

# *Foreign-body in External Auditory Meatus: Evaluation of 462 Cases*

## *Corpo Estranho em Meato Acústico Externo: Avaliação de 462 Casos*

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### SUMMARY

**Introduction:**

Since 1950, a numberless of studies of the foreign-bodies in ears and upper airways were executed. They are usual cases in the emergency rooms and, if they are not rightly addressed, they can bring about several complications as trauma and tympanic membrane perforation, auditory meatus hemorrhagia, hearing loss and otitis.

**Objective:**

Establish the age, sex, complications and foreign-bodies' type in external auditory meatus of 462 patients attended in a tertiary hospital.

**Method:**

A retrospective study of the cases of ear' foreign-bodies removed by the otorhinolaryngology service of a tertiary hospital in the period of January 1, 1999 to July 31, 2006.

**Results:**

The insects were the foreign-bodies more found. The major incidence of foreign-body in an ear was found in the age group above 16 years old and, in the male sex. The complications occurred mostly in the age group below 6 years old.

**Conclusion:**

The foreign-body' prevalence in an ear of the adults is high. The complications occur mostly in 0 to 6 years old age group. In our service, the insects are the most frequents and the responsible for the major part of the complications.

**Keywords:**

Foreign-bodies, ears, epidemiology

### RESUMO

**Introdução:**

Desde 1950, foram realizados inúmeros estudos dos corpos estranhos em orelhas e vias aéreas superiores. São casos frequentes no pronto socorro e que, se não abordados adequadamente, podem acarretar várias complicações como trauma e perfuração de membrana timpânica, hemorragias de conduto, perda auditiva e otites.

**Objetivo:**

Determinar a idade, sexo, complicações e tipo de corpos estranhos em meato acústico externo de 462 pacientes atendidos em um hospital terciário.

**Método:**

Estudo retrospectivo dos casos de corpos estranhos de orelha removidos pelo serviço de Otorrinolaringologia de um hospital terciário no período de 1º de janeiro de 1999 a 31 de julho de 2006.

**Resultados:**

Os corpos estranhos mais encontrados foram os insetos. A maior incidência de corpo estranho em orelha foi encontrada na faixa etária acima dos 16 anos e no sexo masculino. As complicações ocorreram principalmente na faixa etária abaixo dos 6 anos.

**Conclusão:**

A prevalência de corpo estranho em orelha nos adultos é elevada. As complicações ocorrem principalmente na faixa etária de 0 a 6 anos. Em nosso serviço, os insetos são os mais frequentes e os responsáveis pela maior parte das complicações.

**Palavras-chave:**

corpos estranhos, orelhas, epidemiologia.

## INTRODUCTION

Since the beginning of the 50's, annually, numerous works are published concerning the foreign-bodies found in the upper airways (1). However, a few emphasizes all the age groups, polarizing this type of study in the childhood, preadolescence and adolescence, without include the adulthood.

The foreign-bodies in the nose and in the ears are the main cases in the emergency room (2). The most frequent in the otorhinolaryngological area are the foreign-bodies of the external ear (3,4,5) and, they are reported mainly in the childhood. The complications are directly related to the foreign-bodies types involved, that are the most diverse: paper, cloths, cotton, rubbers, glasses, necklace beads, pop corn husks, beads, mosquitos and, cockroaches (6). The knowledge of the object type to be removed is fundamental to the appropriate instrumental' choice and, to the approach success (7).

It is evident in the clinical practice the major difficult of the removal of foreign-bodies of the ear in comparison with that one of the nasal cavity. Despite this, most of the cases is easily removed. Usually, only a small percentage, around 10%, of patients with foreign-bodies in the ear need general anesthesia to the removal (4) and, seldom procedures most aggressive, as endaural incision to the removal are used (8).

If they are not handled rightly, the external auditory meatus' foreign-bodies may lead to a series of complications as meatus laceration, tympanic membrane' perforation, residual foreign-body, hearing loss, membranous labyrinth' affection, edema of ear canal making difficult a further specialized approach (4,6,9).

The objective of our research was verify the age, sex, complications and types of foreign-bodies of external auditory meatus of the patients of all age groups attended in the Otorhinolaryngology' service of a tertiary hospital.

## METHOD

A retrospective study through the collection of the enchiridion' data referent to the age, sex, type of foreign-body and complications of all patients attended in a tertiary hospital due to foreign-bodies in the ears in the period of January 1, 1999 to July 31, 2006. The patients, in which was not found foreign-body in the otoscopy were excluded. The patients of these hospital are emanating from the urban area an also of the rural area. The previous manipulation by other professional before the arrival in our service is

frequent, however this datum was not included in the analysis because it does not figure in the most of the enchiridions.

The filling of the data are proceeded as follows:

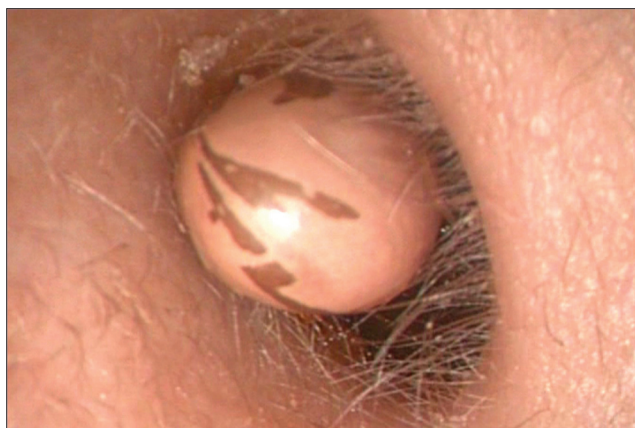
Date: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Age: \_\_\_\_\_  
 Sex: \_\_\_\_\_  
 Complication: \_\_\_\_\_  
 Type of Foreign-body: \_\_\_\_\_

## RESULTS

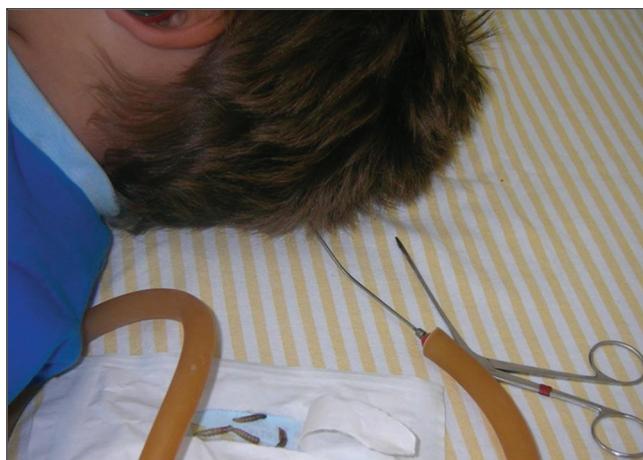
A total of 462 foreign-bodies' cases in the ear were analyzed. As showed in the Table 1, the patients above 16 years old were the most affected, 187 cases (40,5%) and the types of foreign-bodies found were the most diversified (Figure 1 to 3). In addition perceive that the foreign-body most found were the insects, 127 cases (27,5%) and the male sex, the more affected with 286 cases (62%). In the Table 2, it is observed that the age with major index of complications was 0 to 6 years. The Table 3 shows that insects, seeds and, ornamental pieces were responsible for the major part of the complications.

The Graphics 1 and 2 characterize the 80 patients (17,3%) which have needed general anesthesia to removal, respectively, according to the type of foreign-body and patient' age. Of 80, the foreign-bodies types more frequent were the bean (21 cases) and other seeds (18 cases). Fifty-eight cases that have needs anesthesia had age under 6 years.

Between the 4 and 12 years (165 cases) a major prevalence of the foreign-bodies cases in ear was found, in



**Figure 1.** Beans in external auditory meatus (EAM).



**Figure 2.** Myiasis in external auditory meatus of child.



**Figure 3.** Myiasis of EAM.

**Table 1.** Foreign-body type in external auditory meatus by age and sex.

Foreign-body type	0-3 years		4-6 years		7-9 years		10-12 years		13-16 years		> 16 years		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Insect (27,5%)	4	2	6	0	8	3	3	3	2	2	61	33	84	43
Ornamental pieces*(15%)	11	9	14	6	4	7	5	2	1	0	3	7	38	31
Other Seeds**(11.5%)	8	5	14	12	4	1	4	0	0	0	5	0	35	18
Cotton (9.7%)	0	1	1	1	0	0	0	1	0	1	19	21	20	25
Bean (9.7%)	4	1	10	3	8	5	6	1	2	2	2	1	32	13
Pieces of wood*** (4.8%)	1	1	0	1	1	0	0	1	0	0	11	6	13	9
Paper (4.1%)	4	0	4	2	4	0	1	0	2	0	1	1	16	3
Polystyrene (2.4%)	1	3	4	1	0	0	0	0	2	0	0	0	7	4
Rubber (1.9%)	1	1	2	0	1	0	3	0	0	1	0	0	7	2
Stone (1.9%)	1	2	4	0	0	0	0	0	0	0	1	1	6	3
Pencil point (1.5%)	1	0	2	3	1	0	0	0	0	0	0	0	4	3
Miscellaneous**** (10%)	6	2	5	10	1	3	1	1	0	3	11	3	24	22
Total (100%)	42	27	66	39	32	19	23	9	9	9	114	73	286	176

\* Beads of rosary and necklace, little balls, pearls, earring, beads.

\*\* Orange, fresh-cut, corn, rice, soybeans, wheat, canary seed...

\*\*\* Toothpicks, phosphorus and sticks.

\*\*\*\* Cocha, glass, chalk, hair, soap, plastic, aluminum foil, screw, gypsum, pellet, metal, silicone cap, leaf tree, clay, nails, bread, cement, coin cell, a pen cap, soda, candies (Tic Tac®).

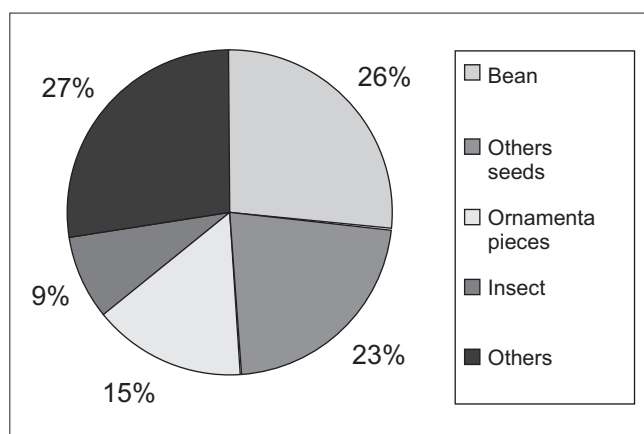
**Table 2.** Complications resulting from the foreign-body in ear according to the age.

Complications	0-6 years	7-12 years	13-16 years	> 16 years	Total
Meatus laceration	31	11	3	16	61 (64,2%)
Membrane perforation	6	3	1	8	18 (19%)
External Otitis	5	1	1	9	16 (16,8%)
Total	42 (44,2%)	15 (15,8%)	5 (5,3%)	33 (34,7%)	95 (100%)

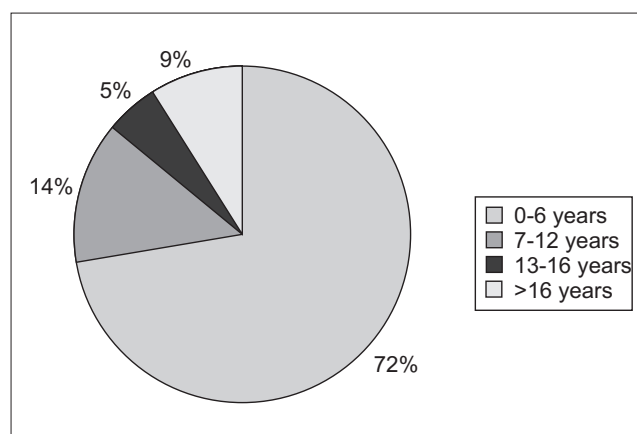
**Table 3. Complications by type of foreign-body**

Foreign-body type	Tympanic Membrane Perforation	External Otitis	Meatus laceration	Total
Insect	7	4	14	25 (26.3%)
Other Seeds	0	1	15	16 (16.8%)
Ornamental pieces	1	0	12	13 (13.7%)
Pieces of wood	4	2	3	9 (9.5%)
Beans	2	0	6	8 (8.4%)
Cotton	0	4	1	5 (5.3%)
Stone	1	0	2	3 (3.2%)
Polystyrene	0	1	2	3 (3.2%)
Pencil point	0	1	1	2 (2.1%)
Paper	0	0	1	1 (1%)
Miscellaneous*	3	3	4	10 (10.5%)
Total	18	16	61	95

\* Cement, cap headset, chalk, coin cell, plastic, aluminum foil, screw, shell sand, soda.



**Graphic 1.** The need for general anesthesia according to the type of foreign-body



**Graphic 2.** The need for general anesthesia according to the age group.

the vacations period: January (22 cases), February (19 cases) and July (19 cases).

## DISCUSSION

Foreign-body in external ear is a frequent cause of service in emergency room. Several reasons lead to this interurrence since the accidental entry of objects, until manipulation related to the children's curiosity, games, attempt to local hygiene and, itch.

Apparently of easy removal, many professionals pontificate themselves to remove the foreign-bodies of the ears. So, they encounter a objects diversity which the success of the removal depends on the appropriate instrumental.

Of 462 cases of foreign-bodies in ear, 186 cases (40.5%) were patients above 16 years. Of these 94 cases

(50,27%) were insects. In this age group have occurred 33 complications, being eight cases of tympanic membrane perforation. The inappropriate manipulation of the external auditory meatus with a diversity of objects has an important role in these complications. So, the importance of become the population aware to avoid the use of objects to cleaning and relief of auditory itch remains evident. The high prevalence of insects can be explicated by the fact of the hospital studied to be a reference in a region prevalently rural. The climatic characteristics of the region with hot and humid summers also favored the exposition to insects.

In addition, the insects, ornamental pieces and other seeds were the objects more commonly found, being that the insects and the seeds caused more complications. Of 45 patients with bean in the ear, 21(46.6%), needed removal of the foreign-body under general anesthesia. Due to the characteristics of expansibility of the seeds, mainly when they are in contact with humidity, they

occupy a larger part of the meatus, complicating the discomfort to the patient. Attempts of housing removal with washing and use of domestics' objects worsen the clinical picture of the patient that finishes passing by the tertiary service with inflammatory signs and symptoms important, with hard local manipulation that compels the specialist to resort to general anesthesia.

The distribution concerning the sex in several studies is not homogenous. There is some (10, 11), like our that indicates major incidence in the male sex and others (4,5) that show a balance of the incidence between the two sexes.

Eighty patients (17,3%) have needed general anesthesia, intermediate value to the one found in similar studies that variate of 8,6% (4) to 30% (12).

The complication' incidence in our service was 95 cases (20,5%) and one of the possible causes is the previous manipulation by non-specialist that occurs before the arrival of the patient in tertiary service. Costa has verified that the complications more frequent were respectively laceration in external auditory meatus, meatus' infection, and tympanic membrane perforation (13). In the other hand, Neto has as a main complication the meatus' laceration (14). In our study were found analogous data, with laceration in the first place (61 cases) followed of the tympanic membrane perforation (18 cases) and external otitis (16 cases).

## CONCLUSION

In our study the external auditory meatus foreign-body' incidence in adults is high. The complications occur mostly in 0 to 6 years old age group. The type more found was the insects.

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