



Foreign Body in the Nose in Children: The Relationship with the Dominant Hand, Parental Behaviour and Level of Education

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Abstract

Background: The aim of this study was to examine the relationship between a foreign body in the nose of a child and the dominant hand, the educational level of the parents and the habits of the mother in cleaning the nose with tissues or tweezers etc.

Objectives: There is a lack of evidence about the foreign body in the nose in children and association among dominant hand, parental behaviour and education level.

Methods: A retrospective examination was made of the records of 136 patients (78 male, 58 female) diagnosed with a foreign body in the nose in the period January 2014 - January 2017. A record was made of age, gender, the type of foreign body, treatment and complications, etc. Patients with a psychosomatic disorder were excluded from the study.

Results: The vast majority of the patients were children aged 2-5 years (N = 124, 91.17%). The most common foreign bodies were a bead, a part of a plastic toy, a button, a safety pin, paper and paper tissues. The foreign body was removed from the same side as the dominant hand in 116 (85.29%) cases. The incidence of nasal foreign body was found to be statistically significantly higher in those with a parental level of education of primary school (P < 0.026).

Conclusions: There was a statistically significant relationship between the localisation of a nasal foreign body and the dominant hand, so the patient's relatives must be asked about the side of the dominant hand. Taking into consideration that complications are greatly reduced with clinical experience, it is recommended that intervention for a nasal foreign body is made by an ear, nose and throat specialist.

Keywords: Child, Foreign Body, Nose

1. Background

Foreign body in the nose is a common complaint in children aged 2-5 years in the Emergency Dept and in the Ear, Nose and Throat (ENT) Dept. (1-3). The reasons for children placing foreign bodies in orifices such as the ears and nose include discovery, curiosity, mimicry, boredom, mental retardation, and attention deficit and hyperactivity disorder (ADHD) (4). Foreign bodies are classified as organic and inorganic. Generally inorganic materials are beads, toys, foam, batteries and magnets, and organic foreign bodies are often paper, sponge, nuts and beans. Occasionally parasite or larva infections may be seen in the nose (5). Although removal of the foreign body can be made under polyclinic conditions, depending on patient compliance, it can also be made under general anaesthesia in the operating theatre.

Despite a theoretical risk of aspiration of a nasal for-

ign body, very few major complications have been reported. The most frequently reported complications are bleeding, local inflammation and swallowing of the foreign body (6, 7). Foreign bodies are generally located in the anterior section of the nasal cavity (8). Although symptoms may vary according to the patient age and type of foreign body, in very young children parents may be suspicious or have witnessed the act and in older children there are feelings of pain and discomfort (9).

Examination should be made by tertiary stage ENT physicians as Emergency Dept. (ED) practitioner physicians may not have the necessary, adequate equipment or nasal endoscopy and there may not be information about the location, and during examination the child and the family may be tense with the development of bilateral nose bleeding.

The aim of this study was to examine the relationship between the location of a foreign body in the nose of a child

and the side of the dominant hand, the educational level of the parents and the habits of the mother in cleaning the nose with a safety pin, tissues or tweezers etc.

2. Methods

A retrospective examination was made of the records of patients who were diagnosed with a foreign body in the nose and treated during the 3 - year period of January 2014 - January 2017 at Kahramanmaraş Sutcu Imam University Medical Faculty Training and Research Hospital. Approval for the study was granted by the Ethics Committee of Kahramanmaraş Sutcu Imam University Medical Faculty on 27.09.2017 (session No: 2017/15, decision No: 09). Patients were excluded if no foreign body was observed, if the patient was mentally retarded, had a psychiatric disorder or the data were not available. All the cases of foreign bodies in the ears or nose at our hospital presented at the Paediatric Emergency Dept. and were referred by the ED physician to the ENT clinic.

The intervention for the foreign body was made by an ENT physician in the ENT polyclinic in all cases. To avoid iatrogenic complications and restraint any movement during removal, the examination was made with the child sat on the parent's lap, with the parent holding the child's hands and feet and the head in 30° extension. After diagnosis made with anterior rhinoscopy and/or flexible endoscopy, the foreign body was removed with a Katz extractor, alligator or Blakesley forceps and plug curettes. Generally, the nose was first applied with local anaesthetic (10% lidocaine) and cotton tampons soaked in decongestant (0.5% xylomethazoline hydrochloride) were used.

A record was made for each patient of age, gender, any known allergies, the type of foreign body, the side of the nose where the foreign body was lodged, clinical symptoms, referral or first presentation, any history of nasal foreign bodies, the side of the dominant hand, the level of education of the parents, how the mother cleaned the child's nose, and complications. Those with incomplete information were telephoned to complete the data.

2.1. Statistical Analysis

Statistical analyses of the study data were made using SPSS (Statistical Package for the Social Sciences version 22.0 software for Windows (SPSS Inc., Chicago, Illinois, USA). Correlations between data were evaluated with Pearson Correlation analysis and in the comparison of qualitative data, the Student's *t* - test and Chi-square test were used. Data were reported using basic descriptive terms. Results were given in a 95% confidence interval, and a value of $P < 0.05$ was accepted as statistically significant.

3. Results

In a 3 - year period, a total of 136 patients presented at the clinic with complaints of nasal foreign body. The patients comprised 78 males and 58 females with a mean age of 3.25 ± 2.21 years, of which 124 (91.1%) were aged 2 - 5 years and 12 (8.82%) were aged > 5 years. All the patients were referred to the ENT clinic from the ED.

The most common foreign bodies were a bead, a part of a plastic toy, a button, paper and paper tissues and food-stuffs such as beans. The foreign body was observed in the right nasal cavity of 83 (61.02%) patients, in the left nasal cavity in 51 (37.5 %) patients and in both cavities in 2 (1.47%).

When the complaints on presentation were evaluated, these were family suspicion (43%), the parent reported that the child had placed something in their nose (27.4%), pain and discomfort in the nose (20.58%) and a foul - smelling discharge from one side of the nose (5.14%). The most common complaint was that the foreign body could not be removed at another healthcare centre and there was bleeding.

Diagnosis of the foreign body was made with anterior rhinoscopy, and rigid and/or flexible endoscopy. All 136 patients were treated under polyclinic conditions. Of the total patients, 104 (76.47%) had presented at the ED of another centre on the same day and been referred to our hospital. In 7 patients, there had been foul - smelling nasal discharge for a long time. In 1 of these patients a battery was detected, in 2, a chocolate wrapper, in 2, a piece of paper and in 3, fruit peel. In the patient from whom the battery was removed, there was widespread mucosal damage in the septum and mid concha. All the patients were treated in the polyclinic.

With the exception of 7 patients, all the others (94.85%) presented on the same day as the incident. In 42 (30.8%) patients there was a history of nasal foreign body complaint and in 33 (78.57%) of the 42 patients, the history was of a foreign body on the same side.

The mothers were questioned how they cleaned crusts from inside the child's nose. The responses were with a tissue in 39 cases, with tweezers in 22 and with a safety pin in 8. A statistically significant relationship was determined between cleaning the child's nose with a foreign body (tissue, safety pin, tweezers) (53%) and a foreign body in the nose ($P < 0.05$).

In the examination of the relationship between the side of the foreign body and the dominant hand, the foreign body was removed from the same side as the dominant hand in 116 (85.29%) cases. A statistically significant relationship was determined between the dominant hand and the side on which the foreign body was located ($P < 0.001$). When the level of education of the parents was classified as university, high school, middle school and

primary school, the incidence of nasal foreign body was found to be statistically significantly higher in those with a parental level of education of primary school ($P < 0.026$). No statistically significant difference was determined between families with high school education and higher education ($P < 0.20$).

4. Discussion

Although nasal foreign bodies are frequently seen as ENT emergencies, usually in children below the age of 5 years when they start to play alone, they are generally not life-threatening situations (10). In 63% of cases, a nasal foreign body is asymptomatic, but children are brought to ED by worried parents (11). Non-life-threatening complications such as epistaxis, sinusitis and otitis media have been reported at the rate of 9%. Although usually unilateral, bilateral cases have been reported in patients with mental retardation or psychiatric disorders (4, 5).

Previous studies have reported differences according to gender (1-3, 5, 12) and in the current study there was seen to be a higher rate (59.55%) of nasal foreign bodies in males.

In a study by Scholes and Jensen (13), there was reported to be a significantly higher rate of intervention in the operating theatre for the removal of disc-shaped foreign bodies in children aged ≥ 5 years. In the current study, removal was made under polyclinic conditions in all cases with the help of the child's family and healthcare personnel. After taking a full history, including whether this has occurred previously, the side of the location of the foreign body and the dominant hand, the foreign body can be easily removed with the use of the correct position and the correct instruments. In the procedures to remove the foreign bodies, no complications were observed other than temporary nose bleeding which required cauterisation and placing of tampons.

In a study conducted in Dublin (Republic of Ireland), it was reported that 65% of foreign bodies in the nose were removed by ED personnel, 35% were referred to the ENT clinic and 10% were removed in the operating theatre (10). In the current study, 76.47% of the patients presenting at our clinic had previously been to another centre where the attempted removal had been unsuccessful. As nasal endoscopy is not available in all EDS, the patients were referred to our clinic in a training and research hospital. Reasons for failure in other centres have been reported on the referral paper and in the anamnesis to be insufficient equipment, lack of knowledge of the orientation of the foreign body and lack of experience.

While diagnosis of a foreign body in the nose can be made with anterior rhinoscopy and endoscopic examination inside the nose for patients who present with discom-

fort or parental suspicion, patients who have not been noticed in the early stages generally present with complaints of foul-smelling nasal discharge and nasal obstruction (14-16). In the current study, the most common reason for presentation after referral from another centre was suspicion of the parents. The nasal cleaning of children with their mother's napkin tweezers has been seen as a risk factor for foreign body aspiration in children. We excluded nasal foreign body aspirations, which were caused by mothers and caregivers, in our work. Although the nostrils are close to each other, it was observed during the anamnesis that the children were aware that the nostrils were different indicating the right and left sides directly. In our work, we included the foreign body aspirations that only the child applied to the study.

In the questions asked related to the family habits of cleaning the child's nose, the mother cleaning the child's nose with items such as tissues and tweezers was found to be a risk factor for the child pushing a foreign body into the nose. That 30.8% of the patients had a history of nasal foreign body complaints shows that this situation can be repeated. Therefore, parents must pay attention to the child playing with age-appropriate toys, food falling on the floor during preparation and cooking, and the places that the child can reach. In this way, the rate of patients with foreign bodies could be reduced.

In the questioning of the education level of the parents, it was noticeable that there was a higher rate of parents with only a primary school level of education. The education that an individual has received and the cultural environment in which they have socialised influence behaviours.

In conclusion, as a significant relationship was observed between the dominant hand and the side of the localisation of the foreign body, in pediatric patients presenting with a nasal foreign body, the side of the dominant hand must be questioned. Families must be educated how to clean the child's nose not using foreign bodies. Furthermore, the level of education of the family is of great importance, with greater complaints of nasal foreign bodies in families of a low education level and as the level of education increases so the rate of complaints decreases. As this is a situation which can be repeated, it must be explained to families that taking preventative steps to stop the child placing objects in their ears or nose could reduce to a minimum the risk of morbidity that could develop because of the foreign body. It is recommended that after a second attempt by clinically inexperienced personnel to remove the foreign body, it should not be forced and taking into consideration that complications are greatly reduced with experience, the intervention to remove a nasal foreign body should be made by an ENT specialist.

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