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Full Length Research Paper

A Survey of Upper Aerodigestive Tract Emergencies Seen in a Nigerian Tertiary Hospital

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Background: Emergencies of the upper aerodigestive tract are not uncommon in our environment and can be life threatening and challenging to the otolaryngologists.
Objective: To assess the size and distribution of upper aerodigestive emergencies in our setting, to obtain base line data and outline preventive measures.
Patients and methods: It was a retrospective study of patients seen with upper aerodigestive tract emergencies in University of Port Harcourt Teaching Hospital (UPTH) Port Harcourt, Nigeria within the period of January 2004 and December 2010. Patient records were retrieved from the Accident and Emergency (A/E) registers, Children Emergency Ward (CHEW) records, Ear Nose and Throat (ENT) ward registers and theatre registers. The data analyzed were demographic data, clinical presentations, etiological factors of upper aerodigestive emergencies, complications, treatment and outcome.
Results: A total of 142 patients presented with upper aerodigestive tract emergencies within the study period out of 4,580 ENT emergencies giving a prevalence of 3.1% of the total number of patients with ENT emergencies. The total ENT cases seen were 62,400 cases. There were 74 males and 68 females. The age range was 1-65 years with a mean of 22.16 ± 16.25 years. Age group 1-10 years accounted for majority of the cases 54 (38.02%). Foreign bodies ranked highest as an etiological factor of these emergencies. Difficulty in breathing, odynophagia and dysphagia were the commonest modes of clinical presentation 80 (56.34%). There were 50(35.2%) emergency tracheostomies done and mortality occurred in two patients.
Conclusion: The commonest etiological factor responsible for most of the upper aerodigestive tract emergencies was FB aspiration/ ingestion. The burden of upper aerodigestive tract emergencies in our environment is enormous. Therefore, the A/E department physicians should be well equipped to successfully resuscitate the patients before referring them to otolaryngologists

Key words: Emergencies, Upper aerodigestive tract, Tertiary hospital, Nigeria

INTRODUCTION

Upper aerodigestive tract emergencies are not uncommon in our setting; a few of the cases can be managed effectively by the A/E duty physicians (Onotai and Ibekwe, 2010). Most patients that present to the A/E department with upper aerodigestive tract emergencies are first resuscitated before they are referred to the otolaryngologist for further expert management (Onotai and Ibekwe, 2010). However, majority of cases require prompt diagnosis and intervention by the otolaryngologists. No doubt, these emergencies when promptly handled by the otolaryngologists can be effectively managed with little or no complications (Okoye and Onotai, 2006). Upper aerodigestive tract emergencies can occur in all age groups. The causative factors differ in the adults and children (Perez et al., 1995). Upper aerodigestive tract emergencies are commonly

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caused by foreign bodies in the larynx and esophagus and are notable causes of morbidity and mortality especially in children and elderly patients (Gilyoma and Chalaya 2011). The accurate diagnosis of upper aerodigestive tract foreign bodies may be missed by an experienced general practice physician (Heim and Maughan, 2007). The aspiration and ingestion of foreign bodies tend to occur most commonly in children's population (Onotai and Ebong, 2011; Ibekwe et al., 2012). Besides, blunt and penetrating trauma to the neck following road traffic accidents, cut throat and gun shot injuries can result in life-threatening conditions that require immediate intervention by the duty doctor in the A/E department before referring the patients to the otolaryngologists (Rathlev et al., 2007). Other causes reported in the literature include corrosive ingestion, thermal burns and acute tonsillitis with its complications (Offer, et al., 1995; Onotai and Nwogbo, 2010).

The clinical features of upper aerodigestive tract injuries depend upon the etiological factor of the injury and time of presentation to the hospital. A large foreign body occluding the upper airway or esophagus may lead to severe symptoms like severe respiratory distress; dysphagia and even sudden death (Bleach et al., 1994; Lasisi et al., 2006). Upper aerodigestive tract injuries of long standing duration may be associated with complications such as mucosal ulcerations, esophageal obstruction, laryngeal stenosis and esophageal diverticulum (Brady, 1999). Early diagnosis and treatment of upper aerodigestive injuries are necessary to prevent morbidity and mortality.

Because of the dramatic nature of these emergencies, this study was carried out to assess the size and distribution of upper aerodigestive tract emergencies in our setting. It will also obtain base line data so as to identify the areas of need in terms of appropriateness of emergency response and outline preventive measures.

PATIENTS AND METHODS

This is a retrospective study of patients seen with upper aerodigestive tract emergencies in UPTH, Port Harcourt, Nigeria within the period of January 2004 and December 2010. Patients' records were obtained from the Ear Nose and Throat (ENT) clinics, accident and emergency department, Children Emergency Ward (CHEW), the ENT wards and theatre registers. The data extracted for analysis were age, sex, clinical presentations, causes of injuries, complications, treatment, and outcome. The data was entered into the version 16 of the Statistical package for social sciences (SPSS16). Simple descriptive statistics in the form of mean, frequency distribution tables and percentages were also used to illustrate the data. Patients with lower digestive tract emergencies and tracheobronchial tree foreign bodies/pathologies were excluded from this study.

RESULTS

There were142 patients that presented with upper aerodigestive tract emergencies within the study period out of 4,580 patients that presented with ENT emergencies giving a prevalence of 3.1% of the total number of patients with ENT emergencies. The total ENT cases seen were 62,400 cases. There were 74 males and 68 females giving a male to female ratio of 1.1:1. The age range was 1-65 years with a mean of 22.16 ± 16.25 years. The mode was 5 years. 1-10 years age range accounted for the highest number of cases (Table 1). Foreign body impaction in the larynx / esophagus accounted for most of the upper aerodigestive emergencies 95 (66.90%) (Table 2). Majority of the patients presented with difficulty in breathing odynophagia and dysphagia (56.34%) (Table 3).

Most of the patients had plain radiograph of the lateral soft tissue of the neck which revealed in some cases features suggestive of impacted foreign bodies in the larynx /esophagus. A selected few had barium swallow, chest radiographs and examination under anesthesia and biopsy.

All the patients were resuscitated, 50 (35.2%) patients had emergency tracheostomy. 40 of them were children in the age group of 1-10 years while 10 of them were adults above 20 years old. Rigid oesophagoscopy/direct laryngoscopy were done for removal of impacted foreign bodies and biopsy for those cases with tumours of the larynx. The histopathology reports of patients with tumors revealed respiratory papilomatosis and squamous cell carcinoma of the larynx.

Other forms of treatment include exploration of neck wounds and repair of lacerations and the use of antibiotics. Four of the patients developed oesophageal strictures, 3 had laryngeal stenosis, 1 had traumatic aneurysm of the great vessel of the neck and mortality was recorded in two of the patients.

DISCUSSION

Upper aerodigestive tract emergencies have a prevalence of 3.1% of all ENT emergencies and 0.23% of total ENT cases seen within the study period. This finding is an indication that this emergency is not uncommon in our setting. The reported prevalence of upper aerodigestive emergencies found in California was 4.9% (Vassiliu et al., 2001). This was slightly higher than what we found in Port Harcourt.

FB impaction in the larynx and esophagus accounted for majority of these emergencies in our study. This finding was similar to some earlier studies (Sunil and Achal, 1999; Khan and Arif, 2005; Kitcher et al., 2007).

Table 1: Age distribution of patients

Age range	Number	Percentage (%)
1-10	54	38.02
11-20	6	4.22
21-30	37	26.06
31-40	23	16.20
41-50	11	7.75
51-60	9	6.34
61 and above	2	1.41
Total	142	100%

However, in California traumatic injuries accounted for most of the emergencies (Vassiliu et al., 2001). In Brazil some researchers found tonsillar infections/inflammations as the commonest etiological factor of upper aerodigestive tract emergencies (Furtado et al., 2011). Besides, in a study done in Greece acute tonsillitis and pharyngitis were the commonest cause of upper aerodigestive tract emergencies (Vasileiou et al., 2009). Furthermore, another study reported that inflammatory/infective causes were placed in the 3rd position (Huanq et al., 1991; Kitcher et al., 2007). However, these researchers studied otolaryngological emergencies which encompass aerodigestive emergencies.

There was a slight male preponderance in our study. This finding agrees with the study of some researchers in the past (Sunil and Achal, 1999; Kitcher et al., 2007). However, some other researchers found equal male to female ratio (Bleach et al., 1994). We cannot say exactly from this study what is responsible for the slight male preponderance. It is a known fact that more male children present with foreign body impaction in the larynx/esophagus than their female counterpart because they are more active and inquisitive. This could account for the male predominance in our study.

The pediatric age group 1-10 years accounted for majority of the cases we encountered. This age group also has the highest incidence in reports from other studies (Sunil and Achal, 1999; Khan and Arif, 2005; Sogebi et al., 2006). The commonest clinical presentations of the patients were difficulty in breathing, odynophagia and dysphagia. Besides, most of the patients with acute infection/inflammation also presented with fever in addition to the above clinical presentations. Other researchers have reported odynophagia and dysphagia as their commonest clinical symptoms. They did not encounter difficulty in breathing (Brady, 1999; Little et al., 2006). It could be that they did not encountered laryngeal foreign bodies in their studies.

A high index of suspicion is required to make the etiological diagnosis of acute upper aerodigestive emergencies particularly in cases due to FB impaction in the larynx/esophagus. Upper aerodigestive tract emergencies often have dramatic clinical presentations. In several cases reported in the past, the primary physician missed the diagnosis of FB impaction in the larynx and the patient was initially managed for either bronchial asthma or bronchitis. This definitely caused a delay in diagnosis, referral and prompt treatment of the patients (Reilly et al., 1997; Escramado and Richardson, 1980; Rothman and Boeckman, 1980). Delay in making the etiological diagnosis most times causes mortality.

In most of the patients a minimum of plain radiograph of the lateral soft tissue of the neck was done in other to assess the airway and sometimes make a diagnosis of FB impaction in the larynx/esophagus (Sethi and Chew, 1991; Karnal et al., 2008). The patients with corrosive ingestion had barium swallow done after the removal of naso-gastric tube that was insitu for 21 days (Onotai and Nwogbo, 2010). Those with tumours of the larynx had

Table 2: Age distribution of patients with different types of aero digestive tract emergencies

Aero digestive tract emergencies	1-10 yrs	11-20yrs	21-30	31-40	41-50	51-60	61+	Number	Percentage (%)
Acute tonsillitis	1	1	6	-	-	-	-	8	5.62
Peritonsillar abscess	1	-	2	2	-	-	-	5	3.52
Retropharyngeal abscess	3	-	-	-	-	-	-	3	2.11
Parapharyngeal abscess	-	1	-	-	1	-	-	2	1.41
Pharyngitis/ludwigs angina	-	-	1	4	-	1	-	6	4.23
FB ïïúacþëon in the larynx/esophagus	48	1	18	12	8	6	2	95	66.90
Cut throat injury	-	1	3	2	-	-	-	6	4.23
Gunshot injury to the neck	-	-	5	1	-	-	-	6	4.23
Corrosive ingestion	-	2	2	2	-	-	-	6	4.23
Respiratory papillomatosis of the larynx	1	-	-	-	-	-	-	1	0.70
Sq!!mous cell carcinoma of the Larynx	-	-	-	-	2	2	-	4	2.82
Total	54	6	37	23	11	9	2	142	100

Table 3: Clinical presentations of upper aerodigest!ve emergencies

Clinical presentations	No. of cases	Percentage (%)
Odynophagia, dysphagia/fever, drooling of saliva.	50	35.21
Difficulty in breathing/ odynophagia, dysphagia	80	56.34
Laceration of anterior neck with bleeding/ aphonia	12	8.45

examination under anesthesia and biopsy. After making the diagnosis they were offered definitive treatment.

FB extraction was done under general anesthesia using rigid endoscopy. Direct laryngoscopy and esophagoscopy were done for patients with FB impaction in the larynx/esophagus respectively. However, in some other studies they used flexible endoscopy and balloon extraction under fluoroscopic guidance to extract foreign bodies from the esophagus (Brady 1999; Little et al., 2006). Patients that presented with features of acute upper airway obstruction were offered emergency tracheostomy while those with neck wounds had wound exploration and repair of neck lacerations. These modes of treatment have been employed by other researchers as well (Mohammad et al., 2011). It was obvious that our study revealed a high tracheostomy rate. This was because in our center we have a policy of securing the airway first by carrying out tracheostomy before embarking on extraction of foreign bodies either from the larynx or features of acute upper airway obstruction. Some esophageal foreign bodies like impacted button batteries in the esophagus most times present with

features of acute upper airway obstruction besides, dysphagia/odynophagia. From past experience in our setting the cases that present early have their foreign bodies removed either from the larynx or esophagus without tracheostomy. Those that present very late tend to have associated laryngeal edema and sometimes injuries to either the larynx or esophagus prior to presentation. Therefore, as a rule we first secure the airway before carrying out direct laryngoscopy particularly for extraction of laryngeal foreign bodies. This has help to reduce the incidence of mortality of foreign body's impaction in the larynx in our center. We are aware that in places where they have good and functional intensive care units and appropriate facilities for monitoring patients the incidence of tracheostomy will be quite low.

There were some complications that arose from the etiological factors of upper aerodigestive tract emergencies. We encountered complications in 10 (7.04%) cases. The commonest complication was esophageal stricture, it occurred in some of the patient with history of corrosive ingestion. Laryngeal stenosis occurred in some patients with gunshot and cut throat injuries. These patients with complications were referred to other tertiary hospitals within our setting that have facilities to effectively manage their complications.

Unfortunately, mortality occurred in two patients. The first case was a child that has impacted FB which was misdiagnosed in a peripheral clinic. He presented late to our emergency department. He had cardiac arrest at the time of resuscitation and establishment of a secured airway. The second patient had severe cut throat injury involving the great vessels of the neck. This patient also died during resuscitation. He must have bled so much and probably died from irreversible shock. Mortality from FB in the upper aerodigestive tract and from cut throat injuries have been noted in some other studies (Somnath et al., 2005; Onotai and Ibekwe, 2010).

To curb the prevalence in our environment, public enlightenment campaigns should be embarked upon. Parents and care-givers should be educated on how to put away objects/toys from the reach of children. These items have been commonly implicated in the etiological causes of upper aerodigestive emergencies. Besides, violence among the youths should be discouraged and all health care professionals should be educated on how to make prompt diagnosis of the etiological factors responsible for upper aerodigestive tract emergencies in our environment (Karatzanis et al., 2007).

CONCLUSION

The commonest etiological factor responsible for most upper aerodigestive tract emergencies was FB impaction in the larynx/esophagus. It often requires management by otolaryngologists. The morbidity and mortality associated with upper aerodigestive tract emergencies in our environment can be reduced by carrying out more training of the A/E department physicians on how to successfully resuscitate the patients before referring them to otolaryngologists. There is also a need to train more otolaryngologists and to establish an otolaryngology unit in the A/E department for prompt and better service delivery to the population.

REFERENCES

Bleach NR, Williamson PA, Mady SM (1994). Emergency workload in otolaryngology. Ann R Coll Surg Engl. 76(5):335-8.

Brady PG (1991). Esophageal foreign body. Gastroenterol Clin North Am. (4): 691-701.

Escramado RM, Richardson MA (1980). Laryngotracheal foreign bodies. Am J. Dis Child. 134(1):68-71.

Furtado PL, Nakanishi M, Rezende GL, Granjeiro RC, de Oliveira TS (2011). Clinic- epidemiological analysis of an otorhinolaryngology emergency unit care in a tertiary hospital. Braz. J.Otorhinolaryngol., 77(4):426-431.

Gilyoma JM, Chalaya PL (2011). Endoscopic procedures for removal of foreign bodies of the aerodigestive tract: The Bugando Medical centre experience. BMC Ear, Nose and Throat disorders.11:2

Heim SW, Maughan KL (2007). Foreign bodies in the ear nose and throat. Am. Fam physician. 76:1185-9.

Huanq SE, Hunq HY, Wanq JH, Jou WB, Lin WS (1991). An epidemiological study of otolaryngologic emergency diseases. Zonqhua Yi Xue Za Zhi (Taipei). 4(6):456-61.

Ibekwe MU, Onotai LO, Otaigbe B (2012). Foreign body in the ear, nose and throat in children: a five year review in Niger delta. Afri. J. Paediatr. Surg., 9(1): 3-7.

Karatzanis AD, Vardounitis A, Moschandreas J, Prokopakis PE, Michailidou E, Papadakis C, Kymizakis DE, Bizakis, Velegrakis GA (2007). The risk of foreign body aspiration in children can be reduced with proper education of the general population. Intl. J. Peadiatr. Otorhinolaryngol. 71 (2) 311-315.

Karnal A, Ho EC, Hall A, Molony N (2008). Lateral soft tissue neck xrays – Are they useful in management of upper aerodigestive tract foreign bodies. JLO. 122:845-847.

Khan AR, Arif S (2005). Ear, nose and throat injuries in children. Ayub Med Coll Abottabad. 17:54-56.

Kitcher ED, Jangu A , Baidoo K (2007). Emergency Admissions at the Korle- Bu teaching hospital. Ghana Med. J., 41(1):9-11.

Lasisi OA, Imam ZK, Adeosun AA (2006). Otorhinolaryngologic emergencies in Nigeria, sub-saharan Africa: implication for training. East and central Afri. J. surg., 12(2):48-52

Little DC, Shah SR, St peter SD, Calkins CM, Morrow SE, Murphy JP, Sharp RJ et al., (2006). Esophageal foreign bodies in the paediatric population: our first 500 cases. J. Pediatr. Surg., 41(5):914-8.

Mohammad I, Musa MY, Razaq AS (2011). Acute upper airway obstruction secondary to gunshot injury splitting cervical vertebra. Ann Acad. Med. Singapore. 40(9):430-31.

Offer, GJ, Nanan, D, Marshall JN (1995). Thermal injury after microwave heating of food. J. Accid. Emerg. Med., 12,216-217

Okoye BCC, Onotai LO (2006). Foreign bodies in the nose. Niger J. med., 15(3):301-4.

Onotai LO, Ebong ME (2011). The pattern of foreign body impactions in the tracheobronchial tree in university of Port Harcourt Teaching Hospital. Port Harcourt med. J., vol 5 (2) 130-135.

Onotai LO, Ibekwe MU (2010). Pattern of cut throat injuries in the University of Port-Harcourt Teaching Hospital.

Niger J. med., 19 (3): 264-266.
Onotai LO, Nwogbo AC (2010). Pattern of corrosive ingestion injuries in Port-Harcourt. A ten year review. Niger health J., 10(1-2) 22-25.
Perez OJ, Rivares EJ, Leache PJ, Fernandez LR, Marin GJ, Sevil NJ, Mateo BA (1995). An outpatient study in otorhinolaryngology emergencies at a general hospital. Acta Otorrinolaringol ESP.46(4): 298-304.
Rathlev NK, Medzon R, Bracken ME (2007). Evaluation and management of Neck Trauma. Emerg Med. Clin. N Am., 25; 679-694.
Reilly J, Thompson J, MacArthur C, Pranksky S, Beste D , Smith M, Gray S, Manning S (1997). Pediatric aerodigestive foreign body injuries or complications related to timeliness of diagnosis. Laryngoscope. 107(1):17-20
Rothman BF, Boeckman CR (1980). Foreign bodies in the larynx and tracheobronchial tree in children. A review of 225 cases. Annal Otol, Rhinol laryngol. 89:434-36.
Sethi DS, Chew CT (1991). Retropharyngeal abscess – the foreign body connection. Ann. Acad. Med. Singapore. 20:581-8.
Sogebi OA,Olaosin AO, Tobih JE, Adedeji TO, Adebola SO (2006). Pattern of ear, nose and throat injuries in children at Ladoke Akintola University of Technology (LAUTECH) Teaching hospital Osogbo , Nigeria. Afr. J. Paediatri Surg., 3 :61-63.
Somnath S, Sudipta C, Prabir KM, Sudip D Saibal M, Rashid MA, Mondal AR (2005). Emergency otorhinolaryngological cases in Medical College Kolkata- A statistical analysis. Indian J. Otolaryngol Head and Neck. 57(3):219-225.
Sunil kumar, Achal Gulati (1999). Paediatric emergencies in otorhinolaryngology in a metropolitan city. Indian pediatri. 36:1256-1258
Vasileiou I, , Giannopoulos A, Klonaris C, Vlasis K, Marinos S, Koutsonasios I , Katsarqyris A et al (2009). The potential role of primary care in the management of common ear, nose or throat disorders presenting to the emergency department in Greece. Qual Prim Care. 17(2):145-8.
Vassiliu, P, Baker J, Henderson S, Alo K, Velmahos G, Demetriades D (2001). Aerodigestive injuries of the neck. The Am. surg., 67. 1: 75-79.