

Pharyngeal obstructive foreign bodies: study of 34 cases

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Abstract

Introduction: Obstructive foreign bodies of the pharynx are a relatively rare but dangerous emergency in ENT practice. **Objective:** To investigate cases of pharyngeal obstructive foreign bodies in the ENT by studying its epidemiological, diagnostic and therapeutic aspects. **Method:** a cross-sectional prospective study of 6 years from January 2015 to December 2020 was carried out in the ENT and cervico-facial surgery department. **Results:** we recorded 34 cases of pharyngeal obstruction by foreign bodies. The patients were aged 3 months to 39 years and the sex ratio was 1.83. The age group ranged between 3 month and 3 years was the most represented with 47.06% cases. The respiratory distress (52.94%) and dysphagia (70.59%) were the main cause of consultation in the ENT. Most Foreign bodies were toys and bottle caps in respectively 52.93% and 29.41% cases. The topography was predominantly hypopharyngeal (82.35%). The extraction was endoscopic (64.70%) and chairside (35.29%), with a favorable outcome in 97.06% of cases. **Conclusion:** pharyngeal obstructive foreign bodies constitutes an absolute ENT emergency, the prevention of which is based on rigorous surveillance of preschool children.

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Key words:

Foreign bodies, obstruction, pharynx, ENT, hospital.

Key points

- The obstructive foreign bodies of the pharynx have a pediatric connotation
- Their occurrence is mainly accidental
- They present a high risk of asphyxiation
- They constitute major diagnostic and therapeutic emergencies
- Their post-therapeutic prognosis is generally favorable.

Introduction

Pharyngeal obstruction foreign bodies constitute an absolute relatively rare emergency in ENT practice.^{1,2} Of variable nature and severity, they mainly affect young subjects in a context of mainly accidental or recreational occurrence. Of spontaneous evolution, most often serious, they sometimes pose a diagnostic problem because of the young age of the patients concerned, but especially a problem of therapeutic management in our context of classic delay of specialized consultations and insufficiency of technical platform. Thus, we investigated the epidemiology and diagnostic aspects of this pathology in the ENT and reporting our therapeutic experience regarding the reported cases.

Patients and method

Statement of Ethics

The local ethics committee approved the study protocol (No. 79, on December 12, 2014). A written consent was obtained from all participants.

Design and selection criteria

This was a cross-sectional prospective study in the ENT and cervico-facial surgery department at the University Hospital for a period of six (6) years from January 2015 to December 2020. We conducted a census of all patients admitted and managed in the said department for obstructive foreign bodies of the pharynx, during the study period and having given their informed consent either directly or through their legal guardian. The evaluation criteria were the history, identity variables, clinical manifestations, paraclinical translations and therapeutic and evolutionary aspects.

Statistical methods

The data collected were analyzed using Epi info 3.3.2 and Excel 2010 software.

Results

During a period of 6 years, 34 cases of Pharyngeal obstructive foreign bodies were recorded, leading to an annual incidence of 5.7 cases. The mean age was 8.7 ± 9.2 with extremes of 3 months to 39 years. The dominant age group was ranged between 3 month and 3 years with a frequency of 16 cases (47.1%). Men were mostly represented in 22 cases (64.1%) against 12 cases of women (35.3%) with a man to female ratio(M/F) of 1.8. The principal patient's attendant was civil servants in 6 cases (17.64%), farmers in 18 cases (52.94%) and informal sector actors in 10 cases (29.41%). According to geographical origin, the patients were from rural areas in 26 cases (76.47%) and residents of the city of Bobo in 8 cases (23.53%).

Inpatient route was intra-hospital referral in 22 cases (64.7%), inter-hospital transfer in 7 cases (20.59%) and direct admission in 5 cases (14.70%). The average time of diagnosis was 2.3 days with the extremes of 3 hours and 7 days. The main clinical symptoms were respiratory dyspnea in 18 cases (52.9%), dysphagia in 24 cases (70.6%) and sialorrhea in 8 cases (23.5%). The occurrence of pharyngeal foreign bodies was accidental

in 32 cases (94.1%) and voluntary in 2 adult cases (5.9%). The diagnosis was based on clinical findings in 14 cases (41.2%), radiography in 24 cases (70.6%) and endoscopy in 22 cases (64.7%). The topography of the foreign bodies (**figure 1**) was hypopharyngeal in 28 cases (82.4%), oropharyngeal in 4 cases (11.8%) and nasopharyngeal in 2 cases (5.9%). The type of foreign body was variable, as shown in Table I. The foreign bodies encountered were mainly toys (52.94%) and bottle caps (29.41%).

The average treatment time was 12.6 hours with extremes of 3 and 96 hours. The treatment was medico-instrumental in all cases. The extraction mode used was endoscopic in 22 cases (64.7%) and chairside in 12 cases (35.3%). The associated medical treatment consisted of antibiotic therapy in 18 cases (52.9%), analgesic treatment in 22 cases (64.70%) and observation in 14 cases (41.17%). The per-therapeutic incidents encountered were an ulceration of the pharyngeal mucosa in 12 cases (35.3%) and a minimal parietal hemorrhage in 6 cases (17.7%). The post-treatment evolution was favorable in 33 cases (97.1%) after a follow-up of 8 months.

DISCUSSION

Pharyngeal obstructive foreign bodies are a relatively frequent emergency in ENT and cervico-facial surgical practice.^{1,2} These are of much greater concern when they are vulnating or obstructive because of their interference with the physiological processes of swallowing and breathing. Relatively rare but highly morbid, this obstructive pathology affects mostly young subjects with a slight male predominance.^{2,3} In our context, the dominant age group was ranged between 3 month and 3 years with a frequency of 16 cases (47.1%). This could be justified, on the one hand, by the exploratory curiosity of young children, especially in their oral stage of psychomotor evolution, and on the other hand, by the greater turbulence characteristic of young boys.⁴ Also, the difficulty of monitoring children at this age, with the beginning of the acquisition of kinetic autonomy and the frequency of play activities that are linked to it could partly explain the frequency of cases recorded at this period of life, with regard to the almost accidental origin of this pathology.

As traumatic for the patients as it is distressing for those who accompany them, this pathology rarely goes unnoticed and therefore benefits from an urgent hospital admission, whether direct by medical evacuation or mediated through an inter-hospital referral or an intra-hospital transfer.^{5,6} In our context, the main modes of admission of patients were referral (64.7%) and intra-hospital transfer (20.6%) with an average diagnosis time of 2 days. This delay seems to us to be sufficiently late for a pathology considered to be borderline urgent. Nevertheless, it could be justified not only by the attempt to hide the pathology for fear of possible parental reprisals by the patients themselves, but especially by the long evacuation times of the patients from the peripheral services in our context of pyramidal system of care based on successive evacuations.

The diagnosis of pharyngeal obstructive foreign bodies is based on a clinical suspicion which deserves to be investigated, in front of any pharyngeal syndrome of sudden onset. This syndrome can range from simple sialorrhea to severe respiratory distress, including high mechanical dysphagia.^{7,8} In our series, the main circumstances of discovery were respiratory dyspnea (52.9%), dysphagia (70.6%) and sialorrhea (23.5%). They were related not only to the size but also to the topography of the incriminated foreign body. Although the foreign body was mostly hypopharyngeal in 82.4% cases, it was sometimes oropharyngeal and exceptionally rhinopharyngeal. Thus, the classic clinical profile of the patient concerned is that of the small child found in a picture of agony or drooling of sudden onset on a playground. The paraclinical exploration mainly based on the cervical radiography is not less contributive for the diagnosis.^{9,10} Indeed, in most cases, it allows not only to reinforce the positive diagnosis through the demonstration of the radiopacity or the indirect signature of the body involved, but also to obtain information on the possible nature and appearance of the latter.^{7,11} In our context, they were mainly toys (52.9%) or objects used as toys, hence the interest in regulating the marketing of recreational material for small children, which for us should be neither too small to be swallowed, nor too fragile to be removed.

In all cases, the diagnosis of certainty remains that of direct pharyngoscopy, whether in the chair or on the operating table under general anesthesia.¹⁰ This allows direct visualization of the foreign body, which is the most important step in the therapeutic management of this pathology.

The pharyngeal obstructive foreign bodies constitute a major therapeutic emergency rallying a necessity of the symptomatic and etiological management in a concomitant and adequate way. Thus, if the preservation of the vital functions is essential, it is the same for the extraction of the foreign body, which constitutes the true treatment of this pathology. This can be done by armchair oro-pharyngoscopy or by pharyngoscopy under general anesthesia in the operating room, depending on the complexity of the situation. In our series, extraction was performed both in the chair in 35.3% cases and in the operating room (64.7%) with the main criteria for therapeutic choice being the degree of immediate respiratory emergency and the risk of inherent per-extraction complications. In any case, the management of the pharyngeal obstructive foreign bodies should not be improvised without having tracheal intubation or better still emergency tracheostomy equipment at hand.^{12,13} This is in order to avoid any risk of asphyxia, which can occur both per-induction and per-extraction. The evolution of this pathology is variable and depends above all on the efficiency of the management, which must not suffer any delay.^{3,10,13} In our context, it was marked by a pharyngeal parietal trauma (52.95%) with mucosal ulceration and haemorrhage related not only to the vulnating aspect of the incriminated foreign bodies but also to the untimely non-adapted extraction attempts by parents or untrained traditherapists. As for the prognosis, it is mainly a function of the topography and the degree of obstruction as well as the precocity of management. To this effect, if a partial pharyngeal obstruction remains compatible with an acceptable vital and functional prognosis, this is not the case of a complete hypo-pharyngeal obstruction which is usually immediately fatal.^{7,8,12,13} In our series, the evolution was favorable in 97.1% of the cases that reached the hospital; this should not obscure the possible cases of pre-hospital death in the absence of investigation in the general population. Therefore, it is of interest to raise awareness for preventive purposes, parents for a rigorous surveillance of children and public authorities for an effective regulation of the marketing of children's toys.

Conclusion

Pharyngeal obstructive foreign bodies constitute a highly morbid aerodigestive emergency. Of variable nature and size, they mainly affect young children in a context of mostly accidental occurrence. The mainly medical-instrumental management remains as distressing as it is prone to complications, hence the importance of parental awareness as well as that of public authorities for effective preventive measures.

REFERENCES

1. Yojana S, Mehta K, Girish M. Epidemiological profile of otorhinolaryngological emergencies at a medical college, in rural area of gujarat. *Indian J Otolaryngol Head Neck Surg.* 2012; 64(3):218–24.
2. Ribeiro da Silva BS, Souza LO, Camera MG, Tamiso AGB, Castanheira VR. Foreign bodies in otorhinolaryngology: a study of 128 cases. *Int Arch Otorhinolaryngol.* 2009; 13(4):394–9.
3. Chiun KC, Tang IP, Tan TY, Jong DE. Review of ear, nose and throat foreign bodies in Sarawak General Hospital: a five year experience. *Med J Malaysia.* 2012; 67(1):17–20.
4. Endican S, Garap JP, Dubey SP. Ear, nose and throat foreign bodies in Melanesian children: an analysis of 1037 cases. *Int J Pediatr Otorhinolaryngol.* 2006; 70(9):1539–45.
5. Kitcher E, Jangu A, Baidoo K. Emergency ear, nose and throat admissions at the korle-bu teaching hospital. *Ghana Med J.* 2007;41(1):9-11.
6. Mangussi-Gomes J, Andrade JS, Matos RC, Kosugi EM, Penido ND. ENT foreign bodies: profile of the cases seen at a tertiary hospital emergency care unit. *Braz J Otorhinolaryngol.* 2013; 79(6):699–703.
7. Ankur M, Dibakar H, Sirshak D, Mainak D, Jayanta S, Ramanuj S. Ear, nose and throat foreign bodies in children: a search for socio-demographic correlates. *International Journal of Pediatric Otorhinolaryngology.* 2011; 75: 510-2.
8. Thabet MH, Basha WM, Askar S. Button battery foreign bodies in children: hazards, management, and recommendations. *Biomed Res Int.* 2013; 2013: 846091.
9. Onakoya P, Adoga A, Adoga A, Galadima C, Nwaorgu O. An unusual rhino-pharyngeal foreign body. *West Afr J Med.* 2005;24:89-91.
10. Larimore WL. Options for removing foreign bodies from ear, nose, and throat. *Am Fam Physician.* 2008 Jul 1; 78(1):28.

11. Kharoubi S. Corps étrangers des fosses nasales : étude de 700 cas et revue de la littérature. *Journal de Pédiatrie et de Puériculture*. 2010;23(6):314–21.
12. Rodríguez H, Passali GC, Gregori D, Chinski A, Tiscornia C, Botto H, et al. Management of foreign bodies in the airway and oesophagus. *Int J Pediatr Otorhinolaryngol*. 2012; 76 (1):84–91.
13. Figueiredo RR, Azevedo AA, Kós AO, Tomita S. Complications of ENT foreign bodies: a retrospective study. *Braz J Otorhinolaryngol*. 2008 ;74(1):7–15.

Figure Legends

Fig. 1. Radiographic and photographic images of hypopharyngeal (a), oropharyngeal (b) and rhinopharyngeal (c) foreign bodies

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