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ORIGINAL ARTICLE

Complicated cases in foreign bodies of the ear, nose, and throat: a case series.

Casos complicados en oído, nariz y garganta, con presencia de cuerpo extraño: una serie de casos.

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Abstract

Background:

Managing foreign bodies in otorhinolaryngology requires appropriate treatment based on case severity.

Objective:

To analyze the clinical characteristics associated with complicated cases of foreign bodies.

Methods:

This study categorized patients with diagnosed foreign bodies into complicated and uncomplicated cases. Complicated cases were defined as complications from foreign bodies requiring an operating room procedure, hospitalization, or tracheal foreign body. Otherwise, they were considered uncomplicated. Clinical data and disease variables were recorded. Univariate and multivariate regression analyses were performed to evaluate the significance of different clinical features between the groups (p-value <0.05).

Results:

Of the 751 cases studied, most cases involving foreign bodies were treated outpatient and typically presented without complications, while 20.1% (n=151) were confirmed as complicated. There were 119 cases present with complications from foreign bodies, 58 requiring removals in an operating room, 57 needing hospitalization, and two tracheal foreign bodies. Multivariate analysis revealed that male gender (p-value 0.043, OR (95%CI) = 1.554 (1.015-2.378)), positive presenting symptoms (p-value <0.0001, OR (95%CI)= 4.081 (2.299-7.248)), foreign body in the hypopharyngeal area (p-value <0.0001, OR (95%CI) = 65.615 (6.907-623.336)), and foreign body in the laryngeal area (p-value 0.006, OR (95%CI) = 27.787 (2.568-300.673)) were significantly associated with complicated foreign bodies cases.

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The authors declare that they have no conflict of interest.

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Chonticha Srivanitchapoom responses to research project design, data interpretation, preparation of the manuscript, and review of the literature. Kedsaraporn Yata responses to research project design, data interpretation, preparation of the manuscript, and review of the literature

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Conclusion:

Complicated foreign body cases should be addressed in male patients complaining of symptoms and foreign bodies in the hypopharyngeal and laryngotracheal locations. Due to the complexity of their condition, effective management of these patients requires a multidisciplinary approach.

Resumen

Antecedentes:

El manejo de los cuerpos extraños en otorrinolaringología requiere un tratamiento adecuado en función de la gravedad del caso

Objetivo:

Analizar las características clínicas asociadas a los casos complicados de cuerpos extraños.

Métodos:

Este estudio categorizó a los pacientes con diagnóstico de cuerpos extraños en casos complicados y no complicados. Los casos complicados se definieron como complicaciones por cuerpos extraños que requirieron intervención quirúrgica, hospitalización o cuerpo extraño traqueal. Se registraron los datos clínicos y las variables de la enfermedad. Se realizaron análisis de regresión univariantes y multivariantes para evaluar la significación de las diferentes características clínicas entre los grupos (valor p <0.05).

Resultados:

De los 751 casos con cuerpos extraños estudiados se trataron de forma ambulatoria y se presentaron sin complicaciones. El 20.1% (n= 151) se confirmaron como complicados. Hubo 119 casos que presentaron complicaciones por cuerpos extraños, 58 requirieron extracción en el quirófano, 57 hospitalización y 2 cuerpos extraños traqueales. El análisis multivariante reveló que el sexo masculino (p-valor 0.043, OR (IC 95%) = 1.554 (1.015-2.378)), los síntomas de presentación positivos (p-valor <0.0001, OR (IC 95%)= 4.081 (2.299-7.248)), el cuerpo extraño en la zona hipofaríngea (p-valor <0.0001, OR (IC 95%)= 65.615 (6.907-623.336)), y cuerpo extraño en la zona laríngea (p-valor 0.006, OR (IC 95%)= 27.787 (2.568-300.673)) se asociaron significativamente con los casos de cuerpos extraños complicados.

Conclusiones:

Los casos complicados de cuerpos extraños deben abordarse en pacientes varones que se quejan de síntomas y cuerpos extraños en las localizaciones hipofaríngea y laringotraqueal. Debido a la complejidad de su afección, el tratamiento eficaz de estos pacientes requiere un enfoque multidisciplinar.

Remark

1) Why was this study conducted?

To categorize the complicated foreign bodies cases and analyze the clinical characteristics associated with those cases.

2) What were the most relevant results of the study?

Complicated foreign bodies cases should be considered in male patients with positive presenting symptoms and foreign bodies located in the hypopharynx and laryngotracheal areas.

3) What do these results contribute?

Most foreign body cases are usually present in uncomplicated cases that can be handled in the office; however, complicated cases might require referral and complex care.

Introduction

Foreign bodies in ear, nose, and throat emergencies are not uncommon, accounting for 11% of reported cases,[1,2]. The severity of symptoms can range from asymptomatic to life-threatening, with complicated cases requiring more complex care and often leading to severe complications, such as laryngotracheal area [3]. In addition, an adverse event can occur according to the nature of foreign body itself, for example, disc battery [4,5]. Therefore, caregivers, healthcare practitioners, and specialist physicians may all be involved in treating these cases [6-8]. Prior studies supported that emergency and family physicians demonstrated positive treatment outcomes [7-9]. Meanwhile, several reports noticed an associated factor related to removal failure and required referral to specialists [4,7,8]. However, no definitive clinical features related to the problematic cases have been established to guide clinical practice.

This study categorized complicated foreign bodies cases in otorhinolaryngology and aimed to identify clinical characteristics associated with those cases.

Materials and Methods

The retrospective cohort study was performed according to STROBE guidelines [10]. The Institutional Review Board approved the investigation protocol. Clinical records of patients diagnosed with foreign bodies in otorhinolaryngology between January 2014 and October 2021 were reviewed. Demographic data, co-morbid disease, pre-visit ear, nose, and throat treatment, presenting symptoms, foreign body details including type/number/duration, removal technique, and complications were recorded. The location was classified as external auditory canal including foreign bodies that penetrate the middle ear, oropharynx, nasal cavity, hypopharynx, larynx, trachea, and esophagus. Patients who were presented with a history of foreign body but could not identify it were excluded from this study. All participants received definite treatment in their ear, nose, and throat unit.

Eligible patients were divided into two groups: complicated cases and uncomplicated cases. Patients who were classified as complicated cases as follows: 1) present with complications from foreign bodies, including soft tissue inflammation and infection such as swelling, redness, bleeding, localized pain, ulceration of pharyngolaryngeal mucosa, skin or soft tissue of external ear canal marked bleeding and swelling, tympanic membrane infection and perforation, serous/pus discharge in the ear canal, and foreign body that penetrated the middle ear, 2) removal procedure was performed in the operating room either local or general anesthesia, 3) patients who required hospitalization and 4) tracheal foreign body. Otherwise, they were classified as uncomplicated cases.

All continuous data were presented as mean ± SD for normal distribution. In contrast, the median (IQR) for non-normal data distribution, an unpaired t-test was used to compare two different means. All categorical data were reported in percentages. Clinical data and disease variables were analyzed using Fisher's exact and chi-square tests. Comparison between groups by calculating the OR and 95% CI univariate and multivariate regression analyses to assess the significance of the different clinical characters, as appropriate, with the aid of IBM SPSS Statistics for Windows (version 26.0, IBM Corp, Armonk, NY). Probabilities of less than 0.05 were considered significant.

Ethics approval

The Institutional Review Board of Phayao Hospital approved the protocol of the investigation, COA no 154, study code 64-02-022.

Results

In this study, a total of 751 patients with foreign bodies were enrolled. The majority of cases, totaling 420 cases, involved the external auditory canal, followed by 265 cases in the oropharynx, 26 in the nasal cavity, 20 in the esophagus, 14 in the hypopharynx, 4 in the larynx, and 2 in the trachea. In general, the foreign body commonly affects women, especially in oropharynx and nasal cavity locations. Conversely, men tended to experience foreign bodies in the remaining areas. Typically, patients between the ages of 15-60 were affected in every location except for the nasal cavity, which tended to occur in individuals ≤ 5 years old. Table 1 shows demographic data for all patients. Out of the total cases, 4.9% (37 cases) had issues with their consciousness, which included attention deficit hyperactivity disorder, Down syndrome, alcoholism, psychogenic problems, and being bedridden due to chronic disease. Additionally, 23.6% had co-morbid diseases that hindered their healing process, such as diabetes, chronic kidney disease, anemia, or being an immunocompromised host. (Table 2) There was no statistically significant difference between complicated and uncomplicated cases regarding co-morbid diseases.

In 515 cases (68.6%), patients reported abnormal symptoms related to foreign bodies, including pain in a specific area, trouble swallowing, coughing, choking, bleeding, hearing loss, ear discharge, or tinnitus. All patients with nasal cavity, larynx, and tracheal locations exhibited symptoms. Symptoms generally began after an average of 4.17 days, leading the patient to seek medical treatment. Two patients with tracheal foreign bodies experience the shortest symptom duration, presenting to the hospital within 1.5 to 3 hours. In contrast, individuals with foreign objects in their nasal cavities experienced an average duration of 7.9 days, which was the longest. The type of foreign body was related to its location, with fish or chicken bones often found in the upper digestive tract and living foreign bodies like beetles and ticks often found in the external ear canal. Seeds and toys were usually in the external ear canal or nasal cavity. However, there were two unique cases: a sunflower seed in a 3-year-old boy's trachea and a tracheostomy patient dislodged a suction cap into their tracheal lumen. (Table 1) Soft tissue neck radiography was conducted in 9.3% of cases to assess the hypopharynx and esophagus. This diagnostic approach aids in evaluating potential pathologies within these anatomical structures.

A total of 151 patients (20.1%) were classified as complicated cases based on the study criteria. This group included 119 patients who presented complications from foreign bodies. Additionally, 58 patients required anesthesia assistance in an operating room, and 57 patients were admitted for general anesthesia, intravenous antibiotics, and/or close monitoring due to airway mucosal swelling. Furthermore, two patients with tracheal foreign bodies required an operative setting for removal (Table 1). The clinical features, including male gender, symptoms, and areas of the hypopharynx and larynx, significantly differed between complicated and uncomplicated cases, as demonstrated in Table 3. It was interesting to note that in patients aged > 7-10 years old (p-value 0.039), foreign bodies located in the oropharyngeal area (p-value <0.0001), and fish/chicken bones (p-value 0.015) were not commonly identified in complicated cases.

Table 1. Clinical characteristics of foreign bodies in otorhinolaryngology

	All location	Ear	Oropharynx	Nasal cavity	Esophagus	Hypopharynx	Larynx	Trachea
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Number of patients	751 (100)	420 (55.9)	265 (35.3)	26 (3.4)	20 (2.7)	14 (1.9)	4 (0.5)	2 (0.3)
Sex								
Man	342 (45.5)	217 (51.7)	87 (32.8)	12 (46.2)	14 (70)	7 (50)	3 (75)	2 (100)
Age (year)								
0-3	43 (5.7)	20 (4.8)	5 (1.9)	17 (65.4)	-	-	-	1 (50)
>3-5	39 (5.2)	35 (8.3)	-	4 (15.4)	-	-	-	-
>5-7	32 (4.3)	26 (6.2)	4 (1.5)	-	2 (10)	-	-	-
>7-10	32 (4.3)	21 (5)	8 (3)	3 (11.5)	-	-	-	-
>10-14	22 (2.9)	17 (4.1)	5 (1.9)	-	-	-	-	-
15-60	455 (60.6)	232 (55.2)	198 (74.7)	2 (7.7)	9 (45)	9 (64.3)	4 (100)	1 (50)
>60-70	94 (12.5)	50 (11.9)	35 (13.2)	-	5 (25)	4 (28.6)	-	-
>70	34 (4.5)	19 (4.5)	10 (3.8)	-	4 (20)	1 (7.1)	-	-
Pre-visit ENT treatment								
Yes	186 (24.8)	105 (25)	56 (21.1)	7 (26.9)	10 (50)	6 (42.9)	1 (25)	1 (50)
Presenting symptoms								
Yes	515 (68.6)	284 (67.6)	169 (63.8)	26 (100)	17 (85)	13 (92.9)	4 (100)	2 (100)
Type of FB Living								
FBs*	314 (41.8)	307 (73.1)	6 (2.3)	1 (3.8)	-	-	-	-
Fish/chicken bones	289 (38.5)	1 (0.2)	257 (97)	-	13 (65)	14 (100)	4 (100)	-
Seed	66 (8.8)	55 (13.1)	-	8 (30.8)	2 (10)	-	-	1 (50)
Other FBs**	82 (10.9)	57 (13.6)	2 (0.8)	17 (65.4)	5 (25)	-	-	1 (50)
Multiple FBs								
Yes	9 (1.2)	8 (1.9)	-	-	1 (5)	-	-	-
Second episode FBs								
Yes	18 (2.4)	10 (2.4)	8 (3)	-	-	-	-	-
Complicated cases* **								
Yes	151 (20.1)	95 (22.6)	187 (6.4)	1 (3.8)	20 (100)	13 (92.9)	3 (75)	2 (100)
Present with complications								
Yes	119 (15.8)	90 (21.4)	13 (4.9)	-	5 (25)	7 (50)	3 (75)	1 (50)
OR removal								
Yes	58 (7.7)	8 (1.9)	11 (4.2)	1(3.8)	20(100)	13 (92.9)	3 (75)	2 (100)
Hospitalization								
Yes	57 (7.7)	4 (1)	14 (5.3)	1 (3.8)	20 (100)	13 (92.9)	3 (75)	2 (100)

ENT = ear, nose and throat, FB = foreign body, OR = operating room
* Living foreign bodies such as beetles, ticks, ants, and cockroaches
** Other foreign bodies such as cotton, tissue paper, play dough, and toys
*** Complicated cases, including present with complications from foreign bodies, required operating room for removal, hospitalization, tracheal foreign body

Subgroup analysis indicated a significant relationship between hypopharyngeal and laryngotracheal locations for patients requiring operating theater usage and hospitalization. (Tables 4 and and5)5) Additionally, patients who reported any symptoms also significantly required removal procedures in an operative setting. The treatment outcome of all patients was good, and there were no reported cases of fatalities related to the disease.

Discussion

Otorhinolaryngology consists of the upper aerodigestive tract and auditory structure. According to functions and forms, the foreign body can accidentally become lodged in these areas during daily activities. In this study, we reported over 700 cases; however, it was likely underreported according to our institute's protocol, as some cases were successfully managed by emergency and family physicians without the need for interconsultation or referral to an otolaryngologist. The results showed that the external ear canal was the most frequent location of foreign bodies, followed by the oropharynx and nasal cavity, consistent with previous literature [1,11,12]. Although the common area was the same, a deeper analysis revealed that living foreign bodies such as beetles, ticks, ants, and cockroaches were frequently identified in this study. In contrast, references to beans, seeds, and cotton were mentioned in the literature[1,11,12]. Factors such as habitat, household environment, and agricultural atmosphere contribute to the prevalence of these living foreign bodies. Additionally, certain social habits, including

Table 2. Co-morbid diseases and poor-healing conditions in patients with foreign bodies

Total cases (n=751)(%)		Complicated cases (n=151) (%)	Uncomplicated cases (n=600)(%)
Co-morbid diseases*			
Yes	224 (29.8)	50 (33.1)	174 (29)
Poor healing conditions**			
Yes	177 (23.6)	40 (26.5)	137 (22.8)

*Co-morbid diseases such as hypertension, diabetes mellitus, chronic obstructive pulmonary disease, ischemic heart diseases, dyslipidemia, alcoholic dependent
**Poor-healing conditions such as diabetes, chronic kidney disease, anemia, or being an immunocompromised host

Table 3. Univariate analysis and multivariate analysis for complicated foreign body cases (n=151 cases)

Variable	Univariate analysis		Multivariate analysis	
	OR	95% CI	OR	95% CI
Sex; male gender	2.037	1.417-2.930 ***	1.554	1.015-2.378 *
Age >3-5 years old	2.080	1.042-4.151 *	-	-
Hypopharyngeal site	56.428	7.320-434.984 ***	65.615	6.907-623.336 ***
Laryngeal site	12.142	1.254-117.563 *	27.787	2.568-300.673 **
Pre-visit ENT treatment	1.757	1.192-2.589 **	-	-
Positive presenting symptoms	4.217	2.508-7.090 ***	4.081	2.299-7.248 ***

ENT = ear, nose, and throat
* p value <0.05, ** p value <0.01, *** p value <0.001

the preference for lying on the floor, may cause this situation [12]. However, the study of a large population from Japan and Taiwan showed that the foreign body of the throat was the most affected site [13,14], primarily linked to traditional fish-eating customs [13]. This research also indicated that fish bones were frequently found in the oropharynx. In northern Thailand, we have the region's largest freshwater lake in our landscape, which increases fish consumption opportunities. In contrast, studies from 2005 and 2011 indicated that the nasal cavity was the most common location for foreign bodies [6,15]. Both studies focused exclusively on children, whereas this study encompassed all age groups.

This study found that women often experienced foreign body problems, which was like previous research [1]. However, some literature suggested that men were more commonly affected [2,6,11]. The subgroup analysis in this study revealed that males were more likely to be affected in the ear, laryngotracheal, and esophageal areas. This finding was consistent with a study involving 1,013 patients from Egypt [2], demonstrating a predominance of male cases. The highest incidence of foreign bodies was observed in men aged 15 to 60; however, previous literature indicates that occurrences were more common in individuals younger than 12 [2]. Previous articles reported that pediatric patients, especially children under 6 years old, were influential factors in their swallowing and behavior during development [2,6], mainly foreign bodies in the ear and nasal cavity, which were slightly younger than foreign bodies in the throat [6,11]. The results showed agreement that the nasal cavity foreign body was commonly affected in children under the age of 5. This may explain the delayed presentation of these cases, as patients might not recognize this issue. Approximately 1.2% of cases (9 patients) involved multiple foreign bodies, with 8 of these patients affected in the ear canal, which was linked to our observed etiology. According to the data, re-examination after foreign body removal should be performed to ensure a complete resolution of the issue. A second foreign body was also detected in the ear canal and nasal cavity. It is essential to inform and educate patients and their caregivers about this occurrence.

According to this cohort study, foreign bodies in the hypopharynx, larynx, and trachea can be considered complicated cases. These were due to the difficulty in visualizing these areas during a regular office examination and the potential for serious airway complications such as upper airway obstruction, soft tissue inflammation, and dislodging of the foreign body within the airway lumen. It was essential to be aware of these risks and take appropriate measures

Table 4. Univariate analysis and multivariate analysis for operating room removal procedure (n=58 cases)

Variable	Univariate analysis		Multivariate analysis	
	OR	95% CI	OR	95% CI
Co-morbid diseases†	2.367	1.378,4.065 **	-	-
Poor healing conditions‡	1.797	1.016-3.177 *	-	-
Age >70 years old	2.740	1.086-6.916 *	-	-
Hypopharyngeal site	199.911	25.577-1562.515 ***	108.253	10.974-1067.853 ***
Laryngeal site	37.745	3.862-368.940 **	67.116	6.161-731.119 **
Pre-visit ENT treatment	1.816	1.034-3.190 *	-	-
Positive presenting symptoms	4.305	1.822-10.171 **	3.881	2.162-6.969 ***
Fish/chicken bones	3.963	2.224-7.060 ***	13.374	1.673-106.929 *
Other FBs ¥	2.924	1.525-5.610 **	46.604	5.792-375.00 ***
Age (mean)	8.503	2.534-14.472 **	-	-
Onset (mean)	5.820	1.331-10.309 *	-	-

ENT = ear, nose, and throat, FB = foreign body
† Co-morbid diseases such as hypertension, diabetes mellitus, chronic obstructive pulmonary disease, ischemic heart diseases, dyslipidemia, alcoholic dependence
‡ Poor-healing conditions such as diabetes, chronic kidney disease, anemia, or being an immuno-compromised host
¥ Other foreign bodies such as cotton, tissue paper, play dough, and toys
* p value < 0.05, ** p value < 0.01, *** p value < 0.0011

Table 5. Univariate analysis and multivariate analysis for hospitalization (n=57 cases)

Variable	Univariate analysis		Multivariate analysis	
	OR	95% CI	OR	95% CI
Co-morbid diseases †	2.271	1.316-3.918 **	-	-
Poor healing conditions ‡	1.849	1.043-3.277 *	-	-
Age >70 years old	2.798	1.108-7.068 *	-	-
Hypopharyngeal site	204.750	26.184-1601.088 ***	67.732	7.028-652.805 ***
Laryngeal site	38.500	3.938-376.421 **	45.934	4.258-495.513 **
Pre-visit ENT treatment	2.031	1.159-3.561 *	-	-
Positive presenting symptoms	5.189	2.045-13.166 **	-	-
Fish/chicken bones	5.067	2.754-9.323 ***	-	-
Age (mean)	9.548	3.539-15.558 **	-	-

ENT = ear, nose, and throat
† Co-morbid diseases such as hypertension, diabetes mellitus, chronic obstructive pulmonary disease, ischemic heart diseases, dyslipidemia, alcoholic dependence
‡ Poor-healing conditions such as diabetes, chronic kidney disease, anemia, or being an immuno-compromised host
* p value < 0.05, ** p value < 0.01, *** p value < 0.001

to prevent those complications. Therefore, it was determined that an operative setting and hospitalization would be necessary. In addition, patients who complained of obvious clinical symptoms and male gender were also associated with complicated cases. Previous literature reported complications from foreign bodies of about 10-24.68% [1,2,5,11,16], while this study identified 15.8%. The foreign body's location was directly associated with complications such as airway blockage. Additionally, the characteristics of the foreign body can also be a factor, such as with a living foreign body in the external auditory canal that may move and potentially harm the surrounding tissue. Interestingly, foreign bodies found in the oropharyngeal area, typically related to fish or chicken bones, did not show significant complications in this study, which aligns with a previous study from 2006 [11]. Based on our observations, the tonsil was the most affected area, typically not involving the laryngo-hypophayngeal airway. Fish bones often penetrate the tonsillar crypt at this location without contacting other oropharyngeal mucosa, especially in the small and short piece of fish bone. Additionally, most patients were usually able to correctly identify the location of the issue, which made treatment successful and minimized complications. Therefore, healthcare professionals can enhance their confidence while providing care for foreign body cases by better understanding their nature. Additionally, the data supported pre-visit ear, nose, and throat treatment didn't show a relation with complications. In contrast to prior studies that reported multiple attempts and pre-visit treatment were the factors of complications [7,8,12].

A study found that only a small percentage (7.7%) of patients needed an operative setting to remove foreign objects from their bodies, consistent with a similar study conducted in 2010 that reported less than 10% required anesthetic assistance [17]. It was important to be aware

when dealing with patients who were over 70 years old, had co-existing medical conditions, hypopharyngeal and laryngotracheal foreign objects, fish or chicken bones, had positive symptoms, and had previous ear, nose, and throat treatment. Those patients were considered for operative removal procedures and required hospitalization for close monitoring of any possible complications from trauma, infection, or inflammation. Previous studies have indicated that the success of removing foreign bodies from the ear, nose, and throat largely depends on the skill of the otorhinolaryngology specialist and the specific instruments used [11,12,15]. However, according to the data, most foreign body removals can be successfully performed in the doctor's office. Therefore, primary care and emergency physicians can effectively manage most cases using strategies that involve patient cooperation, informed practices, appropriate tools, skilled operators, and careful post-treatment monitoring. Additionally, caregivers and community assistants also need to enhance their skills with proper training to achieve favorable treatment outcomes [5]. Meanwhile, complicated foreign bodies cases should be carefully evaluated and referred to a specialist for further assistance.

It is important to note that this study had limitations due to its retrospective nature. There was insufficient data on the exact number of patients who experienced foreign body incidents in our prefectural, the number of attempts made before seeking treatment from ear, nose, and throat specialists, and the specific details of the instruments that failed to remove the foreign bodies before the patient's visits to the otorhinolaryngologist. We believed the identified limitations would not impact the clinical approach to complicated foreign bodies cases. As a result, patients with foreign bodies located in the hypopharynx and laryngotracheal areas, particularly males presenting positive symptoms, were eligible for a more thorough evaluation. These patients should be referred to a specialist for further investigation and the preparation of a complex care management plan.

References

1. Zewdu D, Wondwosen M, Chufamo M, Eanga S, Aga A, Ewnte B, et al. The practice of foreign body removal from the ear, nose, and upper esophageal in children in Ethiopia: a retrospective descriptive study. Laryngoscope Investig Otolaryngol. 2021; 6: 1316-20. Doi: 10.1002/lio2.688

2. Awad AH, ElTaher M. ENT foreign bodies: an experience. Int Arch Otorhinolaryngol. 2018; 22: 146-51. Doi: 10.1055/s-0037-1603922

3. Sjogren PP, Mills TJ, Pollak AD, Muntz HR, Meier JD, Grimmer F. Predictors of complicated airway foreign body extraction. Laryngoscope. 2018; 128: 490-5. Doi: 10.1002/lary.26814

4. Mackle T, Conlon B. Foreign bodies of the nose and ears in children. Should these be managed in the accident and emergency setting? Int J Pediatr Otorhinolaryngol. 2006; 70: 425-8. Doi: 10.1016/j.ijporl.2005.07.007

5. Yan S, Zeng N, Chen G, Chen Y, Wu Z, Pan H, et al. Presentation and management of nasal foreign bodies in a Chinese metro area. Medicine (Baltimore). 2021; 100: e25626. Doi: 10.1097/MD. 0000000000025626

6. 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. Int J Pediatr Otorhinolaryngol. 2011; 75: 510-2. Doi: 10.1016/j.ijporl.2011.01.006

7. Karimnejad K, Nelson EJ, Rohde RL, Costa DJ. External auditory canal foreign body extraction outcomes. Ann Otol Rhinol Laryngol. 2017; 126: 755-61. Doi: 10.1177/0003489417731578

8. Thompson SK, Wein RO, Dutcher PO. External auditory canal foreign body removal: management practices and outcomes. Laryngoscope. 2003; 113: 1912-5. Doi: 10.1097/00005537-200311000-00010

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

10. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies. Int J Surg. 2014; 12: 1495-9. Doi: 10.1016/j.ijsu.2014.07.013

11. Tiago RSL, Salgado DC, Corrêa JP, Pio MR, Lambert EE. Foreign body in ear, nose, and oropharynx: experience from a tertiary hospital. Braz J Otorhinolaryngol. 2006; 72: 177-81. Doi: 10.1016/s1808-8694(15)30052-5

12. Figueiredo RR, de Azevedo AA, de Avila Kós AO, Tomita S. Complications of ent foreign bodies: a retrospective study. Braz J Otorhinolaryngol. 2018; 74: 7-15. Doi: 10.1016/s1808-8694(15)30744-8

13. Oya R, Horii A, Uno A, Kawasaki Y, Inohara H. Foreign bodies in the ear, nose, and throat in Japan: association with sociocultural and geographical conditions. Auris Nasus Larynx. 2019; 46: 618-23. Doi: 10.1016/j.anl.2018.11.007

14. Lee CH, Chen TH, Ko JY, Yeh TH, Hsu WC, Kang KT. Ear, nose, and throat foreign bodies in adults: A population-based study in Taiwan. J Formos Med Assoc. 2019; 118: 1290-8. Doi: 10.1016/j.jfma.2019.05.003

15. Ngo A, Ng KC, Sim TP. Otorhinolaryngeal foreign bodies in children presenting to the emergency department. Singapore Med J. 2005; 46: 172-8.

16. Kim KH, Chung JH, Byun H, Zheng T, Jeong JH, Lee SH. Clinical characteristics of external auditory canal foreign bodies in children and adolescents. Ear Nose Throat J. 2020; 99: 648-53. Doi: 10.1177/0145561319893164

17. 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: 118-20. Doi: 10.1007/s12070-010-0040-6