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Button Batteries Ingestion in Children

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Abstract **Original Research Article**

The ingestion of button batteries in children is an absolute emergency due to the potential complications related to various factors, including the charge of the battery and the time contact. It seems to be more frequent in recent years due to the multiplication of electronic objects. It is therefore necessary to sensitize the public in order to limit the risk of ingestion and to insist on urgent care to limit severe complications.

Keywords: Button batteries ingestion, children, Morocco.

INTRODUCTION

The ingestion of foreign bodies remains a frequent reason for emergency room visits. Among these foreign bodies, button batteries require particular attention, given the potentially serious and sometimes fatal complications they can cause.

MATERIAL AND METHODS

We report 2 cases of button battery ingestion in a girl and a boy hospitalized at the surgical emergencies department, Rabat children's hospital between January 2022 and August 2023.

Case N°1

No clinical signs on admission. The patient underwent a thoraco-abdominal X-ray to objectify the foreign body (Figure 1) which seems to be located on his stomach.

An oesogastroduodenal fibroscopy was performed to extract the button battery revealed the foreign body at the duodenum.

Unfortunately, the button battery moved into the jejunum, enabling the extraction.

Figure 1: Xray

The patient received high-dose laxative treatment and was kept at the hospital for 2 days, the evacuation of the button battery occurred the day after ingestion, without any complications (Figure 2).

Figure 2: The button battery evacuated in the stool the A one-month follow-up of the child detected no complication

Case N°2

A 3-year-old boy with a history of oesophageal atresia operated at birth and hiatal hernia operated at the age of 18 months.

The child was admitted to the children's hospital in Rabat on 23/08/2023 for ingestion of a button battery, where he underwent a thoracic X-ray showing a foreign body (Figure 3).

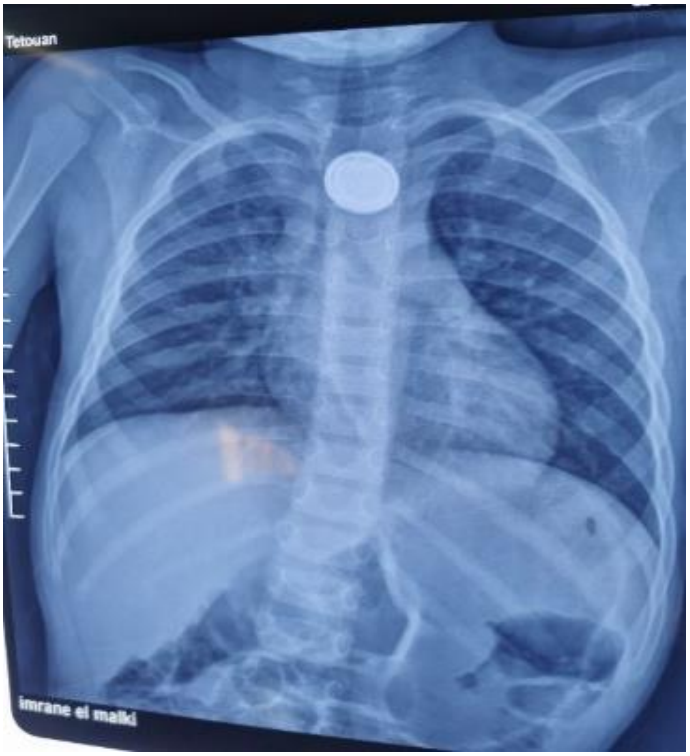

Figure 3: Thoracic X-Ray Showing the the button battery at the upper part of the oesophagus

An oesogastroduodenal fibroscopy enabled the extraction of the button battery and revealed a necrotic lesions in the oesophageal wall which was extracted with difficulty (Figure 4).

Figure 4: The OGDF aspect with a necrotic lesion and the button battery extracted

The patient remained under intra-hospital surveillance for 5 days and was allowed to take fluids at the 6th day without any complicatons.

DISCUSSION

Ingestion of button batteries can lead to severe complications through various injury mechanisms [1], such as: Esophageal entrapment, mucosal ulceration and necrosis, esophageal-aortic or esophageal-tracheal fistulas and mediastinitis [2].

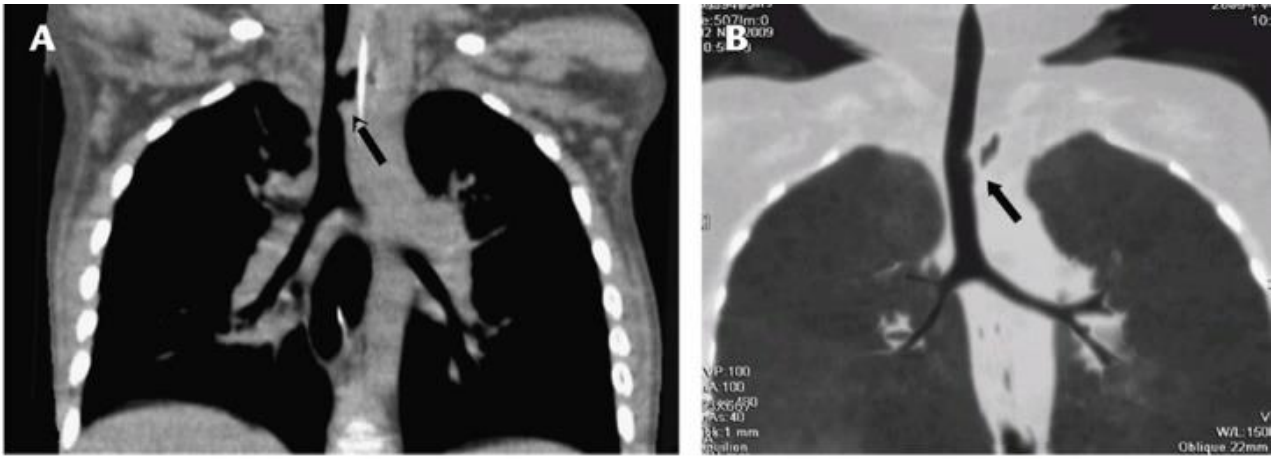

Figure 5: Computed tomographic esophagography of an 11-month-old girl with tracheoesophageal fistula (arrow). A) An opening between the esophagus and the trachea at 1 week after battery ingestion. B) The fistula was closed (arrow) at follow-up 4 months later

The time of appearance of the lesions is very variable depending on the characteristics of the button battery. Damage to the esophageal mucosa can be observed from the first hour of ingestion and perforation of the esophagus can occur from the 4th to the 6th hour after ingestion. [3, 4] Once the lesions have formed, they evolve despite the removal of the button battery and effective rinsing, due to the residual alkali from alkaline metals such as lithium [5].

The anamnesis makes it possible to specify the circumstances of the ingestion of the foreign body as well as the symptoms making this ingestion suspect, in particular when it initially goes unnoticed.

The clinical examination looks for respiratory signs (penetration syndrome) related to the inhalation of the button battery. The penetration syndrome consists of a sudden attack of suffocation with inspiratory dyspnea and a hacking cough.

The clinical examination also looks for an esophageal syndrome which manifests by dysphagia, food refusal, vomiting and hyper sialorrhea.

When there is a suspicion of Button batteries ingestion, an initial assessment is systematically performed. Thoraco-abdominal radiography is carried out in the first instance, highlighting the button battery in

the form of a double-density halo due to the bi-laminar structure.

This aspect is more visible on the lateral view. This examination also makes it possible to locate the foreign body by its position opposite the vertebrae, thus guiding the subsequent management.

After confirmation of the foreign body ingestion, fibroscopy is carried out in order to extract it and limit the damage caused.

If the button battery exceeds the pylorus, clinical and radiological monitoring is established to follow its progression until elimination.

CONCLUSION

The ingestion of button batteries in children is an absolute emergency due to the seriousness of potential complications related to various factors including the charge of the battery and the contact time. The prevention of this potentially dramatic incident must involve raising families' awareness.

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