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AIRWAY OBSTRUCTION BY A FOREIGN BODY (FBAO)

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Abstract: Choking is the obstruction of the airway by a foreign body (FBAO) causing sudden suffocation, which if not resolved causes severe hypoxia, leads to unconsciousness and can result in cardiorespiratory arrest and death. For many years there have been no scientific developments in the treatment of airway obstruction by a foreign body (EOBC).

Keywords: poisoning, emergency, screening, toxidromes, antidotes

METHODOLOGY

A systematic review was conducted by accessing databases such as Pubmed, Scielo, and the Virtual Library of the Andalusian Health System. Scientific articles in Spanish were included, with a maximum age of 5 years. Subsequently, those associated with poisoning at pediatric age and its management were analyzed.

IMPORTANCE OF THE TOPIC

Foreign body aspiration (FBA) is a common cause of mortality and morbidity in children, especially those under two years of age.

Approximately 80 percent of pediatric BF episodes occur in children under three years of age, with the peak incidence between one and two years of age (Altkorn et al., 2008). At this age, most children can stand and move independently and are able to explore their world through the oral pathway. They also have the fine motor skills to put a small object in their mouth, but do not yet have teeth to chew food properly and may have uncoordinated or immature swallowing mechanisms (Laya et al., 2017). Additional predisposing factors to FBA in this age group include access to inappropriate food or small objects, activity while eating, and older siblings (who may place food or objects in the mouths of infants or young children). Young children are also particularly vulnerable to FBA because of the smaller diameter of their airways, which are prone to obstruction (Committee on Injury, Violence, and Poison Prevention, 2010).

EVIDENCE SUMMARY

In order to summarize the evidence and clarify the strengths, it is necessary to point out that in the new 2015 guidelines of the European Resuscitation Council (ERC) and the International Liaison Committee on Resuscitation (ILCOR), there are no changes in the treatment recommendations, since no new studies have been developed that have analyzed this problem. Back blows, chest blows, and abdominal compressions attempt to increase intrathoracic pressure to expel the foreign body. If one of these manoeuvres is not effective, the others can be tried in a rotating manner until the object is removed or the obstruction is resolved. However, switching between 3 manoeuvres is very difficult to teach, remember and apply in a life-threatening situation. For this reason, the Spanish Group for Pediatric and Neonatal CPR recommends rotating blows to the back and chest in the infant and blows to the back and abdomen in the child in sequences of up to 5, provided that the child has not lost consciousness.

In children, the most important difference from the adult algorithm is that no abdominal compressions should be performed on the infant. Although abdominal compressions can cause injury at any age, the risk is especially high in infants and young children. For this reason, FBAO treatment recommendations for the infant are different from those for the child.

FBAOCOMPREHENSIVE APPROACH

INITIAL HANDLING

A. Diagnosis of suspicion.

Foreign-body airway obstruction (FBO) should be suspected if the onset was very abrupt and there are no other signs of illness; a history of eating or playing with small objects immediately before the onset of symptoms. The rescuer should be alerted to the possibility of an ECMO.

The following findings suggest upper airway obstruction:

- Stridor, wheezing or inspiratory rales
- Suprasternal or supraclavicular retractions
- Prolonged inspiratory phase
- Swelling of the oral mucosa or tongue
- Drooling
- Dysphagia

Monitor the emergence of comfort positions to help maintain airway patency in severely obstructed patients

- Sniffing" position (neck slightly bent and head slightly extended)
- Tripod position (leaning forward while leaning on the arms, with the neck hyperextended and the chin forward)

B. Security and request for help

The principle of "do no harm" must be applied, having always the natural evolution (annex 1). Thus, if the child is capable of breathing and coughing, even with difficulty, he or she should be encouraged to maintain these spontaneous efforts. No intervention should be made at this time because, if the foreign body is mobilized, the situation may worsen and cause a complete obstruction of the airway (López-Herce et al., 2017)

- If the child is coughing effectively, no manoeuvring is necessary. The child should be encouraged to cough and continue to monitor his or her condition.
- If the child's cough is no longer effective, shout for help immediately and assess the child's consciousness.

TREATMENT

A. Conscious child with OVACE.

Initial approach:

- If the child is conscious but not coughing or the cough is not effective, tap on the back.
- If back blows do not resolve the FBAO, give chest compressions in infants and abdominal compressions in children. These manoeuvres create an artificial cough, increasing intrathoracic pressure to displace the foreign body. Abdominal compressions (Heimlich manoeuvre) should not be used on an infant.

After performing chest or abdominal compressions, reassess the child. If the object has not been expelled and/or the FBAO situation persists and the child is still conscious, the sequence of back blows and compressions (chest in the infant and abdominals in the child) should be continued. Call or send someone for help if this has not already been done, without abandoning the child (Lopez-Herce et al., 2017).

If the object is expelled and/or the FBAO situation is resolved, the child should be reassessed. It is possible that part of the object may remain in the airway and cause complications. If there is any doubt, assistance should be sought. Abdominal compressions can cause internal injuries and

therefore all children who have been treated with abdominal compressions should be examined by a physician.

b. Unconscious child with OVACE.

If the child with FBAO is unconscious, it should be placed on a hard flat surface. Call or send someone to call for help if this has not already been done, but do not abandon the child. The following steps should be taken (Maconochie et al., 2015) (Fernandez Lozano et al., 2016)

- Open the airway. Open your mouth and look for an object. If it is seen, try to remove it with a finger sweep. Do not try to insert your finger blindly or make repeated attempts, because you can push the object deeper into the pharynx and cause damage.
- Rescue breaths. Open the airway using the chin-front manoeuvre and give 5 rescue breaths. Check the effectiveness of each ventilation. If a vent fails to expand the chest, reposition the head before giving the next vent.
- Chest compressions and CPR: Give 5 rescue breaths, and if there are no vital signs (movements, coughing, spontaneous breathing) start chest compressions without further assessment of circulation. Follow the single-rescuer CPR sequence for 1 minute or 5 cycles of 15 compressions and 2 ventilations before stopping to call the emergency services (if no one has already done so)

When the airway is open for rescue ventilation, look for any foreign body in the mouth. If an object is seen and accessible, try to remove it with a finger sweep (Manrique J, Sebastian, 2016).

If the obstruction appears to have cleared, reopen the airway and give rescue breaths if the child is not breathing.

If the child regains consciousness and has adequate spontaneous breathing, place the child in a safe lateral position and check breathing and consciousness while waiting for the arrival of the emergency services (Fernandez Lozano et al., 2016).

A summary of the general approach algorithm is presented in Annex 2.

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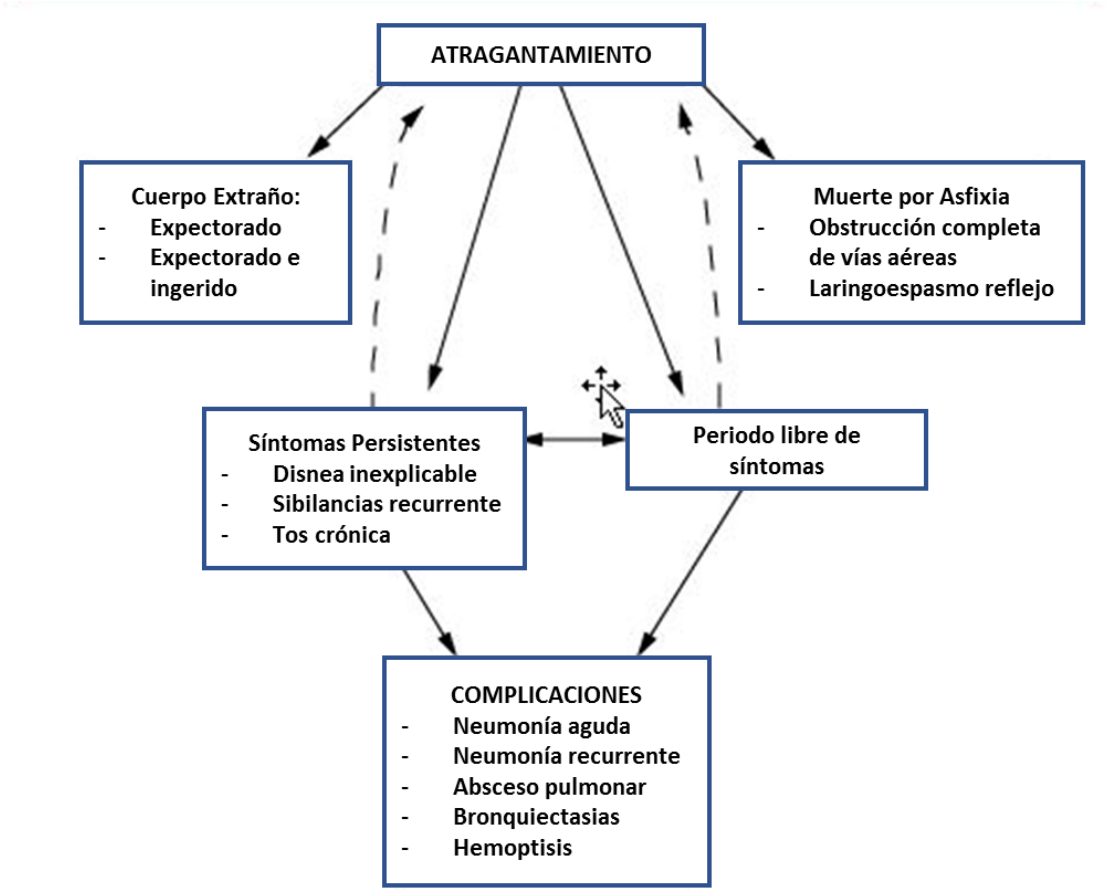
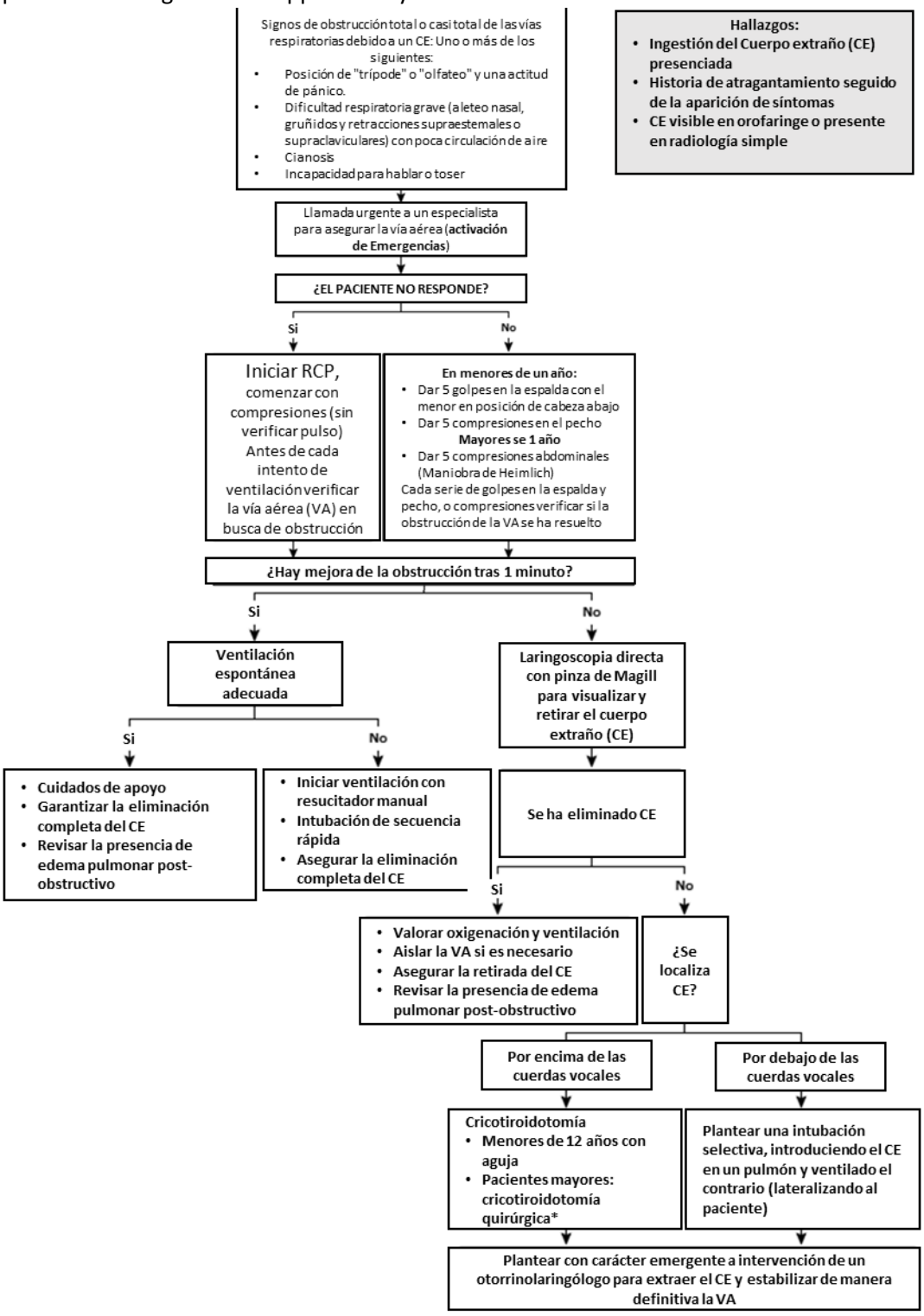
Annexes

Appendix 1. Natural evolution of the aspiration of a foreign body



Mechanical airway obstruction: Choking, strangulation, and suffocation. In: Injur y Prevention and Control for Children and Youth. American Academy of Pediatri cs, Elk Grove Village, IL 1997. p.285.

Appendix 2. Management of upper airway obstruction due to EC in children



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