Original Article

Ear Foreign Body: A Study of 148 Cases

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Abstract

Ear foreign body is a common ENT emergency and a challenge also to otolaryngologist worldwide. Prompt and appropriate management of it can reduce the morbidity. An observational retrospective study of 148 cases of foreign body in the ear done in Comilla Medical College Hospital and two upazilla health complexes (Nangalkot and Chowddagram) of Bangladesh within the period of January 2014 to December 2014 to evaluate the nature, mode of presentation, technique of removal and outcome of it. Data were collected from hospital records including age, sex of patient and mode and time of presentation, nature of foreign body, management outcome and complication, and the result showed that children o funder 15 year age group were mostly affected (60%), among them highest incidence were in 5-10 year age group (25%) with male to female ratio 1:1.28. The most common foreign body was the seeds of various vegetables (25.67%) followed by plastic beads (18.24%) and cotton bud (15.54%), the right ear affected more (54%). Almost half of them (47.97%) presented with history of insertion of a foreign body and most of them (91.98%) were removed in OPD or emergency department under direct vision and remaining required general anesthesia. Despite a high proportion of cases managed in the office setting, complication rates were within acceptable level. It is inversely proportional to the skill of the personnel, number of attempts &availability of equipment. Key to successful outcome are prompt help by well-trained doctor and otolaryngological equipment set up.

Keywords: Ear foreign body, ENT, anesthesia, otolaryngological.

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Introduction

Ear foreign body (EFB) is one of the commonest ENT emergencies to otolaryngologist. The victim of EFB is commonly children then adult. If not managed properly it has high potential for morbidity, mortality and huge cost of management[1,2,3]. Several factors may lead children to insert a foreign body intentionally into their ear including curiosity, the wish to explore the orifices of the body, irritation caused by otalgia, attraction of smell or simply for fun[4,5]. An adult becomes victim while cleaning ear to remove wax or pain and irritation by a cotton bud, match stick or any other objects leaving a part of it behind. It can introduce accidentally & these are mostly animate. EFB can be classified in many ways like organic / inorganic, animate / inanimate, metallic / non- metallic, hygroscopic / non- hygroscopic, regular / irregular, soft / hard according to their nature. Among the inanimate the most commonly identified EFBs are seed of various vegetables, cotton bud, match stick, stone, piece of paper, beads, foam and feather. Vegetable foreign body tends to swell up and get tightly impacted in ear canal or may even suppurate. Among the animates flying and crawling insects like cockroach, ant, mite, tick are common causing intense irritation and pain. Maggots are found in foul smelling discharging ear where flies are attracted to this and lay eggs which hatch out into larvae called maggot[7,8].

Meterials and Methods

A retrospective cross-sectional study of 148 cases of foreign body in ear done in Comilla Medical College Hospital and two upazilla health complexes (Nangalkot and chowddagram) of Bangladesh within the period of January 2014 to December 2014. All patients'with suggestive history of foreign body entry into the ear were included. Those patients with no suggestive history but were found to have a foreign body were also included. Patients with complications arising out of EFB whose extraction was done at a different center were excluded. Wax/cerumen was excluded. Most of the

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EFBs were removed in outpatient department or emergency department by Jobsone-Horne probe, crocodile forcep, syringing or sucker machine under direct vision with head light illumination. General anesthesia required for non-cooperative patients and smooth surfaced, deeply placed and hard to remove EFBs. The diagnosis of EFB in each subject was based on history and clinical findings at otoscopy. Data were collected from hospital records including age & sex of patient, date, time & mode of presentation, otoscopic findings, nature of foreign body, time between insertion & presentation, mode of treatment, result &complication were noted in a preform data sheet and a comparative & statistical analysis was done.

Results

Table-I shows peoples of all ages are victim of EFB. Children's of under 15 year age group are mostly affected (60%). Among this high incidence (25%) was observed in 5-10 year age group. Male to female ratio was 1:1.28.

Table-I: Age & sex distribution.

Age in year	Male		Female		Total	
	No	Percentage	No	Percentage	No	Percentage
0-5	11	13.25	11	16.92%	22	14.86%
5-10	20	24.09%	17	26.15%	37	25%
10-15	18	21.69%	11	69.92%	29	19.59%
15-20	16	19.28%	13	20%	29	19.59%
>20	18	21.69%	13	20%	31	20.95%
Total	83	100%	65	100%	14 8	100%

Table-II shows the most common EFB were seeds of various vegetables (25.67%), beads of various origin standed for second most common (18.24%) followed by cotton bud (15.54%). Other included were broken match stick / wooden wigs (7.43%), paper/ tissue paper (6.76%), rubber, feather, stone and clay/mud constitute for 12.16%. Insects and maggots were found in 4.73% and 2.03% respectively.

Table-II: Nature of foreign body.

Nature of foreign body	Number	Percentage
Vegetable seeds	38	25.67%
Beads	27	18.24%
Cotton bud	23	15.54%
Match/wooden stick	11	7.43%
Paper/ tissue paper	10	6.76%
Rubber/Pencil eraser	7	4.73%
Feather	6	4.05%
Stone	3	2.03%
Clay/mud	2	1.35%
Insect	7	4.73%
Maggot	3	2.03%
Undifferentiated	11	7.43%
Total	148	100%

Table-III: Laterality.

Laterality	Number	Percentage
Right	80	54%
Left	68	46%
Both	00	00%
Total	148	100%

Table-IV shows 47.97% patients presented with history of insertion of a foreign body in ear. Other presenting features were irritation/pain (10.13%), aural discharge (12.16%), deafness (8.11%), foreign body sensation (17.57%) and bleeding (4.05%).

Table-IV: Mode of presentation.

Mode of presentation	Number	Percentage
History of insertion of foreign body	71	47.97%
Foreign body sensation	26	17.57%
Aural discharge	18	12.16%
Irritation/pain	15	10.14%
Deafness	12	8.11%
Bleeding	6	4.05%
Total	148	100%

Table-V shows 91.89% EFB were removed in OPD or emergency department by forceps (65%), suction (30%) and syringing (5%). General anesthesia was required in 8.11% cases.

Table-V: Management.

Technique of removal	Number	Percentage
Direct removal	136	91.89%
General anesthesia	12	8.11%
Total	148	100%

Table-VI shows 54.06% patients attended for treatment within 24 hours of insertion. Others included as 21.62% within 1-7 days, 10.14% within 7-15 days, 5.40% within 15-30 days, 4.05% in more than 30 days and 4.73% patients couldn't say the exact time of insertion.

Table-VI: Time elapsed before presentation.

Time of presentation	no. of patients	Percentage
0-12 hours	45	30.41%
12-24 hours	35	23.65%
01-07 days	32	21.62%
07-15 days	15	10.14%
15-30 days	8	5.40%
>30 days	6	4.05%
Unknown	7	4.73%
Total	148	100%

Discussion

In this series we found 0-15 year age group peoples are mostly victimized (table -I). In our study it is 60% which is supported by Deepti Pandey et al[11] where it was 73%. Prayaga N et al[6] & Ramesh Parajuli et al[15] found under 10 year age group as 20% & 45% respectively. On the other hand Mukara B.K. et al[12] found 2-8 year age group is 78.4%. However, the under 5's is due mainly to curious, restlessness and zeal toward exploration leading to the probing of the various orifices within their body including the ear. Modern day society with increasingly busy and occupied mothers has led to a higher incidence of children not being monitored as close as required. We found male and female affected almost in same proportion (1:1.28) which is also comparable to other reportable studies[3,9,10,11,12,14,15]. We observed that the incidence is inversely proportional to the age of the patient.Vegetable seeds are most common EFB encountering in this study as 25.67% (n=38) while beads of various origin including toy

were second most common as 18.24% (n=27), (table-II). Cotton bud is another common EFB in all age group specially adults. We found it 15.54% (n=23). Seeds are common EFB as agreed by A.O.A. Ogunleye et al[9] (18.8%), Ologe FE et al[3] (27.5%), DeeptiPandey et al[11] (19.5%) and Mukara B.K.[12] (27.9%). Beads were seen commonest EFB by Ologe FE et al[3] (19.7%) Mukara B.K. et al[12] (13.5%) and AC Oreh et al[13] (21.1%). Almost similar result (18.24%) we found in our study. Cotton bud is a common object to be left behind in ear canal while cleaning the ear for removal of wax, discharge or for itching. We found it as 15.54% (n=23). Almost same result showed by Ologe FE et al[3] (13.6%), and DeeptiPandey et al[11] (12%). But it was found as most common EFB by AC Oreh et al[13] (37.4%). In our study we found 4 cases (5.92%) of living insects (one cockroach, two flying insect & one ant) in the ear. Saurav Sarker et al[16] found 24 patients (20%) of living EFB. Among them 16.80% were cockroach & beetles and 3.36% were maggots. Deepti Pandey et al[11] found insects as 7.3%. Maggot in ear is an ENT emergency associated with foul smelling ear discharge in CSOM or malignancy. We found 2 cases (1.35%) of maggots with CSOM. In the present series we came to know that right ear affected more than left ear (54% versus 46%), (table III). Almost same result was founded by other studies[10,12,13,14]. Unilateral EFB more frequently affect the right ear than left ear due to preference of right handed individual to insert objects in their right ear.

Most of our patients (47.92%;n=71) presented with the history of insertion of a foreign body into the ear (table-IV). This was noticed either by patients himself or parents and they had no symptoms. This result coincides with that of Ologe FE el al[3] (64%), Prayaga N et al[6] (52%) & AC Oreh et al[13] (56%). Otalgia is an another presenting feature which is due to secondary infection or local chemical reaction by foreign body mostly hygroscopic in nature (e.g. seed) or attempt at removal of it. This constitutes 10.14% (n=15) in our study and it is supported by Ologe FE el al[3] (17%), & Prayaga N et al[6] (14%). Though uncommon among the living foreign body flying & crawling insect make patient restless to seek urgent management as they cause severe pain, irritation & great discomfort. 92.89% (n=136) EFB were removed in office setting by aural forcep or Jobson-Horne probe (65%), by sucker machine (30%) and by syringing (5%). 8.11% EFB were removed under general anesthesia (table- V). Most of the EFB,s (60%) were removed by forcep which is almost same to the other studies[3,10,12]. Ologe FE et al[3], Alberto Chinski et al[10], and Mukara B.K. et al[12] showed it as 73%, 52% & 63.5% respectively. We required syringing in small amount of cases (5%; n=8). Among these 03 for round and smooth surfaced foreign body, 03 for paddy & 02 for living insect. But the result of syringing was too high in some series[9,10,12]. It was 68.62% by Alberto Chinski et al[10], 35% by Mukara B.K. et al[12] and 28.6% by A.O.A. Ogunleye et al[9]. We observed that syringing may rupture the tympanic membrane, injury to middle ear cavity, make patient discomfort to remove and is not applicable to children. In case of syringing direction of water flow, force of water, location of foreign body & skillness of medical attendant should be appropriate. Therefore we recommend it to avoid as per as possible.

In 54.06% cases patient attended for treatment within 24 hours of insertion (table- VI). Similar result also found by A.O.A. Ogunleye et al[9] (54.5%), DeeptiPandey et al[11] (71%) and 88% by Alberto Chinski et al[10]. The cause of early presentation may be that parents become worried when their children insert a foreign body in the ear. Another cause of early presentation we found that of originated by seeds of vegetables. Seeds are likely to produce ear canal obstruction, discharge, mucosal erosion, ulceration due to its hygroscopic nature within short time. The cause of delayed presentation may as patient is unwire of foreign body and some foreign body may remain in ear canal for long time asymptomatically specially those are inert in nature and there may beminimal interference with ear function. Older children may conceal their discomfort for fear of punishment by parents. It is also noted that frequency is inversely proportional to the time between insertion and presentation. In our study we found that[13] cases(8.73%) to develop complication. During removal of EFB we found 9 cases (6.08%) had lacerated injury in canal wall and 02 cases (1.35%) had perforation of tympanic membrane. During follow up period 02 cases (1.35%) presented with CSOM. The incidence of same complication was mentioned as 17.9% by A.O.A. Ogunleye[9] and 24.5% by Ologe FE[3]. Complications were mostly associated with the deeply impacted large, slippery and difficult to grasp foreign body and non cooperative patient. It is also associated with the previous attempt at removal by unskilled hand.

Conclusion

Despite a high proportion of cases managed in the office setting, complication rates were within acceptable level. It is inversely proportional to the skill of the personnel, number of attempts & availability of equipments. Key to successful outcome are prompt help by well trained doctor and otolaryngological SSequipment set up. Syringing of ear should be done by an expert otolaryngologist if necessary and it is better to avoid as per as possible.

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