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Original Research Article

Our Experience with Management of Foreign Bodies of Ear Nose and Throat During COVID Pandemic at Andaman Nicobar Islands

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Abstract

Background: COVID pandemic during 2020-21 had affected the management of foreign bodies in the ear, nose and throat, as aerosol spread of the virus created a risk to the treating ENT surgeon. Due to tremendous increase number of COVID positive patients affected the healthcare system and the specialists alike. Following the COVID guidelines to use personal protective equipment, face shield, goggles and N-95 masks during the simple procedures performed in OPD or the operation theatre made the procedure cumbersome to the surgeon. The number of patients with foreign bodies attending the Hospital had increased during the pandemic as other private hospitals were not taking up these patients.

Aim: To analyze the foreign bodies in the Ear, Nose and Throat encountered during the COVID pandemic of 2020-21 and to formulate a clinical guideline to prioritize the cases to avoid COVID spread.

Materials: A Prospective study with 330 patients who attended the Department of ENT, ANIIMS Hospital, Port Blair with foreign bodies in the Ear, Nose and Throat were included. It was an observational study following the STROBE Epidemiology checklist was used for strengthening the Reporting of Observational Studies. All the patients who attended the ENT Department with history of foreign body in the ear, nose, throat and trachea-bronchial tree with or without COVID-19 positivity were included. COVID protocol was adhered to in selection and treatment of the patients.

Results: 330 patients were included in the study, among them 177 (56.63%) male patients and 153 (46.36%) female patients. The male to female ratio was 1.15:1. The age distribution showed that children aged between 01 to 10 years constituted to 128 (38.78%). Patients with foreign bodies in the Ear were 131 (39.69%), foreign bodies in the nose were 87 (26.36%) and foreign bodies in the throat were 110 (33.33%). Total foreign bodies removed under General anesthesia were 64/330 (19.39%) patients in this study. Among these 31/110 (28.18%) patients had foreign bodies in the throat, 24/87 (25.28%) had in the nose and 09/131 (06.87%) had in the ears

Conclusions: The present study which analyzed all the foreign bodies in the Ear, Nose and Throat that were encountered during the COVID pandemic of 2020-21 and successful removal of foreign bodies was undertaken without any surgeon turning COVID positive as strict protocol was formulated and followed with international clinical guidelines to prioritize the cases to avoid COVID spread and at the same time give satisfactory treatment to the patients.

Keywords: Ear, Nose and Throat, Foreign Bodies, COVID, Aerosol, Virus and Endoscopy

Introduction

WHO declared COVID-19 as a pandemic affecting all the countries in the world on March the 11th 2020 [1]. Though the countries followed rigorous lockdowns, minimized the movement of the public both within the nations and international travel, the Health systems were burdened to the maximum as the health personnel not only had to manage COVID positive patients but also had to tackle the treatment of other diseases. Screening, isolation, treatment of COVID-19 patients and its complications was taken as the priority [2,3].

This affected the patients who visited the Hospitals regularly for their pre-existing illnesses were the silent sufferers. Such diseases included Cardio vascular diseases, Respiratory illnesses especially Bronchial Asthma and Renal diseases, Endocrinal diseases and liver diseases. In India the Lockdown was clamped on 24th March 2020 [4]. In the department of ENT, patients with foreign bodies in the ear, nose and throat also belonged to the same category as their priority was based on the food and airway involvement [5]. Due to travel restrictions many of the patients reported late to the Hospital and as such complications of the foreign bodies had set in [6].

Beside all this, the phobia of contacting COVID-19 among the Health personnel was one of the main reasons for delay in the commencement of the treatment in such cases [7]. The novel Corona virus was present in saliva at highest concentrations apart from the target sites being the oropharynx and nasopharynx [8]. The viral load might be as high 1.2×10^8 infective copies/per ml [9]. Because ENT surgeons work in close approximation with patients were likely to get infected through the aerosols created either during conversation with the patient or examination of the patient [10]. The virus was likely to be transmitted from the contaminated instruments which carry thousands of virus particles [11]. In patients who appear normal, the virus may be shedding in the initial phases of COVID-19 and they were found to be highly infectious [12]. In the children incubation time was from 2 to 10 days [13].

Concerning, the duration of contagiousness, there is no specific paediatric data. In adults viral RNA particles were detected in the upper respiratory tract with a mean time period of 10.5± 2.35 days. Hence the quarantine period was for 15 days in both the children and adults alike [14]. There were no universal guidelines during the peak of pandemic whether to screen the patients for COVID-19 virus pre-operatively and the prophylactic measures to prevent spread of the virum [2]. Individual ENT surgeons and Hospitals were formulating their own guideline, treatment and prophylaxis.

Materials

330 patients who attended the Department of ENT, ANIIMS Hospital, Port Blair with foreign bodies in the Ear, Nose and Throat were included in the study.

Study Design: A cross sectional study following the STROBE Epidemiology checklist was used for strengthening the Reporting of Observational Studies.

Participants: Included all patients of all ages who attended the ENT Department with history of foreign body in the ear, nose, throat And trachea-bronchial tree with or without COVID-19 positivity.

Data Collection: Prospective study conducted between September 2020 and August 2021 during the COVID pandemic.

Ethics Committee: An ethics committee of the Institute approved the publication of the data along with the consent form and data forms.

Inclusion Criteria: Patients of all ages and all genders were included. Patients presenting with foreign bodies in the nose, ear and throat irrespective of their COVID-19 positivity were included. Patients willing to be included in the study were included. Patients treated immediately or advised to return back after a period of 2 weeks based on the emergency were included.

Exclusion Criteria: Patients who were with terminal illness with COVID-19 were excluded.

Precautions Adopted: Examination of the Ear, Nose and Throat were performed with suggested level of precautions as published by Wax R *et al* [15]**.** Examination of the patients done irrespective of the COVID rt PCR test. Protective personal equipment was used for both the patient and the surgeon while examining. That included face shield, rubber gloves, N95 respirator and goggles. Powered air-purifying respirator was used immediately after the procedure and all the disposable cap and gown, and disposable gloves were discarded [16]. Pre-operative screening for COVID rt PCR 48 hours before subjecting the patients for General Anesthesia was followed strictly. All the procedures involving the foreign body removal were performed in the outpatient department and those patients who needed general anesthesia and airway management were performed in the operation theater.

Results

330 patients who attended the Department of ENT, ANIIMS Hospital, Port Blair with foreign bodies in the Ear, Nose and Throat were included in the study. There were 177 (56.63%) male patients and 153 (46.36%) female patients. The male to female ratio was 1.15:1.The age distribution showed that children aged between 01 to 10 years constituted to 128 (38.78%), 11 to 20 years constituted to 31 (09.39%), 21 to 30 years constituted to 48 (14.54%), 31 to 40 years constituted to 45 (13.63%), 41 to 50 years constituted to 44 (13.33%), 51 to 60 years constituted to 10 (03.03%), 61 to 70 years constituted to 11 (03.33%), 71 to 80 years constituted to 07 (02.12%) and above 80 years constituted to 06 (01.81%), (Table 1).

Patients with foreign bodies in the Ear were 131 (39.69%), foreign bodies in the nose were 87 (26.36%) and foreign bodies in the throat were 110 (33.33%) in the study (Table 1). Living foreign bodies were encountered in 39 (11.81%) and non-living foreign bodies were 291 (88.18%). Organic foreign bodies were encountered in 214 (64.84%) and inorganic foreign bodies were observed in 115 935.15%) of the patients (Table 1).The incidence of foreign bodies in the children aged between 01 to 10 years was statistically significant when compared to any other age group in the study with a p value of 0.002. The incidence of living versus non-living foreign bodies was found significant with p value at 0.001. The incidence of organic and non-organic foreign bodies was found significant with p value at 0.036. (p value taken as significant at <0.05), (Table 1).

Table 1: showed the age, gender, site of the F.B and nature of foreign bodies encountered in the study (n-330). (F.B: Foreign Body)

Variable	Number	Percentage	P value
Gender			
Male	177	56.63	0.621
Female	153	46.36	
Age in years			
01 to 10	128	38.78	0.002
11to 20	031	09.39	--
21 to 30	048	14.54	--
31 to 40	045	13.63	--
41 to 50	044	13.33	--
51 to 60	010	03.03	--
61 to 70	011	03.33	--
71 to 80	007	02.12	--
Above 80	006	01.81	--
Site			
Ear	131	39.69	
Nose	087	26.36	0.257
Throat	110	33.33	
Nature of FB			
Living	23	06.96	
Non-living	307	93.03	0.041
Organic	214	64.84	0.036
Inorganic	116	35.15	

Foreign bodies in the Ear: The number patients with foreign bodies in the ear were 131 (39.69%). Among them patients with living foreign bodies were 12 (09.16%) and they were insects like beetles, cockroaches, maggots and dog fleas. 03(02.29%) patients with maggots had an unsafe CSOM with post aural wound. The remaining 119 (90.83%) patients had non-living FBs. Among the non-living F.Bs, 42/119 (35.29%) were hygroscopic like match sticks, cotton buds, chalk pieces and coal pieces and seeds. The remaining 77/119 (64.70%) were plastic beads, pieces of rubber, sponge pieces and lead pencil pieces. Among these patients with foreign bodies in the ear 44/131 (33.58%) were children aged below 10 years. The commonest site of foreign bodies was the external auditory meatus, 03/131 (2.29%) were found in the middle ear. 12/131 (09.16%) patients had impacted foreign bodies in the lobule of the ears. In 122/131 (93.12%) patients the FBs were removed in the OPD or Emergency room either under local anesthesia or under infiltration anesthesia. In 09/131 patients the foreign bodies were removed under general anesthesia.

Foreign bodies in the Nose: The number patients with foreign bodies in the nose were 89 (26.96%). Among them patients with living foreign bodies were 07 (08.04%) and they were maggots. The patient with maggots had secondary atrophic rhinitis.

The remaining 80/87 (91.95%) patients were having non-living FBs. Among the non-living F.Bs 41/87 (47.12%) were seeds like tamarind seeds, custard apple seeds, ground nut seeds and Bengal gram. The remaining 39/87 (44.82%) FBs were plastic beads, button batteries, pieces of rubber, sponge pieces, small pebbles and lead pencil pieces. Among these patients with foreign bodies in the nose31/87 (35.63%) were children aged below 10 years.

The commonest site of foreign bodies was anterior nasal cavity 61/87 (70.11%), 22/87 (25.28%) in the nasopharynx and the remaining 04 (04.59%) were impacted under the inferior turbinate. In 65/87 (74.71%) patients the FBs were removed in the OPD or Emergency room either under local anesthesia or sedation. In 24/87(27.58%) patients the foreign bodies were removed under general anesthesia.

Foreign bodies in the Throat: The number patients with foreign bodies in the throat were 110 (33.33%). Among them, patients with living foreign bodies were 02/110 (01.81%) and they were leeches. The remaining 108 (98.18%) patients had non-living FBs. Among the non-living F.Bs 68/110 (61.81%) were (Hygroscopic) organic like seeds like tamarind seeds, custard apple seeds, ground nut seeds and Bengal gram seeds 40/110 (36.36%) FBs were inorganic like, buttons, coins, metal screws, small pen caps, button batteries and small metal bolts.

Among these patients with foreign bodies in the throat53/110 (48.18%) were children aged below 10 years. The sites of foreign bodies found were the in tonsil fossa 15 (13.63%), posterior third of tongue 16 (14.54%), vallecula 11 (10%), pyriform fossa 21 (19.09%), post cricoids region 18 (16.36%), posterior pharyngeal wall 11 (10%), esophagus 12 (10.90%) and bronchus 06 (05.45%). In 79/110 (71.81%) patients the FBs were removed in the OPD or Emergency room either under local anesthesia or under infiltration anesthesia. In 31/110(28.18%) patients the foreign bodies were removed under general anesthesia. Total foreign bodies removed under General Anesthesia were 64/330 (19.39%) patients in this study. Among these 31/110 (28.18%) patients had foreign bodies in the throat, 24/87 (25.28%) had in the nose and 09/131 (06.87%) had in the ears (Table 2).

In this study there were deaths of patients or development of complications either related to the foreign body or COVID-19 disease. None of the surgeon developed COVID-19 during the study period in spite of management of all the patients was undertaken by the two authors.

Discussion

The present study was conducted during the COVI-19 pandemic over a period of 12 months at ANIIMS Hospital, Port Blair. Foreign bodies in all ages were encountered during this study. In view of the COVID-19 pandemic travel restrictions were implemented strictly hence the incidence shown in the study may not reflect the exact numbers that were treated regularly in this Hospital. 330 patients were registered with foreign bodies in the Ears, nose and throat during this period.

Generally foreign bodies in the food and air passages account for 12% of the ENT practices in India [17]. Among the foreign bodies, those which were aspirated in the airways account for the major chunk of mortality followed by foreign bodies in the food passage. Emergency intervention, when not available either to diagnose or treat, may lead to fatal outcome [18]. Foreign bodies are common in the children in any society all over the world. Many authors have quoted mortality as high as 7% in the pediatric populations especially in the age group of 0 to 3 years [19,20]. The reasons

for higher incidence of foreign bodies in this age group were explained as due to actions like laughing, crying, or running while eating leading to aspiration [21]. In this study 128 (38.78%) children were aged between 1 to 10 years who presented with foreign bodies of ear, nose and throat. The incidence of foreign bodies in the children aged between 01 to 10 years was statistically significant when compared to any other age group in the study with a p value of 0.002. During pandemic of COVID-19 the regular patients were not seen in the Hospital and only emergency cases were examined and due to which delay in the diagnosis and treatment was experienced by the health staff and the patients, resulting in presentation of more complications of otherwise simple and straightforward cases such as nasal foreign bodies.

Table 2: Showing the showing the distribution of variable of foreign bodies in the study (n-330).

	Total	Ear		Nose		Throat	
Variable	330	Number	Percentage	Number	Percentage	Number	Percentage
Number of FBs	330	131	39.69	89	26.36	110	33.33
Living	023	012	09.16	09	08.04	002	01.81
Non- living	307	119	90.83	80	91.95	108	98.18
Hygroscopic	151	042	35.29	41	47.12	068	61.81
Non-Hygroscopic	156	077	64.70	39	44.82	040	36.36
Children	128	044	33.58	031	35.63	053	68.18
General Anesthesia	064	009	06.87	24	25.28	031	28.18
Local Anesthesia	266	122	93.12	65	74.71	079	35.45

As such nasal foreign bodies were reported as more common in the literature [22]. But in this study ear foreign bodies were more common (131/330- 39.69%). They included rubber pieces, eraser pieces, sponge pieces, pebbles, beads, bean seeds, groundnuts, chalk pieces, metal bolts, and small parts of toys [23]. Children insert small foreign bodies in the nose or ear due to a simple reason that they develop pincer mechanism of picking small objects with thumb and index finger at that age.

They try to scratch an itch in the ears or nose with the small objects but lose them in the cavities [22,23]. There was concurrent history of upper respiratory tract infections in these children suggesting that it could be the cause of the itch [23]. Though initially the foreign bodies of the nose are placed in the anterior part but has the potential to dislodge of migrate posteriorly into the nasopharynx and likely to become foreign bodies of the trachea and hence need immediate attention [22]. Organic foreign bodies like seeds without shell are likely to absorb water and swell and get impacted in the nasal cavity; sometimes granulation tissue or rhinolith may develop if the foreign body was left un-removed [24]. Radiological imaging may be necessary in locating the foreign bodies of the nose in few patients [24].

Long standing foreign bodies of the nose produce complications of sinusitis, epitasis and septal perforations and children present with unilateral foul smelling discharge from

the nose. In the present study there were no foreign bodies of long standing duration were presented. COVID-19 guidelines were followed by the surgeon and patient and their attendants, before conducting an endoscopy and removal for all the children with foreign bodies in the ear, nose and throat. Foreign bodies removal under General Anesthesia was undertaken in 62/330 (18.78%) patients in this study.

The percentage calculated on the entire number of the subjects of the study showed that 31/330 (09.39%) patients had foreign bodies in the throat, 22/330 (06.66%) had in the nose and 09/330(02.72%) had in the ears removed under General anesthesia (Table 2).

These figures are comparatively low when compared to the regular census in this hospital. In view of the COVID-19 the surgeons avoided performing the procedures under General anesthesia to avoid aerosol formation and spread of COVID virus. Other factors were apprehensive patients, young children and in cases where removal of FBs was complicated and requiring patient's full relaxation then general anesthesia were used [22,25].

The surgeon's perspective during the study was, availability and usage of PPPEs, N95 masks, Goggles, powered air-purifying respirators, and able to focus the head light while performing the procedure to remove the foreign body [26]. All the protective apparatuses and coverings have their own disadvantages of being cumbersome to use, limiting visibility due to fogging up, making the use of a headlight difficult and making the process of donning and doffing a potential source of infection [27].

All the patients were discharged on the day of procedure except 05 (01.51%) patients requiring special attention and whose attendants could not be summoned.

Conclusions

To conclude the present study which analyzed all the foreign bodies in the Ear, Nose and Throat that were encountered during the COVID pandemic of 2020-21 and successful removal of foreign bodies was undertaken without any surgeon turning COVID positive as strict protocol was formulated and followed with international clinical guidelines to prioritize the cases to avoid COVID spread and at the same time give satisfactory treatment to the patients.

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