



## TO STUDY PEDIATRIC EAR, NOSE AND THROAT EMERGENCIES - PREVALENCE AND MANAGEMENT

Boyapalli Sudheer Chandra<sup>1</sup>, Palli Vedita<sup>2\*</sup>

<sup>1</sup>Assistant Professor of ENT, Sri Lakshmi Narayana Institute of Medical Sciences, Pondichery, India.

<sup>2\*</sup>Assistant Professor of Paediatrics, Sri Lakshmi Narayana Institute of Medical Sciences, Pondichery, India.

### ABSTRACT

ENT-related diseases form a significant portion of ailments in pediatric age group. Many of them present in emergency clinics with acute symptoms requiring urgent management. A prospective study was carried out in the Department of Otorhinolaryngology, Head and Neck, SLIMS Pondicherry, between July 1, 2016 and September 30, 2017, in patients below 16 years of age, to determine the hospital prevalence of ENT emergencies in pediatric age group and their management protocol as followed in a tertiary center. Emergencies relating to ear were most common followed by pharyngoesophageal and nose conditions. Foreign bodies were most common among nasal and aural emergencies. Although mortality is low in such emergency group, morbidity may be very high at times. In management of such emergencies, particularly where operative intervention is required, expertise of an ENT specialist is necessary.

**Keywords:**-Ear nose throat disorders, Children, Prevalence, Otitis media, Pediatric, Tonsillitis.

Access this article online

Home Page:  
[www.mcmed.us/journal/abs](http://www.mcmed.us/journal/abs)

Quick Response code



Received:25.11.2018

Revised:12.12.2018

Accepted:15.12.2018

### INTRODUCTION

Emergency medicine refers to the medical specialty dedicated to the diagnosis and treatment of unforeseen illness or injury and involves the initial evaluation, diagnosis, treatment, and disposition of patients requiring urgent medical, surgical, or psychiatric treatment. Health-related issues of pediatric age group are considered to be of great importance and these also give us data for understanding the health-related problems and for assessing the health status of a community. According to the census report 2011, total population of Pondicherry is 13,541,302 out of which 2,018,905 (16.09%) belong to the age group of 0-6 years. [1] Children frequently suffer from diseases relating to ear, nose, and throat (ENT). Some ENT diseases like acute otitis media are more common in children as compared to the adults. The same is the case with adenoid, acute tonsillitis, acute rhinitis of

viral origin, acute epiglottitis, and acute laryngo trachea bronchitis. It may be due to various factors like wider and horizontally placed eustachian tube, poorly developed immunity, malnutrition, poor hygiene, overcrowding, lower socioeconomic status of the family, and parental ignorance.[2] In addition to attending to outpatient department of a hospital, many children are brought by their parents to the emergency clinic of a hospital with history of ENT-related disease. All of these require urgent management. In Indian scenario, foreign body (FB) impaction in ENT region are found to be common emergencies and sometimes, they may produce even fatal outcomes [3].It should always be kept in mind that management of ENT emergencies is a specialized job and special instruments and equipments are needed to manage such situations.[3]

**MATERIAL AND METHODS:**

**Objective:** - The study was undertaken to determine the hospital prevalence of emergency conditions in children related to ENT. The management protocol as followed in a tertiary center has also been discussed. A prospective study was conducted in the Department of Otorhinolaryngology, Head and Neck, SLIMS Pondicherry, between July 1, 2016 and September 30, 2017. All patients below 16 years of age were enrolled in the study. These patients presented to emergency clinics of the department with acute presentation. The patients were examined in detail using bull's eye lamp, head mirror, otoscope, nasal speculum,

and tongue depressor. The cases with faciomaxillary, orodental injuries, and epistaxis were made to lie down on a couch and were carefully examined under operating light. The cases with impacted aural FBs were examined under operating microscope and all esophageal FB cases were assessed by radiographic examination.

The information that was included in the study is as follows: Male or female preponderance, Presenting illness, Number of cases managed on outpatient basis, Number of cases requiring admission, Number of cases requiring general anesthesia and operation theater facilities. All results were expressed in number and percentage.

**Table.1: Presentation of Patients with Various Types of ENT Complaints**

| Type of Injury    | Male | Female | Total | Percentage |
|-------------------|------|--------|-------|------------|
| AOM               | 104  | 46     | 150   | 21.03      |
| FB nose           | 72   | 48     | 120   | 16.83      |
| Acute tonsillitis | 58   | 22     | 80    | 11.22      |
| Abscess           | 40   | 10     | 50    | 7.01       |
| FB ear            | 52   | 18     | 70    | 9.81       |
| Epistaxis         | 50   | 18     | 68    | 9.53       |
| Injuries          | 49   | 11     | 60    | 8.41       |
| FB inhalation     | 25   | 29     | 54    | 7.57       |
| FB esophagus      | 25   | 21     | 46    | 6.45       |
| Otitis externa    | 10   | 5      | 15    | 2.10       |

FB= Foreign Body; AOM= Acute Otitis Media.

**Table.2: Various Types of Injuries**

| Type of Injury                                  | Male      | Female    | Total     | Percentage |
|---|-----------|-----------|-----------|------------|
| Lip laceration and abrasion of maxillary region | 28        | 12        | 40        | 66.6       |
| Buccal mucosa laceration                        | 3         | 2         | 5         | 8.3        |
| Palatal laceration                              | 3         | 1         | 4         | 6.6        |
| Tongue laceration                               | 4         | 2         | 6         | 10.0       |
| Alveolar injury                                 | 2         | 0         | 2         | 3.3        |
| Pinna laceration                                | 2         | 1         | 3         | 5.0        |
| <b>Total</b>                                    | <b>42</b> | <b>18</b> | <b>60</b> |            |

**RESULTS:**

A total of 713 patients were examined during this time period. Among these, 485 were males (68%) and 228 were females (32%). So, there is an overall male preponderance. Two hundred thirty-five cases (32.94%) presented with complaints relating to ear. Two hundred thirty cases (32.25%) presented with pharyngoesophageal complaints. One hundred eighty-eight cases (26.36 %) presented with nose complaints Sixty cases (8.42%) presented with other complaints that included injuries. From table 1, it is clear that highest number of cases presented with AOM, followed by FB NOSE. Among the pharyngoesophageal emergencies, the most common was

acute tonsillitis followed by FB inhalation and FB esophagus. Nasal FBs included plastic beads, pieces of paper, color pencils, pieces of chalk, cereals, grams, seeds of orange, and pieces of rubber. Aural FBs included plastic beads, foils of chocolates, insects, and rice grains. Among the esophageal FBs include coins, safety pins, plastic pieces, bone chip, fish bone. From table 2, it can be seen that most common form of injury was lip laceration and abrasion of maxillary region (66.66%).

Lip lac. = Lip laceration and abrasion of maxillary region; b.m.lac = Buccal mucosa laceration; p.lac = Palatal laceration; t.lac = Tongue laceration;

alv.inj. = Alveolar injury; pinna lac. = Pinna laceration  
 All aural, nasal and pharyngeal FBs were removed under direct vision using good light source. Twenty-five cases (35.71%) of aural FB and all forty-six cases (100%) of esophageal FB required removal under general anesthesia in operation theatre using operating microscope and esophagoscope, respectively. Also, all fifty cases (100%) of foreign body inhalation required removal under general anaesthesia using bronchoscope. So, a total of 125 cases (17.53%) were managed in the operation theatre under general anesthesia. All injuries were repaired carefully. Epistaxis was treated using hemocoagulase solution, xylometazoline nasal drops and chemical cauterisation (trichloroacetic acid, silver nitrate). Out of 68 cases of epistaxis, 25 cases (36.76%) required chemical cauterisation. Out of 50 cases of Abscess, incision and drainage was done in 36 cases (72%), other 14 cases (28%) were given i.v. antibiotics. Cases presenting with acute infection were treated conservatively. No complication was observed in patients treated during this period.

Common especially in young children who tend to insert FBs when they are playing or when they get bored.[2] In one previous study carried out by ED Kitcher in 2007,[11] the peak age incidence was observed in 0-9 years of age. [4] The range of FBs is extensive including food particles, vegetable matter, and inorganic objects like paper, plastic beads, chalks and coins (in esophagus). Aural and nasal FBs are mostly of inanimate type.[3] Coin is a common FB that gets impacted in esophagus and it is particularly common in children.[3] In our study, aural and nasal FBs were both inanimate and animate and most common esophageal FB was a coin (66.66%). It was observed that all nasal FBs could be removed using FB hook or Tilley's forceps. Out of 70 cases of aural FBs, 25 cases (35.71%) required general anesthesia for removal. Skill of an ENT specialist is very necessary for removal of aural FB because unskilled removal of aural FBs may injure eardrum, ossicles, or even facial nerve.[3] In one study carried out by Mackle et al,[4] it was found that although 65% of nasal FBs can be removed in emergency clinics, but it was not so in the case of aural FBs, 96% of which required removal under anesthesia and skill of an ENT surgeon.[4] In our study, 35.71% of aural FBs required operation theatre facilities and general anesthesia for their removal. All esophageal FBs need urgent esophagoscopy and removal under general anesthesia. Esophagoscopy is a difficult procedure, especially when tried by unskilled person. Fatal accident can occur by slightest trauma due to thinness of esophageal wall.[3] All inhalational fbs need (54 cases) urgent bronchoscopy and removal under general anaesthesia. Bronchoscopy is very dangerous procedure. Most common injury that was found in our study was laceration of lip and abrasion of

maxillary region (66.6%), and highest incidence was observed in the age group of school-going children (6 years and above). In a previous study conducted by Khan [5] on ENT injuries in children, highest incidence was observed in the age group of 10-15 years with a male preponderance. It was probably due to more outdoor activities on the part of males. Most common etiology was self-fall (32%) and nasal bone fracture was the most common type of injury. [5]

Acute otitis media is common in children, and it is due to the wider and more horizontally-oriented eustachian tube in this age group resulting in translocation of infection from the pharynx to the tympanic cavity. It accounts for one-third of the pathology seen in the first 5-year life. These children will present with fever and otalgia; therefore, otoscopy is highly recommended to commence early treatment and prevent the lifelong sequel of impairment of hearing and speech acquisition. [7-26] ENT injuries in children can give rise to facial deformities and in the long run, it can create functional, cosmetic, and psychological problems. In developing countries like India, most of the deaths below 5 years of age is due to communicable diseases, respiratory infection, and diarrhea and very few are due to injuries. [6] Injuries occurring in children are not uncommon. They are an avoidable cause of disability. With the increase in the incidence of insurgent terror attacks on communities in our region, injuries of various kinds have been recorded, and unfortunately, children are not spared in these events as is seen in the present study. The majority of those affected do not make it to the hospital alive.

But injuries should always be treated well as it is an avoidable cause of disability. [7-15] Acute infection of various sites in ENT is one of the commonest causes of emergencies in children. In our study, the cases that were found are acute otitis media (AOM), otitis externa, acute tonsillitis, and acute parotitis. Among these, AOM was a presenting illness in highest number of cases. The incidence was more or less same in all groups as far as our study is concerned. AOM is common in infants due to wider and horizontally placed Eustachian tube and it comprises of one third of problems seen in the pediatric practice during first 5 years of life. [8,26] It is recommended that there is a need for otoscopic examination of all pyretic children as the resultant hearing loss due to acute suppurative otitis media is related to difficulties in language acquisition in children below 2 years of age. It also affects literacy and school achievements.

## CONCLUSION

ENT emergencies in pediatric age group are not uncommon. Mortality is low, but a numbers of complications may arise that may include perforation of

drum, aspiration, airway obstruction, and long-term complication like nasal and facial deformity. Therefore, proper management of ENT emergencies is of utmost importance. Most common ENT emergency in pediatric age group is FBs that can be removed and patients can be disposed on outpatient basis. As operative intervention is required in a significant number of ENT emergencies,

expertise of an ENT specialist is necessary in management of these cases.

#### ACKNOWLEDGEMENT

I am very thankful to Dr. E. Prabhakar Reddy, Professor of Biochemistry for helping to statistical analysis and also writing the article.

#### REFERENCES

- Behrens, S. B., Deren, M. E., Matson, A., Fadale, P. D., & Monchik, K. O. (2013). Stress fractures of the pelvis and legs in athletes: A review. *Sports Health*, 5, 165–174.
- Robertson, G. A., & Wood, A. M. (2015). Return to sports after stress fractures of the tibial diaphysis: A systematic review. *British Medical Bulletin*, 114, 95–111.
- Torg, J. S., Moyer, J., Gaughan, J. P., & Boden, B. P. (2010). Management of tarsal navicular stress fractures: Conservative versus surgical treatment: A meta-analysis. *American Journal of Sports Medicine*, 38, 1048–1053.
- Mallee, W. H., Weel, H., van Dijk, C. N., van Tulder, M. W., Kerkhoffs, G. M., & Lin, C. W. (2015). Surgical versus conservative treatment for high-risk stress fractures of the lower leg (anterior tibial cortex, navicular, and fifth metatarsal base): A systematic review. *British Journal of Sports Medicine*, 49, 370–376.
- Kaeding, C. C., Yu, J. R., Wright, R., Amendola, A., & Spindler, K. P. (2005). Management and return to play of stress fractures. *Clinical Journal of Sport Medicine*, 15, 442–447.
- Irion, V., Miller, T. L., & Kaeding, C. C. (2014). The treatment and outcomes of medial malleolar stress fractures: A systematic review of the literature. *Sports Health*, 6, 527–530.
- Dobrindt, O., Hoffmeyer, B., Ruf, J., Seidensticker, M., Steffen, I. G., Fischbach, F., et al. (2012). Estimation of return-to-sports-time for athletes with stress fracture: An approach combining risk level of fracture site with severity based on imaging. *BMC Musculoskeletal Disorders*, 13, 139.
- Neubauer, T., Brand, J., Lidder, S., & Krawany, M. (2016). Stress fractures of the femoral neck in runners: A review. *Research in Sports Medicine*, 24, 185–199.
- Matheson, G. O., Clement, D. B., McKenzie, D. C., Taunton, J. E., Lloyd-Smith, D. R., & MacIntyre, J. G. (1987). Stress fractures in athletes: A study of 320 cases. *American Journal of Sports Medicine*, 15, 46–58.
- Hulkko, A., & Orava, S. (1987). Stress fractures in athletes. *International Journal of Sports Medicine*, 8, 221–226.
- Iwamoto, J., & Takeda, T. (2003). Stress fractures in athletes: Review of 196 cases. *Journal of Orthopaedic Science*, 8, 273–278.
- Iwamoto, J., Sato, Y., Takeda, T., & Matsumoto, H. (2011). Analysis of stress fractures in athletes based on our clinical experience. *World Journal of Orthopedics*, 2, 7–12.
- Pegrum, J., Dixit, V., Padhiar, N., & Nugent, I. (2014). The pathophysiology, diagnosis, and management of foot stress fractures. *The Physician and Sportsmedicine*, 42, 87–99.
- Boden, B. P., & Osbahr, D. C. (2000). High-risk stress fractures: Evaluation and treatment. *Journal of the American Academy of Orthopaedic Surgeons*, 8, 344–353.
- Boden, B. P., Osbahr, D. C., & Jimenez, C. (2001). Low-risk stress fractures. *American Journal of Sports Medicine*, 29, 100–111.
- Fredericson, M., Bergman, A. G., Hoffman, K. L., & Dillingham, M. S. (1995). Tibial stress reaction in runners: Correlation of clinical symptoms and scintigraphy with a new magnetic resonance imaging grading system. *American Journal of Sports Medicine*, 23, 472–481.
- Arendt, E. A., & Griffiths, H. J. (1997). The use of MR imaging in the assessment and clinical management of stress reactions of bone in high-performance athletes. *Clinical Sports Medicine*, 16, 291–306.
- Saxena, A., Fullem, B., & Hannaford, D. (2000). Results of treatment of 22 navicular stress fractures and a new proposed radiographic classification system. *Journal of Foot and Ankle Surgery*, 39, 96–103.

19. Torg, J. S., Balduini, F. C., Zelko, R. R., Pavlov, H., Peff, T. C., & Das, M. (1984). Fractures of the base of the fifth metatarsal distal to the tuberosity: Classification and guidelines for non-surgical and surgical management. *Journal of Bone and Joint Surgery-American Volume*, 66, 209–214.
20. Spitz, D. J., & Newberg, A. H. (2002). Imaging of stress fractures in the athlete. *Radiologic Clinics of North America*, 40, 313–331.
21. Fredericson, M., Bergman, A. G., Hoffman, K. L., & Dillingham, M. S. (1995). Tibial stress reaction in runners: Correlation of clinical symptoms and scintigraphy with a new magnetic resonance imaging grading system. *American Journal of Sports Medicine*, 23, 472–481.
22. Arendt, E. A., & Griffiths, H. J. (1997). The use of MR imaging in the assessment and clinical management of stress reactions of bone in high-performance athletes. *Clinical Sports Medicine*, 16, 291–306.
23. Bron, J. L., Solinge, G. B., Langeveld, A. R., & Jiya, T. U. (2007). Three previously healthy persons with a stress fracture. *Nederlands Tijdschrift voor Geneeskunde*, 151, 621–626.
24. Bhatt, R., Lauder, I., Finlay, D. B., & Allen, M. J. (2000). Correlation of bone scintigraphy and histological findings in medial tibial syndrome. *British Journal of Sports Medicine*, 34, 49–53.
25. Boden, B. (2000). High-risk stress fractures: Evaluation and treatment. *Journal of the American Academy of Orthopaedic Surgeons*, 8, 344–353.
26. Berger, F. H., & Jonge, D. (2007). Stress fractures in the lower extremity: The importance of increasing awareness amongst radiologists. *European Journal of Radiology*, 62, 16–26.

**Cite this article:**

Boyapalli Sudheer Chandra, Palli Vedita. (2018). To Study Pediatric Ear, Nose and Throat Emergencies - Prevalence and Management". *Acta Biomedica Scientia*, 5(2):327-331.



**Attribution-NonCommercial-NoDerivatives 4.0 International**