Occurrence of aerodigestive foreign bodies among children at Mbarara Regional Referral Hospital

Doreen Nakku, MD¹,²; Imelda T Kyamwanga, MD, PhD¹
¹Mbarara University of Science and Technology, ²Mbarara Regional Referral Hospital

ABSTRACT

Introduction: Aerodigestive foreign bodies are common especially before 2 years (Mishra A et al, 2000). About 3000 deaths are estimated worldwide from foreign body aspiration with 600 occurring in children less than 15 years. This is all despite the improved medical care and public awareness (Fazili, 2009).

Aerodigestive foreign bodies are common especially before 2 years (Mishra A et al, 2000). About 3000 deaths are estimated worldwide from foreign body aspiration with 600 occurring in children less than 15 years. This is all despite the improved medical care and public awareness (Fazili, 2009).

Methods: A case control study design was employed with 40 cases and 80 controls. Consecutive and random sampling was used for the cases and controls respectively. A questionnaire was used to collect data. Clinic records over one year were used to calculate prevalence.

Results: Prevalence was 6.6%. Male sex was significantly higher in cases compared to controls (OR=0.27, p=0.01). Increasing age of the mother was protective as these are usually elite parents, while the child (Fisher's exact 0.001) with a 70% chance that it would be inorganic if the child was playing. Only one parent reported to have attempted the Heimlich maneuver. A case control study design was employed with 40 cases and 80 controls. Consecutive and random sampling was used for the cases and controls respectively. A questionnaire was used to collect data. Clinic records over one year were used to calculate prevalence.

The study aimed at: determining the prevalence of aerodigestive foreign bodies at MRRH, the common types of foreign bodies seen and the non-clinical factors that might influence the occurrence of aerodigestive foreign bodies.

The magnitude of the problem in Western Uganda is not known and may vary in different regions and hospitals. The Indian Journal of Pediatrics, 76(11), 1009-1012. The prevalence was calculated from review of clinic records over 1 year.

Prevalence was calculated from review of clinic records over 1 year. The Kuppuswamy scale for SES was adopted and modified to suit the Western region in Uganda (Dudala, 2012).

INTRODUCTION

METHODS

The study was conducted in the ENT Clinic at Mbarara Regional Referral Hospital in South Western Uganda over a period of 6 months. The study population comprised children between the ages of 6 months and 12 years. A case control study design was used and the sample size was calculated using the OpenEpi Epidemiological Calculator employing the Kelsey et al, 1996 formula. There were 40 cases and 80 controls. The cases were consecutively sampled as they presented to the clinic while the controls were randomly sampled. Children with anatomical or physiological abnormalities predisposing them to aspiration or swallowing of foreign bodies were excluded from the study. Also children who ingested caustics were eliminated.

A questionnaire was used to collect information. Data was analysed using STATA 11.0 data analysis package. Frequencies and percentages were used to describe common foreign bodies removed; logistic regression was calculated to assess for associations between variables. Prevalence was calculated from review of clinic records over 1 year. The Kuppuswamy scale for SES was adopted and modified to suit the Western region in Uganda (Dudala, 2012).

RESULTS

There were 64 aerodigestive foreign body cases out of 971 children seen in the clinic and prevalence was found to be 6.6%.

78% of children in the study were less than 5 years. The ratio of male:female patients was found to be 2:1 with the most frequent age group being below 5 years.

57.5% of the cases were 1st or 2nd in birth order and it was found that at the time of the incident, 50% were playing while 25% had been feeding. There was no significant relationship between the type of foreign body removed and the activity of the child (Fisher's exact 0.001) with a 70% chance that it would be inorganic if the child was playing.

Only one parent reported to have attempted Heimlich's maneuver when their child choked, 30% tried a finger sweep. Attendants of majority of the cases were less than 35 years.

50% of the cases came from families of low SES compared to 24.4% of controls (p=0.05). Univariate analysis of relationship between non-clinical characteristics and risk of an foreign body was significant for middle SES with a reduced risk of 27% (p=0.01). Risk was also reduced with increasing birth order and age of the child (p=0.49 and p=0.22 respectively). Regression model predicted that sex of the child influenced the occurrence of a foreign body (p=0.03).

Figure 1. X-ray showing foreign body in esophagus of a 4 year old girl.

Figure 1b. Foreign body removed from esophagus of a 4 year old girl.

Figure 2. Fish bone removed from airway of a 5 year old.

Figure 3: Fragments of bean seed from the airway.

DISCUSSION

Prevalence is variable depending on hospital and region (Lima and Fischer, 2002). 6.6% for MRRH may be explained by the large catchment area of the hospital and the fact that services are free. Mulago National referral hospital reported 240 bronchoscopies only done in 6 years out of 283 records reviewed (Awubwa, 2000).

Seeds are the most frequently aspirated since they are part of the staple diet in Uganda (Efsahanib, 2001), while the sh. 100 and 200 coins are the most frequently swallowed. These are small currency so frequently given to children as pocket money which they end up playing around with.

Children under 5 years are most frequently affected and this can be explained by the poor weaning practices, presence of several children in the home under 5 years and thus parents not being able to adequately supervise all children at a time. The boys are also found to be more adventurous and therefore more predisposed as also reported by and Asif et al, 2007.

Most of the mothers of the affected children were <35 years. These are mainly working mothers who are considered young mothers and have little experience in raising small children. Being in the middle SES was found to be protective as these are usually elite parents, working and can afford day care or nannies to attend to the children.

CONCLUSIONS

Prevalence of aerodigestive foreign bodies at MRRH is relatively high with the most frequent foreign bodies being organic in the airway and inorganic objects in the esophagus. Protective non-clinical factors include female sex and middle SES. Other factors like age under 5 years, young age of the mother/guardian and low SES increase the risk of a child sustaining a foreign body.

Therefore more public awareness on child feeding and supervision is recommended.

REFERENCES