with a study conducted by Kitcher et al. (12).

The limitations of this study are as follows; this was a single-center, semi-urban study, potentially limiting the generalizability of the findings to a broader, more diverse population. Additionally, in multiple-trauma cases, only the predominant ENT diagnosis or injury was considered, which may have led to a less than accurate reports on ENT injuries. Furthermore, as a retrospective study, the analysis relied on the accuracy and completeness of existing medical records, which may introduce information bias. Some clinical variables or outcomes may have been inadequately documented, potentially affecting the robustness of the data.

Conclusion

ENT emergencies are frequently encountered throughout life. The incidence of ENT emergencies is on the rise. The range of ENT emergencies can be from minor to severe, and timely intervention is crucial to minimize associated morbidity and mortality. Certain emergencies, such as acute otitis media (AOM) and foreign body ingestion, are more prevalent among children and can be attributed to inadequate parental care or unsafe living conditions. Educating parents and caregivers about the prevention of these emergencies and the risks associated with their occurrence, particularly in cases of foreign body ingestion, can significantly reduce the likelihood of critical situations.

ENT surgeons play a pivotal role in evaluating and managing various life-threatening

conditions, including severe epistaxis, neck abscesses, and acute airway obstruction. Ideally, the most senior available ENT specialist should attend to these emergencies promptly. It is imperative for all emergency rooms and casualty departments to be adequately equipped with the necessary facilities. A team of trained nursing and paramedical professionals, led by a qualified emergency specialist and an ENT consultant on duty, adhering to proper institutional protocols, can lead to improved outcomes.

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Conflicts of Interest

The authors declare no conflicts of interest.

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Ethics

Obtained informed written consent- Not required as it is a retrospective study

Authors Contributions

Conceptualization, Supervision, Project administration – G.S.

Investigation, Data curation, Original draft preparation – S.K.

Formal analysis and Validation – L.J.

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