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RESEARCH ARTICLE

LARYNGOTRACHEO BRONCHIAL FOREIGN BODY: ABOUT 27 CASES

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Abstract

Laryngotracheobronchial foreign bodies in children (CLTB) is a serious accident that can be life threatening. The penetration syndrome is often obvious, but endoscopy can be used for both diagnosis and treatment. The objective of this study is to analyse the different epidemiological, clinical, paraclinical, therapeutic and evolutionary aspects of laryngotracheobronchial foreign bodies in children in the ENT and cervicofacial surgery department of the military hospital of Nouakchott. This is a prospective study spread over a period of 30 months from December 1, 2019 to May 31, 2022, on children with foreign body inhalation, aged less than 15 years. The average age of our patients was 6.7 years with extremes ranging from 01 year to 14 years. A male predominance was noted with a sex ratio of 2.37. Patients evacuated from the interior of the country represented 33.33% of cases. The average admission time was 33 days. The clinical condition of the child on arrival was varied: a strictly normal examination in 29.62% of cases, coughing in 70% of cases, respiratory distress with signs of struggle in 25.92%, alteration of the general condition with signs of exhaustion in 14.81% of cases. Standard radiography showed a radiopaque foreign body in 52% of cases. Rigid bronchoscopy was performed in all our patients (27 cases), and allowed extraction of EC in 100% of cases. The right bronchial location was observed in 51.81% of cases. Non-organic foreign bodies were found in 52%. The outcome was favourable in 96.29% of cases, death and tracheal stenosis were observed in 3.7% respectively.

Introduction:-

Laryngotracheobronchial foreign bodies are a fairly common occurrence in emergency ENT practice. It is a serious and sometimes fatal accident in cases of pharyngolaryngeal or subglottic impaction. The penetration syndrome is the key clinical element of an early diagnosis. Its observation must lead, as soon as possible, to the only diagnostic and therapeutic procedure: endoscopy.

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Materials And Methods:-

This is a prospective study involving 27 patients with laryngotracheobronchial foreign bodies, collected in the ENT department of the Military Hospital of Nouakchott, between December 2019 and May 2022. The collected data were analysed using Microsoft Office 2013 Excel software.

Result:-

The mean age in our series was 6.7 years, with extremes ranging from one year to 14 years, with a male predominance in 70.37%, a sex ratio of 2.37 was noted. Patients evacuated from the interior of the country represented 33.33% of cases. The time between inhalation of EC and admission to the department varied from less than one day to 570 days, with a mean duration of 32.9 days. A penetration syndrome was found in 12 cases, i.e. 45%. The symptomatology was variable, dominated by coughing in 70% of cases, respiratory distress with signs of struggle in 25.92%, alteration of the general state of health with signs of exhaustion in 14.81% of cases, and asymptomatic patients represented 29.62% of cases. Standard radiography showed a radiopaque foreign body in 52% of cases. Cervico-thoracic CT scans were performed in 8 patients (29.62%) and revealed a foreign body in all the patients examined. The location of the foreign bodies was right bronchial in 51.81%. Non-organic foreign bodies were found in 52%. The extraction of foreign bodies was performed endoscopically under general anaesthesia. Post-operative follow-up was unremarkable, except for one case of tracheal stenosis. There was only one case of death.

Discussion:-

The frequency of airway foreign bodies (FBs) in children increases as soon as they acquire prehension, with a peak around the age of two. Over 75.4% of inhalation accidents occur in children under three years of age [3-5]. After the age of three, when chewing becomes more efficient, their frequency decreases [1,6]. In our series, the age group of 6 to 15 years was the most exposed, with a sex ratio in favour of boys. It is a diagnostic and therapeutic emergency with a mortality rate of 0 to 0.7% [9,10]. African series reported evacuees from rural areas [12, 13, 14]. In the present series, one third of our cases (33.33%) were evacuated from the interior of the country. In 2005, foreign body inhalation was the fourth leading cause of accidental death in children in the United States [11]. During the last two decades, the incidence of airway FBE has decreased significantly in developed countries due to prevention and awareness campaigns. Laryngeal and tracheal locations are the most dangerous due to the risk of secondary total obstruction. In this study, the foreign bodies were bronchial in 66.69%, tracheal in 7.4% and laryngeal in 18.51%, at the level of the carina 7.4%. The nature of the foreign body is variable, but foodstuffs predominate (44%), especially plants. The next most common are: metal objects (18%), plastic (15%), paper (15%), glass (2%), wood (1%) and textiles (1%) [7,11]. We noted a predominance of non-organic foreign bodies in 51.85%, half of which were metallic. The penetration syndrome was found in 45% of cases. In the literature, its frequency varies between 23 and 83.7% [3, 6, 8]. It is manifested by a sudden attack of suffocation accompanied by an expulsive barking cough. This is the pathognomonic inhalation syndrome which is often underestimated and whose evaluation in the literature is variable. Indeed, the relatives may be absent during the attack and not report it during the interrogation; moreover, this syndrome is often absent in certain locations, particularly at the level of the laryngeal margella. The chest X-ray and profiles will reinforce the diagnosis of CE by visualizing a radiopaque CE or a ventilation disorder such as obstructive emphysema or atelectasis. However, a normal radiograph does not rule out foreign body inhalation. Cervico-thoracic radiography was performed in 100% of cases. Cervico-thoracic CT is the best examination for identifying ECs not detected by standard radiography (radiolucent ECs), for determining their size and location, and for searching for associated pulmonary lesions. In our series, cervico-thoracic CT was performed in 29.62% of cases, and was able to locate an EC in all the patients examined. Our results were comparable to the literature [13]. Respiratory endoscopy is the only procedure that, by exploring the entire tracheobronchial tree, can confirm or rule out the presence of an EC and allow its extraction. Bronchoscopy under general anaesthesia, which is currently perfectly codified in children, is considered the technique of choice for extracting an EC. It allows good lighting, the possibility of good respiratory assistance and above all the easy and comfortable introduction of extraction forceps and suction probes. Rigid bronchoscopy under GA was performed in 100% of cases in our series. Our results were similar to those reported in the literature [14]. Complications secondary to foreign body inhalation can be serious: death (more than 300/year in the United States), pneumothorax, pneumopathy, atelectasis, tracheal or bronchial granulomas, and sequential bronchiectasis that can lead to pneumonectomy. It is therefore necessary to insist on the prevention of these accidents by raising the awareness of the doctors concerned and above all informing the parents and on police questioning in order to guarantee an early diagnosis and a reduction in morbidity. Any penetration syndrome must lead to a bronchial endoscopy even in the absence of clinical and radiological signs.

Conflict of interest :
No conflict declared.

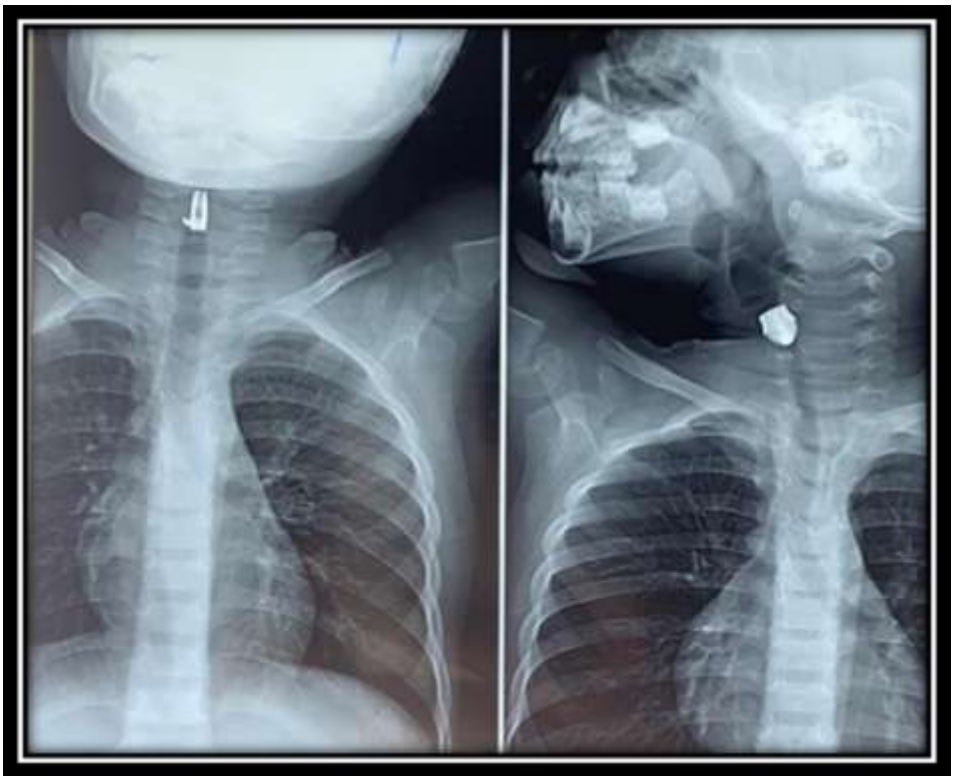

Figure 1:- Cervicothoracique RX showed laryngeal foreign body.

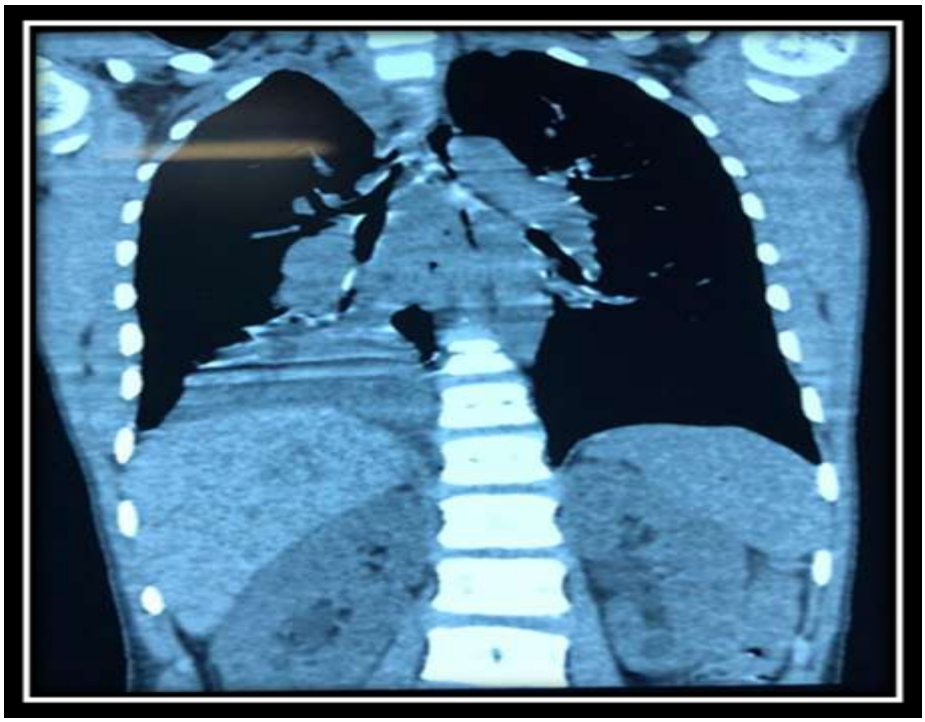

Figure 2:- Chest CT scan in mediastinal window with axial and coronal reconstruction showing a foreign body in the right lower lobar bronchus (BLID), related to a bone fragment, responsible for right segmental atelectasis.

Figure 3:- Endoscopic imagery(rigideBronchoscopyFigure 4 : Image endoscopique ¨(Bronchoscopierigide) Foreign body in the right lower lobar bronchus.

Figure 4:- Zipper sliderFigure 6 : Peanut seed Image 7 : Plastic child whistle.

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