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Foreign bodies in otorhinolaryngology: a study of 860 cases managed in medical college hospital.

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Key word 1: *foreign bodies.*
Key word 2*: ear.*
Key word 3: *nose.*
Key word 4: *pharynx.*
Key word 5: *esophagus.*

Abstract:

Background: *Foreign bodies (FB) are the commonest emergencies in otorhino-laryngology. The most common incidences are in the nasal cavity, ears and oropharynx. FB in the nose, ears and oropharynx have characteristic symptoms and their removal does not represent a great difficulty to the otorhino-laryngologist unless*

the FB is in the tracheo-bronchial tree. The FB inoculation may be voluntary or accidental.

<u>Design:</u> A retrospective study of 860 cases managed in 57 months period between January 2007 to July 2011.

Setting: Department of ENT, Head and Neck Surgery, KVG Medical College, Sullia.

<u>Materials and method</u>: 860 cases of foreign bodies were managed successfully in the OPD under topical anaesthesia and also under general anaesthesia. There were 471 males & 389 females in the study, the youngest was 4 year old girl and the oldest was 69 year old female.

<u>Result</u>: In our study we managed 860 cases of FBs which included 505 ear cases, 118 nasal cases, 118 pharyngeal cases, 100 esophageal cases and 19 FBs in the trachea, bronchus. 429 cases were managed in the OPD under topical anaesthesia and 431 cases were managed under general anaesthesia.

<u>Conclusion</u>: Most of the foreign bodies in the nose and ear can be managed in the outpatients itself. All the foreign bodies of the esophagus and trachea bronchus were managed under general anaesthesia after admission. Complication rates are very low when managed prudently by a trained otorhino-laryngologist.

<u>Introduction:</u>

Foreign bodies (FB) are the commonest emergencies in otorhino-laryngology.[1] The most common incidences are in the nasal cavity, ears and oropharynx.[1,2,3] FB in the nose, ears and oropharynx have characteristic symptoms and their removal does not represent a great difficulty to the otorhino-laryngologist unless the FB is in the tracheo-bronchial tree.[1,2,3] The FB inoculation may be voluntary or accidental.[1,2,3]

FB amounts to 11% of the cases of emergencies in otorhino-laryngology and simple complications are seen in 22% of the cases.[1,4,5,6] Sometimes major complications like tympanic perforations and broncho-aspirations may occur. [6,7] Most of the complications are due to attempt at removal of these FB by onlookers, unskilled health

professionals, inexperienced clinicians and lack of suitable hospital infrastructure in dealing with emergencies.[1,6,8]

Chances of major complications while FB removal makes the techniques used by the otorhino-laryngologist crucial during the procedure.[2] *The success of the procedure depends on the cooperation of the patient, the type of foreign body, previous manipulation done , experience of the clinician, the visibility and depth of the FB and the available equipment and hospital infrastructure.* [2]

All the FB in nose, ears and pharynx presents with a specific group of symptoms and are rarely asymptomatic.[1,2] *In the nasal cavities, the symptoms start with sneezes, watery rhinorrhea and nasal obstruction later evolves within some days into unilateral fetid and purulent rhinorrhea.*[1,2] *In the ears the picture may start with hypacusis, otorrhagia, otorrhea or tinnitus.*[1,2] *In the oropharynx, the main symptom is odynophagia in the trachea and bronchus they manifest as stridor.*[1,2]

FB are divided into voluntary and accidental depending on the mode of insertion. Voluntary insertion is commonly seen in children and accidental insertion is more common in adults.[2,9] *FB are also classified as animate and inanimate, where the animate FB cause more complications.*[2,9] *No age group is exempted from this condition but more common in children under 10 year age group.*[10,11] *Children in their first few years of life exploit and interact more with the environment. When the child begins to crawl or walk, it comes across large variety of objects which by curiosity ends up putting in exposed holes such as ear, nose and oropharynx.*[12] *The difficulty in removal is determined by the shape and size of the FB.*[2,4] *Complications in the ear is due to the small spaces of the external auditory canal and vicinity of middle ear structures.*[2, 4] *Tympanic membrane perforation can occur while removal if the FB is very near to the membrane and other complications like laceration of canal, otitis externa are also seen.*[1,2]

In the nose FBs may complicate giving rise to epistaxis, septal perforation and rhinosinusitis.[1,2] The removal of FBs from the ear canal and nose is a common OPD procedure performed by both pediatricians and otorhino-laryngologists.[12] Ear FBs are not life threatening but nasal and pharyngeal FBs are potentially life threatening.[12] This is particularly true in children because of smaller anatomic dimensions and a variable level of cooperation.[12] The most common foreign bodies in children are blunt while sharp FBs are frequently associated with serious complications due to delay in presentation. So FB must be removed at the earliest.[12]

Here we are presenting 860 cases of different types of FBs in otorhinolaryngology, their clinical presentations, management options and treatment outcomes.

Materials and Methods:

This is a retrospective study consisted of 860 cases of foreign bodies presenting to the department of ENT and Head Neck Surgery. The study period was of 57 months duration from Jan 2007 to July 2011.

A detailed history was taken from every patient and the attendant regarding the nature of foreign body, duration of the condition. A thorough otorhino-laryngological evaluation was performed and according to need, radiological investigations were carried out to localize the foreign body.

In our study 505 FBs were seen in the ear, 118 in the nose , 118 in the pharynx, 100 in the esophagus and 19 cases in the trachea and bronchus. (table 1) FBs in the ear consisted of 407 cases of ticks, 41 cases of cockroaches and insects and 31 cases of small plastic objects.112 patients (22.17%) belonged to 40-50 age group and 92 patients (18.21%) belonged to 50-60 age group. (table 2)

FBs in the pharynx consisted of cases of 65 coins, 19 cases of fish bones, 16 cases of chicken bone and 11 cases of dentures. 47 patients (39.8%) belonged to 0-10 age group and 28 patients (23.7%) belonged to 10-20 age group. FBs in the esophagus consisted of 72 cases of chicken bone and bolus, 15 cases of dentures and 10 cases of fish bones.34 patients (34%) belonged to 50-60 age group and 25 patients (25%) belonged to 40-50 age group. (table 3)

FBs in the nose consisted of 50 cases of small plastic objects, 38 cases of food grains and seeds, 14 cases of stone pieces, 7 cases of button battery cells and 64 cases of parts of toys. Most of the patients (88.9%) belonged to 0-10 years age group and the rest (11.1%) belonged to 10-20 age group. In the trachea and bronchus it consisted of 12 cases of peanuts and 7 cases of small plastic objects. 12 patients (63.15%) were seen in 0-10 age group and 7 patients (36.85%) in 10-20 age group. (table 4-6)

Results:

Out of the 505 cases of FB ear 344(68.11%) were managed in OPD under topical anaesthesia and 161(31.89%) removed under general anaesthesia. 79cases (66.9%) of FB nose were managed in OPD and 39 cases (33.1%) were removed under general anaesthesia. (table 7) 112 cases (94.91%) of FB pharynx were managed under general anaesthesia and only 6 cases (5.09%) were managed in the OPD. All cases of FB esophagus and trachea bronchus were managed under general anaesthesia. (fig 1-2)

Most of the FBs in the ear were removed by Jobson's horne probe with the ring curette under good illumination. (fig 3) Ticks attached to the tympanic membrane were removed under general anesthesia using cupped forceps and micro scissors. (fig 4) FBs in the nose were removed using Jobson's horne probe with ring curette in OPD and under general anaesthesia with endotracheal intubation. (fig 5) 10 cases of FB in the pharynx, fish bone in the tonsils were removed using hartmann's forceps in the OPD. Rest of pharynx FBs were removed by direct laryngoscopy using crocodile

forceps. All cases of FB esophagus were removed under general anaesthesia with rigid esophagoscope. All cases of FBs in the trachea and bronchus were removed by rigid ventilating bronchoscope.

Discussion:

The FBs in the major corporeal orifices in the human body like the ear, nose and mouth are managed by otorhino – laryngologists.[1,7,8] Esophagus and lower airways are indirectly reached, since the foreign bodies must first pass through the pharynx or the nasal cavities.[1,7,8] The FBs in the nasal cavities and oropharynx can complicate into esophageal or bronchial FB if not adequately managed.[1,7,8] An attempt at removal of these simple cases by inexperienced clinicians can lead to fatal outcome.[1,7,8] Data in our study co-relates with the data in literature showing a predominance of FBs in the ear, followed by nasal cavities and oropharynx.[2,5] We found a male predominance in our study , but many studies in literature did not show any statistical difference in sex incidence.[2,5,8]

Nasal FBs show a clear predominance in 0-10 age group followed by 11-20 age group which is confirmed by many studies in literature.[1,2,8,14] Here the incidence decreases as the age advances. Children have the curiosity to discover the orifices of the body so FBs in nose is more common in childhood.[2, 15] Children are more vulnerable to insert FBs through natural orifice due to this curiosity.[13] Nasal FBs include small plastic objects, parts of toys and food grains which are easily available in the household. Most of the FBs in nose were self inflicted and it produced unilateral nasal obstruction initially.[16,17] In long standing cases, due to infection, unilateral foul smelling purulent nasal discharge was seen.[16,17] Blood stained painful nasal discharge is seen in living FBs like maggots.[16,17]

With growth and cognitive development, the introduction of FB in the nostrils diminishes significantly and in adults are seen only in psychiatric patients.[2, 15] FBs in

the pharynx and trachea bronchus are also common in the first two decades which is same as given in literature. [2,6,11,18] In our study animate FB tick form a major part of the ear FBs and it is seen in all age groups in this farming region. [2, 15] As far as FBs of the esophagus are concerned, majority are chicken bone bolus which are common in adults and alcoholics.[2, 6, 11, 18]

Overall most(79%) of the patients reported within 24 hours only, which is similar to studies by Ikino et al(1998)[15] and Tiago et al (2006).[2] Most (100%) of the FBs in the trachea and bronchus reported within 6 -8 hours of aspiration. 62% of the FBs in the pharynx reported within 24 hours and the rest within 36 hours of ingestion. 67% of the cases of FB nose were reported within 24 hours of insertion and the rest within the 2nd and 3rd day. 49 % of the FBs of the ear were managed within 24 hours of of occurrence, and 28% within on the 2nd day and the rest on the 3rd day.

The high incidence of ticks in the ear reflects the agriculture and farming as the main occupation of the study population where ticks are present in abundance. The even distribution of FBs in the ear throughout the age groups are more because majority of the ear FBs had accidental entry as etiology compared to the nasal FB where voluntary insertion was common. Irregular and sharp ear FBs, long standing FBs cause more complications while removal. Otitis externa , canal laceration and membrane damage were seen in non cooperative children while removal and because of inexperience of the clinician.[4,19,20] Voluntary insertion of FBs in the ear are not common in our study as accidental tick entry was very common. Mishra et al in his study showed 64% incidence of FBs in the ear and a high incidence of right ear FB than the left.[19]

Voluntary insertion of coins as pharynx FBs more common in children and accidental entry of FBs like fish and chicken bone are more common in adults. Higher incidences of chicken and fish bones in adults suggest lack of care and attention in preparation of food and chewing. Accidental esophageal FBs are more common in adults and a history of alcoholic intoxication leading to improper chewing and careless swallowing

is seen in all patients. The most common symptoms of the ear FB in our study was intense earache (72%) which differed from Breno et al where hyperacusis was seen in 39.53%, earache in 24.41%.[20] Unilateral nasal discharge (18.98%), foul smelling nasal discharge (7.59%) was the main symptoms in the study whereas Breno et al in their study showed unilateral rhinorrhea in 37.5% of cases and cacosmia in 25% cases.[21] Most of the pharyngeal FBs (94%) had odynophagia, so presented early.12% of them had vomiting which was similar to Breno et al where 88.88% had odynophagia.[21]

Oral antibiotics and analgesics were advised to all cases of tick removal and no complications of otitis externa was seen after treatment. 7(2.28%) cases of tympanic membrane perforation were seen after tick removal. 4 cases of acute rhinosinusitis were seen after nasal Fb removal and so prescribed antibiotics for 7 days. Epistaxis was seen in 6(7.59%) cases after nasal FB removal. No complications were seen on esophagoscopic and bronchoscopic removal. Pharyngitis was seen in 11(16.66%) cases after removal and was given antibiotics and analgesics. We found an overall complication rate of 5.34% in our study and most of the cases were referred to us without manipulation or attempt at removal by other specialities.

We observed that if the nasal and ear FBs are clearly visible and the patients are cooperative then they can be easily removed in the OPD with or without topical anaesthesia. FBs in non cooperative individuals should be removed under general anaesthesia under accurate instrumentation by an experienced surgeon.[16,17]

Conclusion:

FBs in otorhinolaryngology poses a great challenge to the treating emergency clinician as children form a majority among them. Most of these cases can be easily managed by timely intervention by an experienced otorhino-laryngolist. Most of the FBs of the ear, nose and oropharynx can be easily managed in the outpatient department but in case of technical difficulty and non cooperative cases removal under general anaesthesia is preferred to avoid iatrogenic complications.

Iatrogenic complications are high with lack of surgeons clinical expertise and the increased duration between insertion and removal of FB. Non- iatrogenic complications are because of living FBs and delayed intervention.

	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Ear(505)	71	34	55	59	112	92	34
Nose (118)	105	13	0	0	0	0	0
Pharynx (118)	47	28	7	3	3	7	5
Esophagus (100)	0	0	5	16	25	34	8
Trachea- bronchus (19)	12	7	0	0	0	0	0
Total (860)	245	89	77	90	157	145	57

Table 1: age distribution of the foreign bodies.

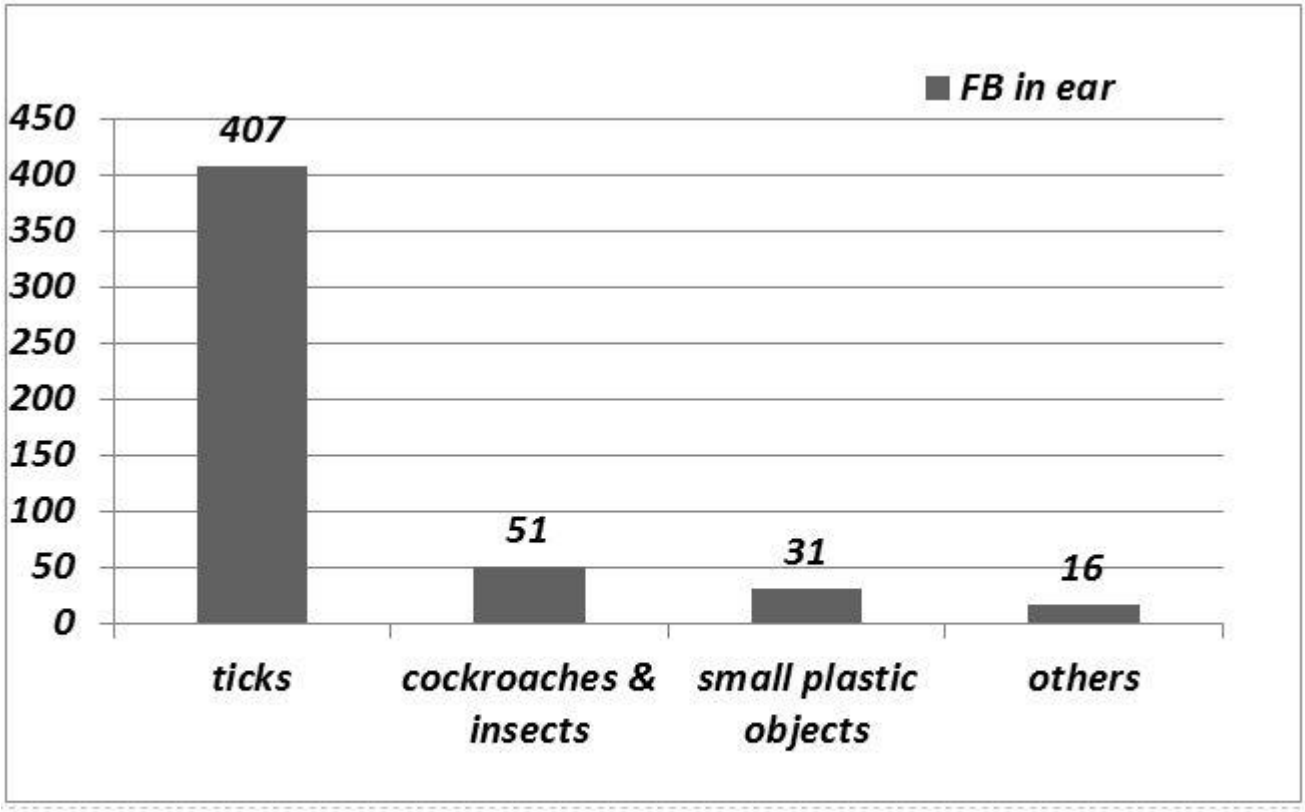

Table 2: foreign bodies in the ear.

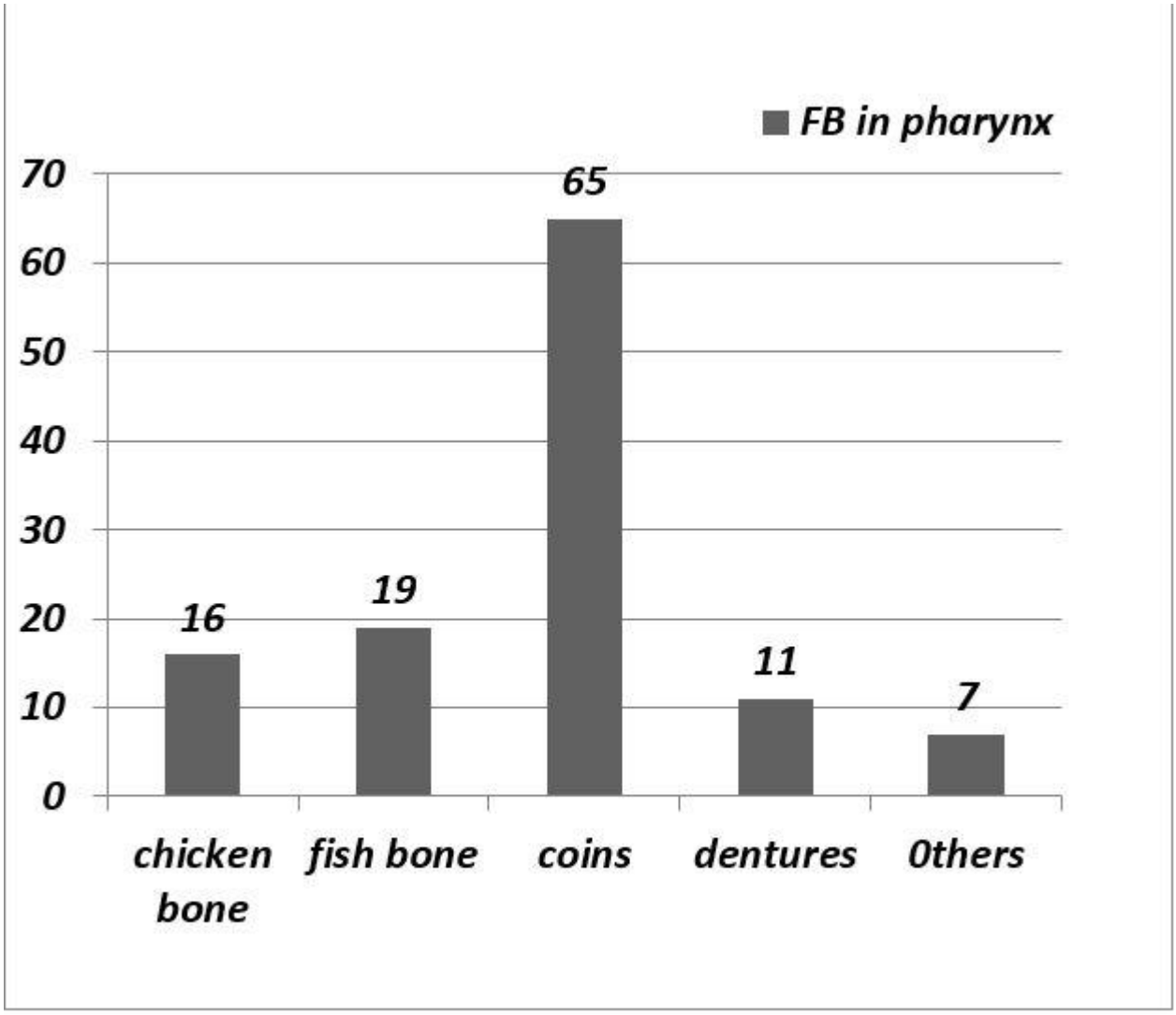

Table 3: foreign bodies in the pharynx.

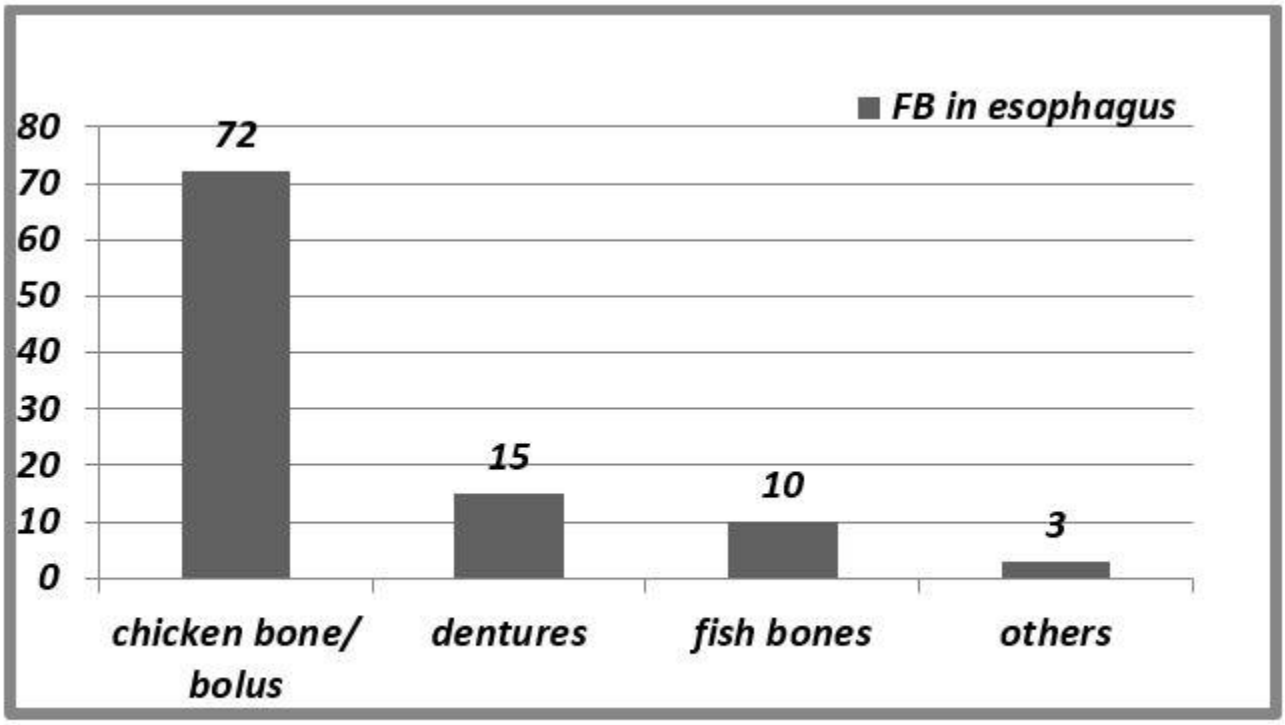

Table 4: foreign bodies in the esophagus

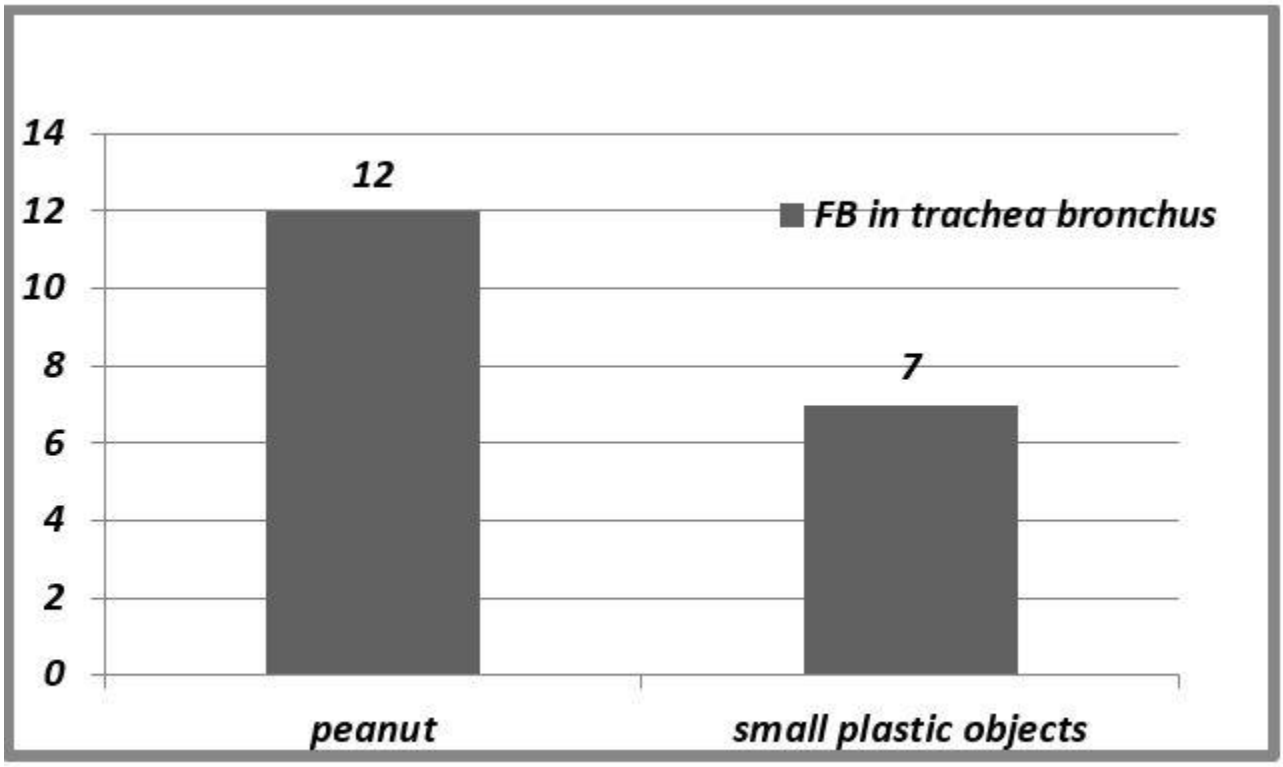

Table 5: foreign bodies in the trachea & bronchus.

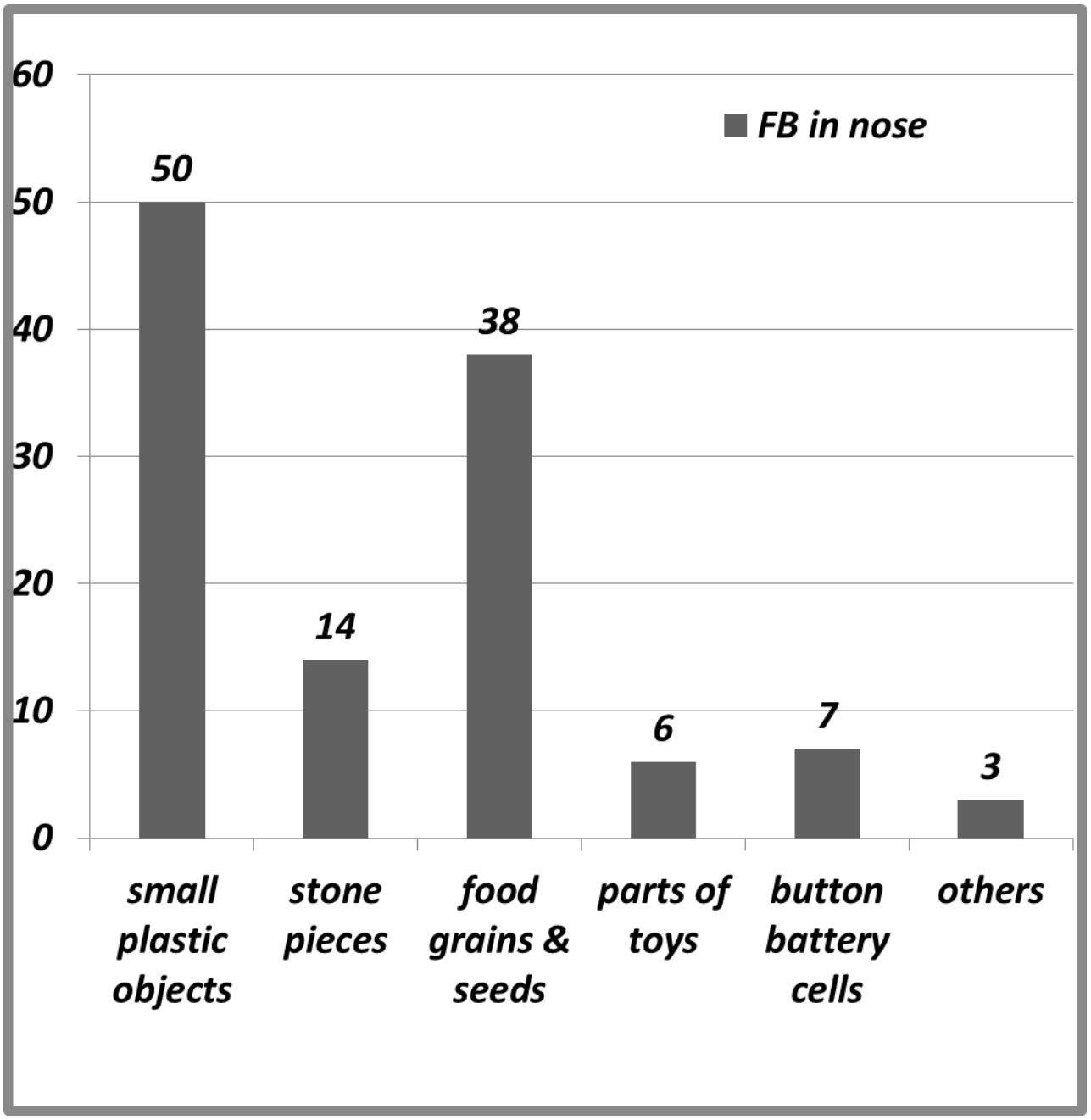

Table 6: foreign bodies in the nose.

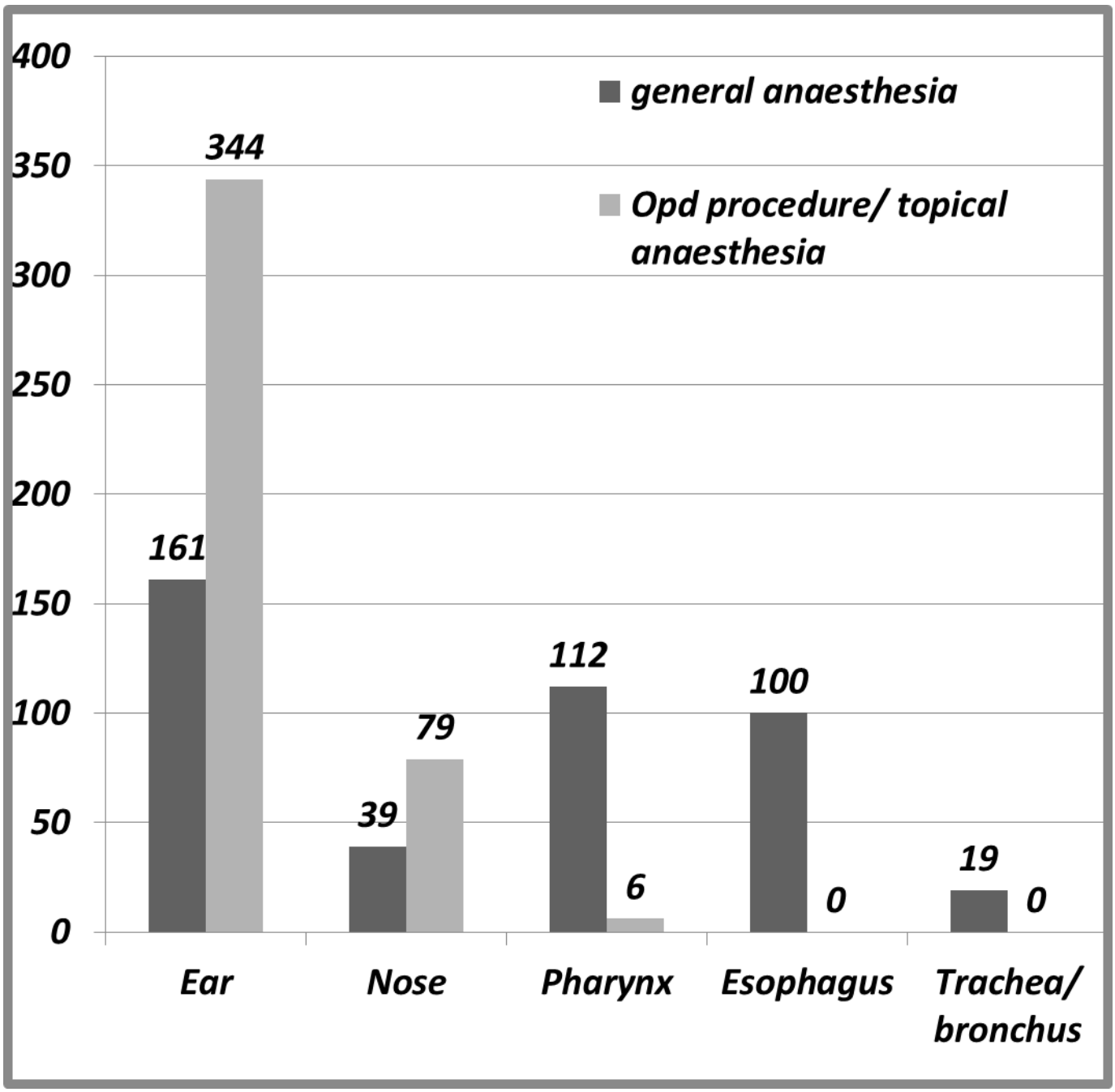

Table 7: FBs managed under general anaesthesia/ OPD procedure topical anaesthesia.

X- ray of the Fb coin in the cricopharynx.

Esophagoscopy being done while the whole set of instruments displayed.

Ear FB fly being removed in the OPD.

4. Aural FB tick removed from the ear.

Small plastic object nasal FB in the right nostril being removed.

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