A Review Of Ear, Nose And Throat Foreign Bodies In Sarawak General Hospital. A Five Year Experience

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SUMMARY

Objective: Ear, nose and throat foreign bodies are common in ENT clinical practice. This study was designed to establish the local data of otorhinolaryngeal foreign bodies in term of prevalence among paediatric and adult groups, the clinical features, types of foreign body at different sites, and laterality of foreign bodies.

Method: This study was carried out at ENT department, Sarawak General Hospital, Malaysia, from 1st January 2005 to 31st December 2009. A total of 1084 cases were included and statistically analyzed.

Result: Ear foreign bodies showed the highest incidence which was consisted of 480 (44.3%) cases, followed by nose in 270 (24.9%) cases, pharynx in 251(23.2%) cases, esophagus in 57 (5.3%) cases and laryngo-tracheobronchial tree in 26 (2.4%) cases. Otorhinolaryngeal foreign bodies occurred more frequently in 0-10 year old age group which constituted 651 (60.1%) cases. The descending order of frequency for foreign body sites in adult was pharynx (17.2%), ear (12.8%), esophagus (3.1%), nose (1.7%) and laryngo-tracheobronchial tree (1.1%). The type of foreign bodies varies with age group and site of foreign body lodgement. In general, common foreign bodies in both adult and children were food related, with the additional of small objects such as plastic toy in paediatric group.

Conclusion: Otorhinolaryngeal foreign bodies were found more frequently in children. The types of foreign body were different from age group and sites of foreign body lodgement. The local food constituted the highest incidence of ear, nose, and throat foreign bodies with additional of plastic toys in paediatric group.

KEY WORDS:
Ear, nose, throat foreign bodies, otorhinolaryngeal foreign bodies

INTRODUCTION

Otorhinolaryngeal foreign bodies are common across the ages, it happens in both the children and adult. There were numerous of studies conducted looking into the prevalence, diagnosis, treatment and complication of ear, nose, and throat foreign bodies. In our region, there were few studies on foreign bodies conducted in the past few years. One was conducted in Singapore by Ngo A looking into the removal of otorhinolaryngeal foreign bodies in children presented to emergency department [1]. The other study was conducted in Malaysia by Hon SK assessing the time delay for removal of foreign bodies under general anaesthesia [2]. Our study was designed to analyze the prevalence of otorhinolaryngeal foreign bodies in different age groups, which included both the children and adult, the associated clinical presentation and the common types of foreign body.

METHODS

This was a retrospective study of all the otorhinolaryngeal foreign bodies presented to ENT department of Sarawak General Hospital from 1st January 2005 to 31st December 2009. Sarawak General Hospital was the tertiary referral center in Sarawak. The sources of referral included casualty in Sarawak General Hospital, district hospitals, private hospitals and general practitioners. Data were collected from ENT clinic registration books and ward admission records. Parameters used in this study included demographic data such as age, gender and race. The clinical features, types of foreign body and laterality of foreign body lodgement were emphasized in this study as well.

RESULTS

A total of 1084 cases were analysed, comprised of 825 outpatients and 259 inpatients. Among all the foreign bodies, ear foreign bodies were the most frequently encountered which consisted of 480 (44.3%) cases, followed by nose 270 (24.9%) cases, pharynx 251 (23.2%) cases, esophagus 57 (5.3%) cases and laryngo-tracheobronchial tree 26 (2.4%) cases. The highest incidence of foreign bodies occurred between 0-5 years and 6-10 years of age which consisted of 492 (45.4%) and 159 (14.7%) cases respectively. A total of 628 (57.9%) cases were male while the remaining 456 (42.1%) were female. Among these, 508 (46.9%) patients were Malay, followed by Chinese 206 (19.0%), Iban 176 (16.2%), Bidayuh 161 (14.9%) and other races in the remaining 33 (3.0%) cases.

Ear Foreign Bodies

Age distribution

A total of 480 of cases were presented with ear foreign bodies during the study period. The highest incidence of ear foreign bodies occurred in 0-5 years of age which was consisted of 232 (48.3%) cases. This was followed by children between 6-10 years which numbered 82 (17.1%) cases. There were 27 (5.6%) cases between 11-15 years age group and 19 (4.0%)

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Table I: ENT foreign bodies by site and age groups

	AGE										Total
	0-5	6-10	11-15	16-20	21-30	31-40	41-50	51-60	61-70	>71	
Ear	232	82	27	19	30	26	28	26	8	2	
	48.3%	17.1%	5.6%	4.0%	6.3%	5.4%	5.8%	5.4%	1.7%	0.4%	480
Nose	201	50	1	1	3	5	2	4	2	1	
	74.4%	18.5%	0.4%	0.4%	1.1	1.9%	0.7%	1.5%	0.7%	0.4%	270
Pharynx	35	15	15	11	34	40	46	31	11	13	
	13.4%	6.0%	6.0%	4.4%	13.5%	15.9%	18.3%	12.2%	4.4%	5.2%	251
esophagus	18	4	1	2	3	5	16	3	3	2	
	31.6%	7.0%	1.8%	3.5%	5.3%	8.8%	28.1%	5.3%	5.3%	3.5%	57
LTB tree	6	8	0	2	2	4	1	1	1	1	
	21.3%	30.8%		7.7%	7.7%	15.4%	3.8%	3.8%	3.8%	3.8%	26
Total	492	159	44	35	72	80	93	65	25	19	1084

Table II: Types of foreign body by site

	Type of FBs										Total
	Seed/ nuts	Plastic toys/beads	Metal/ stone	Insects/ maggots	Paper/ cotton	Fish bone	Chicken bone	Coin	dentures	Others/ unknown	
Ear	226	167	38	20						29	
	47.1%	34.8%	7.9%	4.2%						6.0%	480
Nose	99	95	22		27					27	
	36.7%	35.2%	8.1%		10.0%					10.0%	270
Pharynx						233	5			13	
						92.8%	2.0%			5.2%	251
esophagus						17	22	10	5	3	
						29.8%	38.6%	17.5%	8.8%	5.3%	57
LTB tree	18	1	3							4	
	69.2%	3.8%	11.5%							15.4%	26
Total	343	263	63	20	27	250	27	10	5	76	1084

cases between 16-20 years age group. Subsequent age groups from 21-60 years old the incidence of foreign bodies ranged from 20-30 cases in each 10 years time frame. There were 8 (1.7%) cases occurred in 61-70 years age group whereas only 2 cases (0.4%) found in more than 71 years age group.

Clinical features
There were 460 patients (95.8%) presented with history of alleged foreign bodies in the ear, 10 (2.1%) presented with otalgia, 5 (1.0%) with otorrhoea, 2 (0,4%) with blocked ear and 3 (0.6%) were incidental findings.

Types of foreign body
Seeds or nuts were the commonest ear foreign bodies encountered which consisted of 226 (47.1%) cases. This was followed by plastic toys or beads in 167 (34.8%) cases, stones or metals in 38 (7.9%) cases, insects or maggots in 20 (4.2%) cases, and others which included cotton bud, paper and unknown material in 29 (6.0%) cases .

Site of lodgement
Two hundred and ninety six (61.7%) cases presented with foreign bodies in the right ear, 177 (36.9%) cases in the left ear and 7 (1.5%) cases in both ears.

Nasal Foreign Bodies
Age distribution
A total of 270 cases were presented with nasal foreign bodies. There were 201 (74.4%) and 50 (18.5%) cases presented with nasal foreign bodies in 0-5 and 6-10 years age group respectively. Incidence of nasal foreign bodies dropped significantly from age 11 years old onwards which ranged 1-5 cases in each of the subsequence age groups.

Clinical features
Two hundred and two (74.8%) patients presented with history of guardians who saw the foreign bodies in the nose, 63 (23.3%) presented with offensive nasal discharge, 1 (0.4%) presented with nose bleed and remaining 4 (1.5%) presented with other complaint such as nasal obstruction, growth in the nose or trauma to the nose.

Types of foreign body
The commonest nasal foreign bodies were seeds or nuts, which was consisted of 99 (36.7%) cases. This was followed by plastic toys or beads in 95 (35.2%) cases, papers or cotton in 27 (10.0%) cases, stone or metal in 22 (8.1%) cases and others in 27 (10.0%) cases.

Site of lodgement
There were 196 (72.6%) cases presented with right nostril foreign bodies, 73 (27.0%) cases in left nostril and 1 (0.4%) case in both nostrils.

Pharyngeal Foreign Bodies
Age distribution
A total of 251 cases were presented with pharyngeal foreign bodies. Pharyngeal foreign bodies were common throughout all the age groups. The highest incidence occurred between 0-5 years of age which was 35 cases or 13.4%. There were 30-50 cases encountered in each subsequent age group by 10 years time frame. The incidence dropped after 60 years old.

Types of foreign body
The commonest pharyngeal foreign bodies were fish bones, which was consisted of 233 (92.8%) cases. This was followed by chicken bone in 5 (2.0%) cases and others in 13 (5.2%) cases.

Esophageal Foreign Bodies
Age distribution
A total of 57 cases presented with esophageal foreign bodies. The incidence showed bimodal distribution. The first peak occurred between 0-5 years of age which was consisted of 18 (31.6%) cases. The second peak occurred in 41-50 years age group which numbered 16 (28.1%) cases. Others age groups showed incidence of less than 5 cases each.

Clinical features
Fifty four (94.7%) patients presented with history of alleged swallowed foreign bodies.

Types of foreign body
The commonest esophageal foreign body was chicken bone, which numbered 22 cases or 38.6%. This was followed by fish bone in 17 (29.8%) cases, coins in 10 (17.5%) cases, dentures in 5 (8.8%) and others in 3 (5.3%) cases.

Laryngo-tracheobronchial Tree Foreign Bodies
Age of distribution
A total of 26 cases were presented with laryngo-tracheobronchial tree foreign bodies. The highest incidence occurred between 0-10 years of age. There were 6 (23.1%) cases encountered in 0-5 years age group and 8 (30.8%) cases in 6-10 years age group.

Clinical presentation
There were 18 (69.2%) patients presented with stridor, 5 (19.2%) with wheezing and 3 (11.6%) with other symptoms.

Types of foreign body
Eighteen (69.2%) cases were due to seed or nut, followed by metal in 3 (11.5%) cases, plastic in 1 (3.8%) case and others in 4 (15.4%) cases.

Site of lodgement
A total of 9 (34.6%) cases had foreign bodies located at the right main bronchus whereas 3 (11.5%) cases at the left main bronchus.

DISCUSSION

In our study, we found that ear foreign bodies showed the highest incidence (44.3%) followed by nose (24.9%), pharynx (23.2%), esophagus (5.3%) and laryngo-tracheobronchial tree (2.4%). This result was comparable with the study conducted by Endican *et al* in Melanesians [3]. The order of foreign body frequency above was applicable to the paediatric group, which was defined as 0-15 years old in our study. For adult group, which was defined as 16 years old and above, the order of frequency differed. The highest incidence was found in pharynx (17.2%), followed by ear (12.8%), esophagus (3.1%), nose (1.7%) and laryngo-tracheobronchial tree (1.1%). In contrast, the study conducted by Hon SK showed that aerodigestive foreign bodies constituted the highest incidence followed by ear and nose [1]. This difference happened because we recruited all the inpatients and outpatients whereas Hon SK only included inpatients in his study.

The highest incidence of foreign bodies happened in 0-10 age group which constituted of 60.1%. This was the age group when the children started to explore their surrounding world with their five senses. They showed high tendency to touch, smell and taste objects accessible by their reach. In contrast, the incidence of foreign bodies in adult was more consistent which did not show any peak in a specific age group. In our study, the incidence of foreign bodies dropped dramatically after 10 years old.

Many studies conducted showed that high suspicious index was crucial in diagnosing paediatric foreign bodies [3]. This was true for our study as well, as majority of the foreign bodies occurred in younger age group. This group of patients showed difficulty in expressing their symptoms appropriately. Interestingly, in our study, many cases presented with history of alleged foreign body lodgement informed either by patients or guardians. This was constituted of 96.0% in ear foreign bodies, 75.0% in nose, and 94.7% in esophagus. Most of the times foreign bodies were found thus such history was important and should never be overlook. Other clinical features which should raise the suspicion of foreign bodies were otalgia (2%), otorrhoea(1%) and blocked ear (0.4%) in ear foreign bodies, while persistent unilateral nasal discharge (23.2%) and epistaxis (0.4%) in nasal foreign bodies. In contrast, the presentation of laryngo-tracheobronchial tree foreign bodies was more drastic. Stridor was the main symptom (69.2%), followed by wheezing (19.2%) and other (11.6%).

The types of foreign body vary with the age groups and the sites where the foreign bodies were lodged. Foreign bodies in adult were mainly food related whereas in paediatric group mainly consisted of food and small objects like plastic toys. The study conducted by Higo also showed similar findings where the types of foreign bodies were closely related to the sites of foreign body lodgement [4].

In paediatic population, seeds or nuts represented the commonest foreign bodies in ear (47%) and nose (37%), closely followed by plastic toys. These were the objects readily available and reachable by the children in most of the houses. The finding was comparable to the study conducted by Higo et al which reported plastic toy as the commonest nasal foreign bodies. Most of the foreign bodies were relatively safe except for disc-type battery in the nose which should be treated as emergency case [4]. Unfortunately, there were cases complicated with septal perforation secondary to battery in our study. For adult group, the types of ear and nasal foreign bodies were different. In our study, insects (4.2%) and cotton buds were found to be the commonest foreign bodies in the ear. Incidence of ear insects was as high as 14% in a study conducted by Patrick J. Antonella [5]. In our study, the incidence of nasal foreign bodies in adult were surprisingly high, which constituted 7.0% of all the nasal foreign bodies. These foreign bodies mainly consisted of glass, wood or stone due to trauma, or happened in those with psychiatric illness or mentally challenge group.

Pharyngeal and esophageal foreign bodies were common in both the adult and paediatric groups. Both groups shared the same common foreign bodies which were fish bone and chicken bone. Fish bones represented the commonest pharyngeal foreign bodies which constituted 92.8%, followed by chicken bone (2.0%) and others (5.2%). For esophageal foreign bodies, chicken bones comprised of 38.6%, followed by fish bone (29.8%), coins (17.5%), dentures (8.8%) and others (5.3%). In our study, coins were found exclusively in paediatric group. The incident happened either due to child's curiosity or accidentally swallowed. The studies conducted by Edican, and Hugo showed coins as the commonest esophageal foreign bodies in children which contributed 100% and 35.7% respectively [3,4]. In contrast, pharyngeal and esophageal foreign bodies in adult were mainly related to daily food ingested. The culprit chicken and fish were 2 favourite local food prepared in most of the households in our study population.

Generally laryngo-tracheobronchial tree foreign bodies were more hazardous compared to other sites of foreign bodies as airway could be compromised. Our study showed that seeds and nuts were the most frequent laryngo-tracheobronchial tree foreign bodies encountered in both adult and paediatric groups. This was consistent with several studies conducted in Asian and Western countries [3, 4]. Whistle inhalation was another common laryngo-tracheobronchial tree foreign bodies seen in our study happened between 6-10 years age group which posed the children at risk of aspiration.

The laterality of the foreign bodies was assessed which showed that most of the ear and nasal foreign bodies were lodged at the right site, constituted 62.6% and 72.8 respectively. The findings were consistent with the study conducted by Hon SK which postulated that it was contributed by right handedness [1]. In addition, a study conducted by Stamatios Peridis also demonstrated significant result of handedness affect the site of ear foreign bodies in children [6]. However, the handedness of the patients were not recorded in our study. For bronchus foreign bodies, 75.0% were found at right site which could be explained by the anatomically more vertical inclination of the right bronchus.

Most of the foreign bodies were successfully removed in clinic setting which was consisted of 76.1%. Difficult cases would be posted for removal under general anaesthesia. The study conducted by Hon SK showed that early referral and prompt removal of foreign bodies could minimize this complication[1]. This should be practiced for all the otorhinolaryngeal foreign bodies.

CONCLUSION

Our study showed that ear, nose and throat foreign bodies were commoner in children less than 10 years old. History of foreign body lodgement was important and should never be taken lightly. The types of foreign bodies differed from different age groups and sites. The local food constituted the highest incidence of otorhinolaryngeal foreign bodies with additional of plastic toys in paediatric group.

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