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A RETROSPECTIVE STUDY OF FOREIGN BODY IN CHILDREN AT RIMS RAIPUR CHHATTISGARH

ENT

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Dr Anoop Rekha Mudgal — Assit Professor, Department of ENT, Raipur Institute of Medical Sciences,Raipur, C.G.

Dr Anil Kumar Dubey — Associate Professor, Department of Surgery, Raipur Institute of Medical Sciences, Raipur, C.G.

Dr.Brajendra kumar — Professor, Department of Medicine, Teerthanker Mahaveer Medical College & Research Centre Moradabad, UP-244001

ABSTRACT

Foreign body aspiration(FBA) is one of the main cause of accidental death in childhood. This study was designed to evaluate the incidence of FBA and its corresponding symptoms and signs with resultant dangers in the community. Ninety-nine cases were studied. Foreign body aspiration into the airway is one of the dramatic pediatric emergencies. It is more common in children aged 6 months to 5 years. Pea nuts and food items account for most cases. Right main stem bronchus is the most common site involved. The initial cough and choking like episodes may be followed by a symptomless interval before leading to further complications. Chest radiograph findings may vary from normal to hyperinflation, obstructive emphysema or pneumothorax. Removal by ventilating rigid bronchoscope with optical forcep is the definitive treatment.

INTRODUCTION

Foreign body aspiration (FBA) is a frequent cause of accidental death in children below the age of 6 years all over the world. It is considered a true emergency in the pediatric age group and leads up to 300 deaths per year in the USA. A large number of FBAs in the tracheobronchial tree occur in the Indian sub-continent. The aim of this study was to assess the incidence, symptoms,signs,associated mortality with FB in children. Foreign body (FB) aspiration is a common problem in children, requiring prompt recognition and early treatment to minimize the potentially serious and sometimes fatal consequences. FB aspiration/inhalation is still a cause of death in childhood, usually in pre-school children.In the past, the majority of data on FB injuries in children came from single-centre retrospective studies, covering a range of about 3-10 years. Recently, several review papers have discussed the main clinical aspects, Country-specific experiences have been presented, and systematic collections of FBs have been started.Sehgal et al. analysed the case records of 75 patients suspected of FB aspiration over a 4-year period.A review of 165 paediatric cases of documented FB inhalation, treated in the Department of Paediatrics, Bapuji Hospital, India, during 1997-2000, was carried out by Shivakumar et al.. The University of North Carolina, Department of Otolaryngology has collected foreign bodies acquired from the airways of young children since its inception in 1954.Overall 53 paediatric patients (27 boys, 26 girls), who had aspirated from July 1998 to July 2003, were retrospectively studied in a tertiary children's hospital in northern Taiwan . Witnessing choking episodes was the most important historical event to pinpoint an early diagnosis of FB aspiration in children.Bloom et al. reviewed all cases of children (1874 patients) undergoing direct laryngoscopy and/or bronchoscopy from January 1, 1997 to September 9, 2003, at the Children's Hospital and Regional Medical Center in Seattle (USA). A total of 105 aspirated foreign bodies were identified. The 9 laryngeal foreign bodies included: 5 clear plastic radiolucent items, 2 radiolucent food items, and 2 sharp radio-opaque pins. Time to diagnosis and treatment was on average 11.6 days; 17.6 days for thin/plastic foreign bodies and 1.6 days for metal/food foreign bodies.Overall 3300 patients underwent rigid bronchoscopy for suspected FB inhalation, between 1995 and 2005, in Mansoura, Egypt. The data were analysed in 3 groups: negative bronchoscopy for FB (Group 1), and early (Group 2) and delayed diagnosis (Group 3) [7].Pinto et al. reported 31 patients (18 male, 13 female; ages ranging from 6 months to 85 years) referred for clinical suspicion of FB aspiration over a 5-year period.Rouillon et al. described 28 paediatric cases of FB inhalation requiring treatment in their Intensive Care Units between 1987 and 1999. In 13 cases, the penetration syndrome was responsible for asphyxia with cardio-respiratory arrest. All these children died, regardless of the initial treatment. Seven children were hospitalized for apparent asthmatic symptoms that did not respond to traditional treatment. The Authors proposed a new strategy for the emergency treatment of FBs based on the use of a laryngoscope and Magill forceps. Flexible endoscopy was still recommended as the appropriate diagnostic tool to eliminate doubt in the case of a first severe asthma attack. Shlizerman et al. prepared a retrospective review of all the charts of children under 16 years of age, who underwent bronchoscopy for suspected FB aspiration in Ha'Emek Medical Center, from 1994 to 2004. The review presented cases concerning 136 children who had undergone bronchoscopy. Foreign bodies were found in 73% of the cases. retrospective analysis of airway FBs in 132 children (80 male, 52 female) over a period of 20 years was conducted by Yadav et al. . The Authors suggested that FBs may escape both the parent's and the physician's notice, because of the lack of knowledge of the exact history and inconclusive radiographic findings. Rigid bronchoscopy under general anaesthesia was performed in 129 cases. A definitive history of FB inhalation or sudden choking episodes was present in 71 children. The FB was successfully removed in 93.2% of the cases. The Authors concluded that rigid bronchoscopy usually provides good results in detecting airway FBs. It should be performed at the earliest opportunity, even when the definitive history is not forthcoming and the chest X-ray is inconclusive.According to Asif et al. , FB inhalation may occur at any age; however, most of these accidents occur in children, especially those ≤ 5 years of age. A prospective study was performed by the Authors at the Department of Otolaryngology, Head and Neck Surgery, Ayub Teaching Hospital, Abbottabad, from January 2003 to June 2005. A total of 81 patients, suspected of tracheobronchial FB, were included in the study. FB inhalation was more common in male patients, mostly those below the age of 5 years. Choking was the most common symptom and decreased air entry, on auscultation, was the typical examination finding. A peanut was the most common type of FB.A total of 662 children, who underwent bronchoscopy to remove FBs in the airways, were evaluated at the University Clinical Center Tuzla (Bosnia and Hercegovina) during the period January 1954-December 2004. The analysis included children up to 14 years of age .Overall, 46 children undergoing rigid bronchoscopy, for suspected FB aspiration, were retrospectively assessed by Pinzoni et al. . Rigid bronchoscopy was the procedure of choice for the diagnosis and management of FB inhalation in paediatric patients. Spontaneous ventilation could be considered safe, using either volatile or intravenous agents. Peri-operative complications were not correlated with either the choice of agent (volatile or intravenous) or the duration of surgery. A close collaboration among anesthesiolo-

gists, otorhinolaryngologists and pediatric surgeon with a long-standing experience in paediatric airway emergencies were the key factors for obtaining good results.Clinical and radiological presentations of inhaled sharp FBs were studied prospectively in 20 young females by Ragab et al.. All the sharp pins were extracted using rigid bronchoscopy with grasping forceps in 11, and a magnetic extractor in 9, allowing easy and safe removal. The most common presentation after inhalation was the penetration syndrome (70%) (sudden onset of choking and intractable cough).A retrospective study was carried out on injuries that occurred in the years 2000–2002 (772 children, aged 0–14 years) in the main hospitals of 19 European Countries, identified by means of the International Classification of Diseases, Ninth Revision (ICD-9) codes listed on hospital discharge records. A higher incidence in males (63%) was observed.In 170 cases, an injury due to the presence of a FB in the pharynx and larynx (ICD933) was reported, and in 552 records a FB located in the trachea, bronchi, and lungs (ICD934) was reported. The FBs were removed by laryngoscopy and bronchoscopy in the majority of cases.Unlike the complications that occurred in 70 (12.7%) cases, 433 (77.6%) of the total injuries resulted in hospitalisations. The complications were pneumonia and/or atelectasis (20%), bronchitis (12%), bronchospasm (10%), dyspnoea (9%), pneumothorax (6%), and odynophagia (3%).One patient died. Asphyxia was the most dramatic complication, which was commonly associated with globular shaped FBs (i.e., nuts, grapes, candy). The median age of children who experienced complications was 2 years. Eating was the most common circumstance, with small food items the most common FBs aspirated. The objects which caused complications were nuts, seeds, berries, peas, corn, beans (64%), fish, and bones (12%). Dried vegetables stimulated an inflammatory reaction within a few hours, making the extraction extremely difficult. According to Reilly et al., children ≤ 4 years are more susceptible to FB injuries due to their lack of molar teeth, oral exploration, and poor swallowing coordination. In India, children between the ages of 1 and 3 years were found to be very vulnerable for aspiration and the majority of the children were boys. In the review by Shlizerman et al., two thirds of the 136 FB patients were male and two thirds were younger than 2 years of age. Children under the age of 2 years, males, and those of Arab descent were at the highest risk of FB aspiration. In the analysis of Yadav et al. , the majority of patients (46%) were ≤ 3 years of age.According to Asif et al., 50 children (61.7%) with FB were male and 31 (38.3%) were female. Of these, 63 (77.8%) were ≤ 5 years of age, 13 (16%) were between 5 and 15 years, and 5 (6.2%) were ≥ 15 years . In an analysis of Brkić & Umihanić [13], 66.8% were boys, ranging in age from 9 months to 14 years. Foreign bodies were more frequent in children ≤ 3 years (65.2%).

MATERIALS AND METHODS

All patients with foreign body in ear, nose, throat and lower airways visited from Jan2013 to Nov2016 in our OPD at RIMS,RAIPUR, CHHATTISGARH were included in our study. Informed consent was obtained from all the individuals that formed part of this study. Approval from the institutional research and ethics committees was also obtained.

RESULTS

Main symptoms were,breathlessness 5%,coughing8%, can not recognize 29%, choking 2%, difficulty in breathing 2%, vomiting/ breathlessness 2%,choking/cough/vomiting 2%,cough/ dyspnoea 1%,73.3% of inhaled FBs were organic (nuts, peanuts, seeds, berries, corn, and beans);FBs were located in the lower airways (26.3%), in the nose (32.8%), in the pharynx/larynx (8.1%), in the upper-digestive tract (8.9%), and in the ears (23.7%);the most common FBs were spherical (46.1%) or tri-dimensional (28%);small, round, crunchy foods represented a risk of choking;chemical batteries could be very dangerous for the digestive mucosa;FPCIs were an extremely rare cause of FB inhalation, possibly because parents are more careful with these objects;56.8% of the children involved were male; in cases of organic FB, 67.9% of children were eating at the time;in the cases of injury while eating, 72.9% of the children were ≤ 3 years;a caregiver was present at the time of injury in 48.9% of cases (82.3% while the children were eating, and 33.8% while playing);71.7% of cases underwent endoscopic removal; 8.8% required surgery, and 19.6% were treated as out-patient;12% of children had complications;of 99 cases, one fatal exitus was recorded.

DISCUSSION

FBA remains a huge problem and a major cause of accidental death in children around the world. The age group, 1–5 years, is most vulnerable for FBA. Delays in diagnosis occur seven times more commonly in aspirations than in ingestions. Delay in diagnosis can lead to serious pulmonary damage and increased risk of long-term complications.Breathlessness, excessive coughing, and vomiting were considered the main symptoms of FBA Accidental inhalation of both organic and non-organic FBs continue to be a cause of childhood morbidity and mortality. Prevention is best, but early recognition remains a critical factor in the treatment of FB inhalation in children. Patients should be sent to experienced centres for evaluation and treatment. Coughing, choking, acute dyspnoea, and sudden onset of wheezing are the most common symptoms. Confirmation of the diagnosis should be made with flexible bronchoscope when in doubt only. Extraction is generally performed by ventilating rigid bronchoscope, with optical forceps, which is most reliable and accurate. Extraction failure and complications are rare.Laryngeal FBs represent a small portion of all paediatric airway-FBs. Partial laryngeal obstruction causes hoarseness, aphonia, wheezing, and dyspnoea. Difficulty in identifying laryngeal FBs, especially thin, plastic, radiolucent FBs, can delay treatment. Thin plastic FBs can present without X-ray findings, may be difficult to be seen during endoscopy, and be particularly difficult to diagnose

CONCLUSION

In our study, Accidental inhalation of both organic and non-organic FBs continue to be a cause of childhood morbidity and mortality. Prevention is best, but early recognition remains a critical factor in the treatment of FB inhalation in children. Patients should be sent to experienced centres for evaluation and treatment. Coughing, choking, acute dyspnoea, and sudden onset of wheezing are the most common symptoms.Confirmation of the diagnosis should be made with flexible bronchoscope when in doubt only. Extraction is generally performed by ventilating rigid bronchoscope with optical forcep, which is safe and reliable. Extraction failure and complications are rare.Laryngeal FBs represent a small portion of all paediatric airway-FBs. Partial laryngeal obstruction causes hoarseness, aphonia, wheezing, and dyspnoea. Difficulty in identifying laryngeal FBs, especially thin, plastic, radiolucent FBs, can delay treatment. Thin plastic FBs can present without X-ray findings, may be difficult to be seen during endoscopy, and be particularly difficult to diagnose.

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