International Journal of Otorhinolaryngology and Head and Neck Surgery
Rai SJ et al. Int J Otorhinolaryngol Head Neck Surg. 2020 Sep;6(9):1632-1637
http://www.ijorl.com
pISSN 2454-5929 | eISSN 2454-5937

DOI: http://dx.doi.org/10.18203/issn.2454-5929.ijohns20203563

Original Research Article

Ear, nose and throat foreign bodies and their spectrum in rural South India

S. Juthika Rai*, B. V. Chandre Gowda, Rakshita R. Kamath

Department of ENT, MVJ Medical College & Research Hospital, Hoskote, Karnataka, India

Received: 19 June 2020
Accepted: 01 August 2020

***Correspondence:**
Dr. S. Juthika Rai,
E-mail: excelcior999@yahoo.com

ABSTRACT

Background: Ear, nose and throat foreign bodies are among the most common emergencies presenting to Otorhinolaryngologists world over and when dealt with poorly can cause high morbidity and mortality. Our study aimed at analysis of age, gender, types of foreign bodies and various aspects of their management in rural population.
Methods: An observational prospective study was conducted in MVJ Medical College and Research hospital, Hoskote which is a tertiary care teaching hospital in rural Karnataka. 224 patients complaining of foreign body in ear, nose and throat between June 2018 to December 2019 were analyzed.
Results: Among 224 patients, majority were >10 years of age (57%). Most common site was ear (63.8%) followed by nose and throat. Single site foreign bodies were vast with cotton being most common object. About 67% foreign bodies were organic objects with 28%living and 72% non-living. 4% of the cases needed anesthetic augmentation for removal of which only 8 cases required general anesthesia. 60% cases were previously attempted removal cases with 2.7% cases developing sequela at follow up.
Conclusions: Early presentation, timely intervention and skilled removal by otorhinolaryngologists can help prevent adverse outcomes of foreign body Ear Nose and throat.

Keywords: Foreign body, Rural study, Ear, Nose, Throat

INTRODUCTION

A foreign body (FB) is any object in a region it is not meant to be, where it can cause harm by its mere presence if immediate medical attention is not sought.[1] Foreign bodies in ear, nose and throat (ENT) are a common presentation. Although they account for about 11% of all emergencies to otorhinolaryngologists[2], they can lead to severe complications when dealt with inappropriately.

As a common belief, FBs are expected to be higher in younger children attributed to their habitual curiosity & playfulness. However, adults also present with a large number of accidental foreign bodies, especially in the rural strata. Many people, including caregivers of children, in the process of trivializing such incidents tend to attempt removal by self or by unskilled hands causing unnecessary consequences. This is more common in low socio-economic regions especially in the countryside areas. The poor diagnostic ability compounded by a lack of awareness of appropriate management in rural places result in the increase of self-treatment, complications and low rate of utilization of ENT specialists & healthcare services. [3] Ease of access to tertiary institutes also become a contributing factor and hence there is a requirement of close population study and analysis.

Foreign bodies can be a direct reflection of patient profile of a region as well as the customs and environment they

dwell in. The variety of foreign bodies retrieved could be classified as organic and inorganic. Organic can be sub-classified into living and nonliving and inorganic FBs into metallic and non-metallic foreign bodies. Removal of these foreign bodies require good skills and techniques along with precise anatomical orientation and hence should be done by otorhinolaryngologists to avoid undue tampering and complications which can range from minor sequelae to grave morbidities.

In the Indian context, there are multiple studies focusing on the paediatric population and also individual ENT, FB studies, however there were not many shedding light on the agro-dominant rural South Indian population and their variegate foreign body spectrum which is what is being addressed in the study we present here.

METHODS

An observational prospective study was performed in the department of otorhinolaryngology in MVJ medical college and research hospital, Hoskote. Study population included patients with foreign body lodgements presenting in the outpatient department or emergency Room in the study period of June 2018 to December 2019. History and patients data included age, sex, presenting symptoms had been taken and ENT examination was performed. General ENT examination including otoscopy, anterior rhinoscopy, indirect laryngoscopy was used to diagnose and identify the foreign body. Rigid endoscopy was used wherever necessary. Instruments such as Jobson horne probe, Tilley's forceps, alligator forceps were used for removal along with syringing and suctioning methods especially for ear foreign body removal. General Anaesthesia was used for removal wherever could not be done otherwise. After extraction of FB, re-examination of the affected ear was performed immediately and at follow up for any possible complications. Data was classified as necessary, analysed by simple proportions and tabulated using Microsoft excel.

Foreign body cases confirmed via basic clinical and radiological examination, all types of foreign bodies and removal done using instruments mentioned above were considered as inclusion criteria. Age <1 year and >85 years, patients denying consent for instrumentation, patients with complaints of foreign body sensation where no foreign body was found clinically, endoscopically or radiologically, failure of follow up and patients with any diagnosed psychiatric disorders or intellectual disabilities were all excluded from the study.

RESULTS

In our study of a total of 224 cases, there was a male preponderance with a total number of 116 (51.78%) while females were 108 (48.21%). Majority of the population was in the age groups more than 10 years i.e. 128 (57.14%) contrary to most studies, the younger age groups of less than 5 year olds were only 74 (33%) in number and the 6-20 years age group had about 45 cases (20%). The youngest patient encountered was 1year old and the oldest was 85 year old.

Table 1: Frequency table showing age distribution with number of cases reported.

Age distribution (in years)	No of cases
<5	74
6 to 10	22
11-20	27
21-40	68
41-60	26
>61	7
Total	224

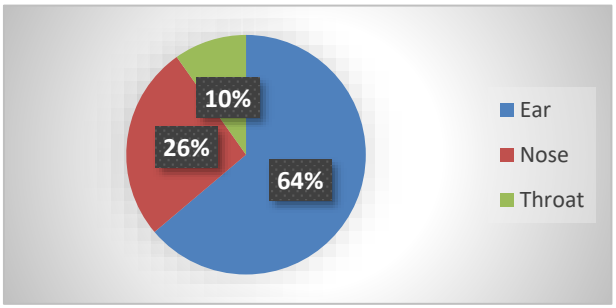

Figure 1: Site based distribution of foreign body frequencies.

Foreign body ear were the most common 143 (63.83%), while foreign body nose & throat were only about 59 (26.34%) and 22 (9.82%) respectively with highest number of foreign bodies overall being insects followed by cotton.

Among <5 year olds, nasal foreign bodies were more common 45 (60%) all other age groups had higher [6-20 years 40/49 (81.6%), 21-40 years 50/68 (73.5%), 41-60 years 19/26 (73%) >60 years 5/7 (71.4%)] ear foreign bodies.

Majority were single site single object foreign body, however, 2 cases had multiple foreign body in the same site (ear) and 3 had multisite foreign bodies at presentation while only 4 cases showed recurrent impacted foreign body on different visits.

Among 150 (66.96%) organic foreign bodies, 42 (28%) were living and 108 (72%) were nonliving and 74 (33%) inorganic foreign bodies had 16 (21.62%) metallic and 58 (78.38%) non-metallic objects. Five of the inorganic non-metallic foreign bodies showed surrounding calcification.

216 (96.43%) foreign bodies were removed in the emergency room/OPD but 19 (8.48%) throat foreign bodies required topical anesthesia. In 8 (3.57%) cases, the objects had to be removed under general anesthesia which was due to failure of cooperation by 1 adult and 7 children.

Table 2: Frequency distribution, percentage of age compared to site of foreign body impaction.

	Age distribution				
	<5	6-20	21-40	41-60	>60
	N (%)	N (%)	N (%)	N (%)	N (%)
Ear	29 (39)	35 (71.4)	50 (73.5)	19 (73)	5 (71.4)
Nose	45 (60.81)	12 (24.49)	5 (7.3)	-	-
Throat	-	2 (4.08)	13 (19.1)	7 (26.9)	2 (28.6)
Total no of cases	74 (33)	49 (21.8)	68 (30.3)	26 (11.6)	7 (3.1)

All objects were removed in the primary consultation, Only 2 cases required second visit for removal. 135 (60.27%) cases were previously attempted either by self or a GP 89 (39.73%) cases had presented directly to our centre first. Of the 135 cases, 6 (2.68%) cases showed significant follow up sequel while rest were uneventful at follow ups. 3 cases showed acute suppurative otitis media & 1 case each of otitis externa, traumatic perforation and active episode of undiagnosed chronic suppurative otitis media.

DISCUSSION

Foreign body spectrum of any given area provides some fascinating insights on regional peculiarities including their customs and objects of everyday livelihoods. In the wide age spectrum from 1 year to 85 years age range in our study, the highest cases were seen among >10 year olds which was contrary to study by Das et al where the majority were around the ages of 2 and 6 years[4] and also contrary to Chai et al.[5] and others where 1-10 year olds were majority of the cases.[6,7] This contrast could be due to the stringent watch on children by homemakers and joint family outlay followed in this part of rural South India where young kids are always under a watchful eye. The skew towards higher ages could also be due to removal at the primary level in pediatrician and physician clinics surrounding the area rather than being sent to our tertiary care setup. An aging population in general and a smaller number of children may also be a cause of higher adult population ratio in study.[8] The age distribution with number of cases is shown in (Table 1). Our study showed a peak between 21-40 years olds which was contrary to Nakamura et al who showed a possible 50-80 years age peak.[9]

Among the <10yr olds, 74 cases were <5 years of age (33%) indicating the classic Freudian theory at play, of anal and phallic oedipal stages following the oral stage of development predisposing a child to manipulating various orifices including the Ear, Nose and Throat passing through a phase of curiosity.[4,10] Overall, male patients slightly outnumbered females with 1.07:1 ratio, that was very close to the one noted by Ray et al study & at par with many other studies.[6,11-13]

Contrary to Ribeiro da Silva et al study, 64% cases in our study were aural foreign bodies.[12] The pie chart distribution (Figure 1) shows a vast majority in the aural foreign body locus followed by nasal foreign bodies (26%), which was similar to reports by Edican et al and Bressler et al.[14,15] Among aural foreign bodies, there was a myriad of objects found in the local population ranging from Q tips to chicken feathers.

Most common aural foreign body was cotton bud and as mentioned by Hobson et al study and Onotai et al are frequently used by adults to clean their ears in vast majorities.[16,17] This could be due to habitual ear and nose picking which is presumably commoner in rural population than urban sector. Predisposing ear conditions causing itching, pain or fullness compelling a child/adult to probe the ear must also be kept in mind. We attribute this to high incidence of local ear pathologies in this area such as seborrheic/eczematous otitis externa, furunculosis, etc in our OPD which has a cause-effect relationship with cotton aural foreign body presentation. However, none of our aural FB in our case showed any migration to surrounding soft tissues or other complications.[18]

As shows in (Table 2), 60.8% of all foreign body nose were among <5 yrs old which was similar to studies by Ray et al and Shrestha et al.[6,7] Ribeiro da Silva et al stated that majority skew of foreign body nose in children, digressed with growth and cognitive development as the age progressed which was also the trend noted in our study.[12] Only 5 cases were noted between 21-40years all of which were accidentally impacted nasal ornaments and there were no cases noted beyond 41yrs of age. Most of the nasal foreign bodies were seeds or grains same as reported by other studies[19, 20] as these are most accessible items to rural children. On the other hand, we did not find fragments of toys (plastic), as frequently as reported by Tong et al.[20] as most local population use simple homemade toys of wood/cloth more than store bought plastic toys for the children to play with.

Throat foreign bodies were as low as 9%, with majority among 21-40 years olds in the study, most of whom were fish bone impaction. When subjected to plain X-ray lateral view of neck, the fish bone could be easily visualized. One such case showing fish bone at the cricopharynx is shown in (Figure 2). It is one of the most common ingested foreign bodies (FBs) encountered in the across Asia, and other coastal countries and like many regions, this part of rural India comprises fond fish eaters.[21]

While most of the foreign bodies in our study were single object single site with no bilateral presentations, two cases had multiple foreign bodies in the same site and 4 cases showed recurrent impacted foreign body on different visits, all of which were children <10 yrs age group. We noted that all these children had neglectful caregivers which could be a major factor to such presentations and may also be a sign of attention seeking behavior in the young. However, the possibility of Munchausen by proxy syndrome in such cases must also be kept in mind.[22]

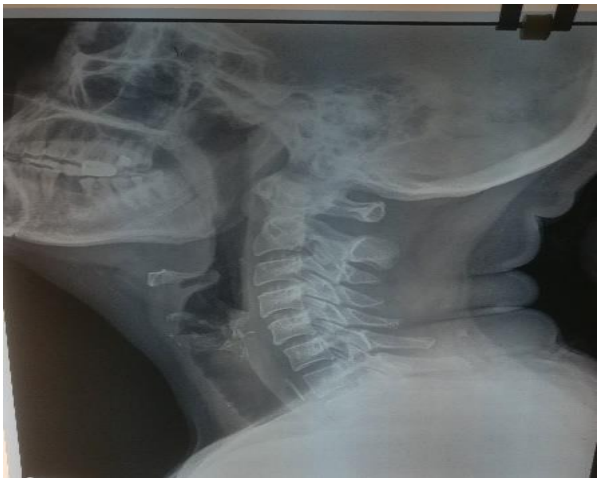

Figure 2: Foreign body fish bone cricopharynx depicted in this plain X-ray lateral view of neck.

Cases with multisite foreign bodies were those of honey bee attacks in the region. Bees were found in ear and nose of these patients, one of whom even required ICU care & continued to have dead honey bees being retrieved a week after the initial attack. Aggressive treatment for angioedema with thorough endoscopic evaluation to remove all FBs should be paramount in such cases.

Table 3: Types of foreign bodies classifies with frequency distribution and percentages.

Type of foreign body	No. of FB (%)
Organic	150 (66.96)
Living	42 (28)
Non Living	108 (72)
Inorganic	74 (33)
Metallic	16 (21.62)
Non Metallic	58 (78.38)

As denoted in the (Table 3), 67% of our objects removed were organic foreign bodies out of which 48% were organic non-living such as husk and seeds which was expected in our agro dominant region. Ishikawa et al. reported higher organic FB in the EAC among males[23] whereas Ahn et al. reported that female patients were more frequently affected due to attraction to fragrances[24]. While both the factors played a role in our social study group, with majority being agriculturists and females with habit of donning flowers in their hair, we did not find any gender specific results (Figure 3).

Another custom noted was of using neem leaf pieces in the ear as a treatment for itching and other ailments. Many adults came to us with impacted leaves in the ear inserted themselves or their older family members and left in situ for weeks.

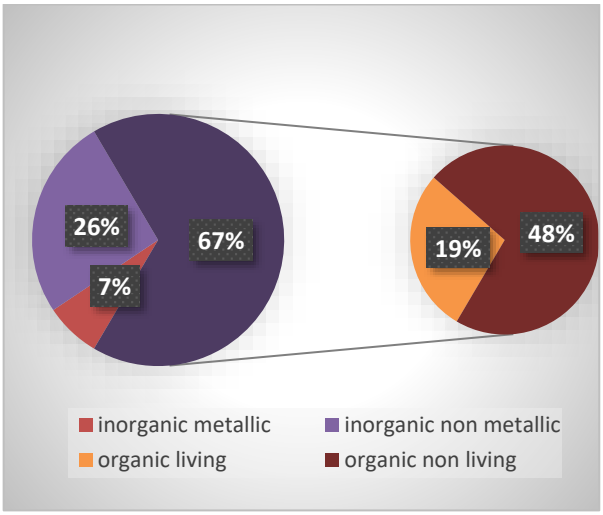

Figure 3: Types of foreign body,organic living (green) organic non-living (brown), inorganic metallic (pink) inorganic nonmetallic (gold).

Among the 19% living organic foreign bodies retrieved, majority were cockroaches. This is predominantly due to having home-based grain storages breeding these pests and the habit of sleeping on the floor by many in this area. Animate foreign bodies can rarely present with complications, however an idiosyncratic type of localized inflammatory response to an insect's sting can lead to dangerous complications. Zamzil et al. reported isolated facial palsy due to intra-aural tick (Ixodoidea) infestation.[25] In this regard, attempt at foreign body removal by untrained medical professionals caused more complications than the presence of the foreign body itself. 135 of the patients, had unsuccessful attempts of removal before referral to us. Similarly, Srinovianti and Ahmad, noted that more than half the patients (53%) had a traumatic experience due to failed attempts by medical personnel before referrals to specialists at higher centre.[26] With about 60% of patients with failed attempt of removal before presentation to us, removal at our setup in them was more challenging. Grave complications in such cases are not unheard of as Ugwu et al.[27] reported a case of trauma during retrieval causing otogenic tetanus.

All the cases that developed long term sequelae in our study were previously failed attempt cases by non otorhinolarynogologists. Many studies have shown that removals by non-otolaryngologists are associated with higher complication rate than those of otolaryngologists.[28,29] As noted by Fasunla et al, the level of clinical skill such as increased usage of otomicroscope for successful removal is a major factor.[30]

Most foreign bodies can be removed on outpatient bases[31] as was done in 96% of our cases. Some of the objects retrieved are shown in (Figure 4). 19 of our throat foreign body cases required topical anesthesia with 10% lidocaine spray. Age and difficult cases should be considered as significant factors for the need for general anesthesia.[32] In their study, Ansley and Cunningham noted that 30% of the patients underwent operative foreign body removal contrary to our study where only 8 cases needed this intervention most of which was due to lack of patient cooperation.[33] 2.8% of our cases showed significant post removal sequelae which were delayed presentation and difficult removal type cases. Hon SK showed that early referral and prompt removal of foreign bodies could minimize complications and should be practiced for all the otorhinolaryngeal foreign bodies.[34]

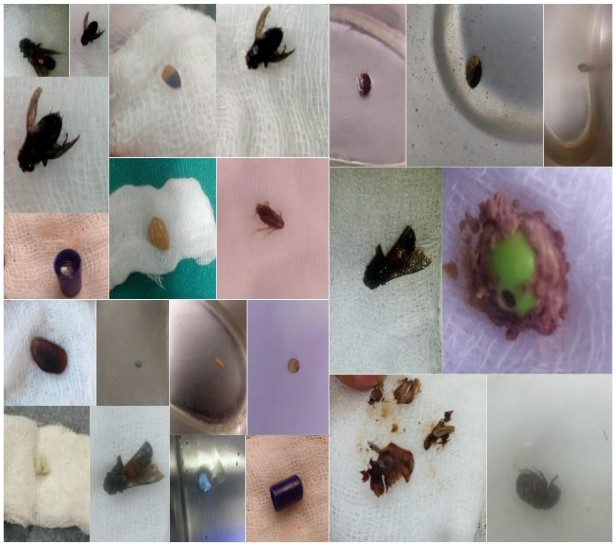

Figure 4: Myriad of foreign bodies removed on outpatient basis.

CONCLUSION

Foreign bodies are a direct reflection of patient profile of a region as well as the customs and environmental factors. Understanding them gives clinicians a clearer perspective of what to expect, ease of removal and also in patient awareness and education. Untampered early presentation, timely intervention and skilled removal by otorhinolaryngologists can prevent unnecessary complications and long term sequelae in foreign body ear nose and throat.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Sarkar S, Roychoudhury A, Roychaudhuri BK. Foreign bodies in ENT in a teaching hospital in Eastern India. Indian J Otolaryngol Head Neck Surg. 2010;62(2):118-20.
2. Figueiredo RR, Azevedo AA, Kós AO, Tomita S. Complications of ent foreign bodies: a retrospective study. Rev Bras Otorrinolaringol (Engl Ed). 2008;74(01):7-15.
3. Tupasi TE, Miguel CA, Tallo VL, Bagasao TM, Natividad JN, Valencia LB, et al. Child care practices of mothers: implications for intervention in acute respiratory infections, Ann. Trop. Paediatr. 1989;9(2):82-88.
4. Das SK. Aetiological evaluation of foreign bodies in the ear and nose. J Laryngol Otol. 1984;98:989-91.
5. Chiun KC, Tang IP, Tan TY, Jong DE. Review of ear, nose and throat foreign bodies in Sarawak General Hospital. A five year experience. Med J Malaysia. 2012;67(1):17-20.
6. Ray R, Dutta M, Mukherjee M, Gayen GC. Foreign body in ear, nose and throat: experience in a tertiary hospital. Indian J Otolaryngol Head Neck Surg. 2014;66(1):13-6.
7. Shrestha I, Shrestha BL, Amatya RC. Analysis of ear, nose and throat foreign bodies in dhulikhel hospital. Kathmandu Univ Med J. 2012;10(38):4-8.
8. Anderson GF, Hussey PS. Population aging: a comparison among industrialized countries. Health Aff (Millwood) 2000;19:191-203.
9. Nakamura Y, Ito K, TakedaM, Matsuda E, Oda N. A clinical analysis of 75 foreign bodies in the external auditory canal including a cobweb as a foreign body. Practica Otologica. 2012;05:1033-7.
10. Bressler K, Shelton C. Ear foreign-body removal: a review of 98 consecutive cases. Laryngoscope. 1993;103:367-70.
11. Mukherjee A, Haldar D, Dutta S, Dutta M, Saha J, Sinha R. Ear, nose and throat foreign bodies in children: A search for socio-demographic correlates. International Journal of Pediatric Otorhino-laryngology. 2011;75(4):510-2.
12. Ribeiro da Silva BS, Souza LO, Camera MG, Tamiso AGB, Castanheira VR. Foreign bodies in otorhinolaryngology: a study of 128 cases. Int. Arch. Otorhinolaryngol. 2009;13(4):394-9.
13. Mishra A, Shukla GK, Bhatia N. Aural Foreign bodies. Indian J of pediatrics. 2000;67(4):267-9. Bressler K, Shelton C. Ear foreign-body removal: a review of 98 consecutive cases. Laryngoscope. 1993;103(4):367-70.
14. Endican S, Garap JP, Dubey SP. Ear, nose and throat foreign bodies in Melanesian children: an analysis of 1037 cases. Int J Pediatr Otorhinolaryngol. 2006;70(09):1539-45.
15. Onotai LO, Uriah S. External auditory canal foreign bodies: Clinical profile and management outcomes in Port Harcourt, Nigeria. J Med Res Prac. 2013;2(5):111-5.
16. Hobson JC, Lavy JA. Use and abuse of cotton buds. J R Soc Med.2005;98(8):360-1.
17. Viswanatha B, Dutta RK, Anilkunar R, Sumatha D. Migration of a foreign body from post aural area to the external ear canal. Int J Otorhinolaryngol. 2009;10(2):1-4.

18. Franc¸ois M, Hamrioui R, Narcy P. Nasal foreign bodies in children. Eur. Arch. Otorhinolaryngol. 1998;255:132-4.
19. Tong MCF, Ying SY, Hasselt van CA. Nasal foreign bodies in children. Int. J. Pediatr. Otorhinolaryngol. 1996;35:207-11.
20. Kim HU. Oroesophageal Fish Bone Foreign Body. Clin Endosc.2016;49(04):318-26.
21. Zohar Y, Avidan G, Shvili Y, Laurian N. Otolaryngologic cases of Munchausen's syndrome. Laryngoscope. 1987;97:201-3.
22. Ishikawa H, OmataT. Statistical analysis of 83 cases of foreign bodies in the externalauditory canal. Practica Otologica.1998;91: 899-904.
23. Ahn JH, Cho GS, Chung JW, Yoon TH. Analysis of the 169 patients with external auditory canal foreign bodies in the emergency department. Korean J Audiol. 2010;14:8-11.
24. Zamzil Amin A, Baharudin A, Shahid H. Isolated facial palsy due to intra-aural tick (ixodoidea) infestation. Arch OrofacSci. 2007;2:51-3.
25. Srinovianti N, Ahmad RL. Intra-aural tick infestation, the presentation and complica-tions. The Int Med J Malaysia. 2003;2(2):1-5.
26. Ugwu GI, Okolugbo NE. Otogenic tetanus: case series. West Afr J Med. 2012;31:277-9.
27. Olajide TG, Ologe FE, Arigbede OO. Management of foreign bodies in the ear: a retrospective review of 123 cases in Nigeria. Ear, Nose and Throat J. 2011;90(11):E16 -9.
28. Fasunla AJ, Ogunleye OO, Ijaduola TG. Healthcare givers' skill and foreign bodies in the ears of children in the tropics. Int J Pediatr Otorhinolaryngol. 2007;71(2):191-5.
29. Cederberg CA, Kerschner JE. Otomicroscope in the emergency department management of pediatric ear foreign bodies. Int J Pediatr Otorhinolaryngol. 2009;73(4):589-91.
30. Parajuli R. Foreign bodies in the ear, nose and throat: an experience in a tertiary care hospital in central Nepal. Int Arch Otorhinolaryngol. 2015;19(2):121-23.
31. Ngo A, Ng KC, Sim TP. Otorhinolaryngeal foreign bodies in children presenting to emergency department. Singapore Med J. 2005;46(4):172-8.
32. Ansley FJ, Cunningham JM. Treatment of Aural Foreign Bodies in Children. Pediatrics. 1998;101(4): 638-41.
33. Hon SK, Izam TM, Koay CB, Razi A. A prospective evaluation of foreign bodies presenting to the Ear, Nose and Throat Clinic, Hospital Kuala Lumpur. Med J Malaysia. 2001;56(4):463-70.

Cite this article as: Rai SJ, Gowda BVC, Kamath RR**.** Ear, nose and throat foreign bodies and their spectrum in rural South India**.** Int J Otorhinolaryngol Head Neck Surg 2020;6:1632-7.