# Foreign Body Ear in Pediatric Patients: A Clinico Pathological Study

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# Abstract

**Objective:-** To study the demographic profile of Foreign Body(FB) ear in terms of nature, age and mode of presentation and intervention in a tertiary care center.

**Method:-** Prospective study done at the deptt of ENT and Head And Neck surgery SMHS hospital GMC Srinagar, Jammu and Kashmir. Nature of foreign body, age of presentation, mode of presentation and type of intervention were recorded and tabulated.

**Results:-** A total of 178 pediatric patients, 105 males and 73 females, between the age of 0-12yrs with history of FB ear were included who came to our emergency department for a period of 1yr. Most of the cases were seen between the age of 0- 2yrs. Commonest FB was bead found in 20.7% of cases. Maximum cases of FB were removed under local anaesthesia and a small number cases needed general anaesthesia. There were no mortility reported in this study.

**Conclusion:-** Foreign body in the ears are commonly encountered in clinical practice. Recognition of patients requiring early specialist referral is important. The majority can be extracted in the emergency or outpatient setting, but some children will require general anaesthesia.

#### Keywords: FB, Bronchoscopy, EUM, EAC

# I. INTRODUCTION

Foreign body (FB) insertion in external auditory canal (EAC) is not uncommon in emergency medicine and it may result in significant morbidity[1] . Various objects may be found, including toys, beads, stones, folded paper, and biologic materials such as insects or seeds. Most patients present soon after insertion due to distress, but occasionally may be delayed for days when the asymptomatic child divulges the history or may be discovered incidentally on routine ear examination. Successful removal relies on a number of factors, including the location of the FB, what it is made of, the physician's dexterity, the equipment available, and patient cooperation[2,3] . There is limited information about FB removal in the pediatric ED. Most studies of ear FB removal are found in the otolaryngology literature, [4,5,1,6] where referral to an ear, nose, and throat specialist is emphasized[7]. The objective of this paper is to study the demographic profile of FB ear in terms of nature, age and mode of presentation and intervention in a tertiary care hospital.

# II. MATERIAL AND METHOD

This study was prospective in design and was conducted in the department of ENT and Head And Neck Surgery, SMHS hospital GMC Srinagar, Jammu And Kashmir from jan 2016 to jan 2017. All the patients between the age of 0-12yrs with foreign ear were included in this study. Patients whether refered from peripheral health centres or those who directly came to our emergency department, both were included. Complete history were taken from the parents and all the patients were examined by otoscope, under bull's eye lamp and under Microscope if required. Common parameters included in the study were age and sex distribution, clinical presentation, type of FB, removal technique and complications encountered during the removal process. The data collected were entered in the Microsoft excel spreadsheet and results were recorded in values and percentages.

## **III. RESULTS**

One hundred and seventy eight patients presented to our Emergency Department with foreign body ear. 105(59%) were males and 73(41%) were females. All the patients were in the age group of 0-12yrs. In this study most of the cases were between 0-2yrs accounting for 39.3% (fig.1) followed by 2yrs-4yrs (27.5%), 4yrs-6yrs (15.7%), 6yrs-8yrs (9.5%), 8yrs-10yrs (5.6%) and 10yrs12yrs (2.2%). Males were effected more as compared to females (fig.1). Bead was the most common type of foreign body found in ear accounting for 20.7% (table.1) followed by paper peice (18%), vegetative (17.4%), cotton (13%), erasor (7.3%), wooden stick (6.7%), stone peice (4.4%), insect (3.3%) and the rest were pencil/pen nib, plastic toys etc. Button battery in ear were found in 4 patients. 64.6% of cases presented to the emergency department with alleged history of foreign body insertion in ear, as told by themselves or as seen by parents or caretakers (fig.2). 19.7% of cases were complaining of mass/object seen in external ear canal, 11.7% presented with pain ear and 3.9% were complaing of ear discharge. In this study we removed 91.8% of cases of foreign body ear under local anaesthesia and the remaining 8.2% required general anaesthesia (fig.3). Out of the cases which were removed under local anaesthesia, 44% of cases were removed under direct vision, 23.8% required endoscopic removal, 17.3% were removed under microscope and in 14.9% foreign body were removed by syringing. Under general anaesthesia, foreign body were removed by transcanal approach in 66.7%

and in the remaining 33.3% foreign body were removed by postauricular approach (fig.4)



Fig.1 Age and Gender Wise Distribution of Foreign Body ear(n=178)

TYPE OF FOREIGN	NUMBER	PERCENTAGE
BODY	OF	
	PATIENT	
VEGETATIVE	31	17.4%
(SEED/NUTS/BEANS)		
PLASTIC TOYS	3	1.7%
BEADS	37	20.7%
BUTTON BATTERY	4	2.2%
STONE PIECE	8	4.4%
INSECT	6	3.3%
PAPER	32	18%
COTTON	23	13%
WOODEN STICK	12	6.7%
ERASER	13	7.3%
PEN/PENCIL NIB	4	2.2%
OTHERS	5	2.8%
TOTAL	183	100%

 Table 1. Various Types of Foreign Body ear(n=178)



Fig.2 Common Presentation of Foreign Body ear(n=178)

During removal under local anaesthesia, 13 patient suffered bleeding from external ear canal and 2 patient suffered tympanic membrane perforation, which was healed later as these patients were on follow up for 2 months. There were no mortality in this study.



Fig.3 Proceedures Done for Removal of Foreign Body ear(n=183)

#### **IV. DISCUSSION**

Aural foreign bodies are usually perceived as primarily a paediatric emergency presentation. It is important to consider the possibility of a foreign body in the ear particularly in the setting of blockage, pain and otorrhoea. In our study we found that most of the foreign bodies were present below 4 yrs of age. This is the age group where the children were more active and exploratory, and tend to imitate a lot from the peer groups. Foreign bodies have their social and geographical peculiarities. Different regions have different types of foreign bodies in reach of children. In our study we found that a bead was the most common foreign body in ear. Button battery is a rare foreign body in ear and we encountered only 4 cases in our study, however it represents a serious emergency due to the leakage of alkaline corrosive substances that can cause skin necrosis in short time[7]. All the cases of button battery in our study were removed in time and no complication occurred. It has been suggested that the longera FB is lodged in the external acoustic meatus, the more likely an inflammatory response may occur with consequent edema and narrowing of the canal, making removal more difficult [8,5]. Repeated attempts to remove a FB from the ear may cause trauma to the external ear canal resulting in pain, bleeding and edema of the external canal making subsequent attempts more difficult[9]. Success in removing a FB from the nose and external acoustic meatus depends on the type, size and texture of the FB, the cooperation of the patient, type of instrument used and the experience and skills of the professional attempting the removal[10,5]. The clinical presentations of Foreign Bodies depended on the type of Foreign Body and the duration of impaction. In our study we found that the most common presentation regarding foreign body ear was alleged history of foreign body insertion in 65.5% of patients followed by mass/object seen in external ear canal in 20.2%. The data analysis clearly shows that the most offending items are the rigid three-dimensional items. Object with sharp irregular edges can easily cause lacerations of the external ear canal skin and tympanic membrane perforation. Circular and smooth objects are less commonly cause

of complications. The organic foreign bodies, when impacted into the ear can often cause complications since - due to their hygroscopicity - the humid environment of the deep portion of the external ear canal determines the increase of the foreign body volume. So the delicate skin of the external ear canal undergoes maceration and bacterial or mycotic super infection and can cause earache, ear fullness and otorrhea. The more the skin of the external ear canal is inflamed the more the attempts of foreign body removal becomes painful and can cause bleeding which obscures the view. Different techniques have been indicated for the removal of FB[11,12]. In our cases, the use of the alligator forceps, plain forceps, suction and right angle ball hook were sufficient for a successful FB removal either at the ED or at the operation theatre under general anesthesia. In this study we removed maximum number of cases unde local Anasthesia, only 8.2% of cases required general anaesthesia. Main causes of Foreign body removal under general anesthesia were irregular size and shape of the Foreign body, hemorrhage and/or trauma of the external ear canal, and previous failed attempts of removal either at the emergency department or from non-trained physicians in primary health centers leading to the migration of foreign body into the middle ear.

### **V. CONCLUSION**

Foreign body in the ears are commonly encountered in clinical practice. They can potentially be associated with significant complications and at times require skilled recognition and removal. The majority can be extracted in the emergency or outpatient setting, but some children will require general anaesthesia. The removal by non- ENT personnel can be associated to complications especially in children who have a variable level of cooperation hence it should be discouraged.

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