

Çocuklarda Kaza ile Alkalin PİL Alımı

ACCIDENTAL INGESTION OF ALKALINE BATTERY IN CHILDREN

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Özet

Özefagus yabancı cisimi olarak görülen alkalin piller konsantre potasyum hidroksitin salınımı nedeniyle koroziv etkide bulunarak tehlikeli olurlar. Bu tip cisimler özefagus perforasyonu ve mediastinitis yol açabilirler. Özefagusta bulunan pillerin mümkün olduğu kadar çabuk endoskopik olarak çıkarılmaları gerekir. Üç yaşındaki çocukta gördüğümüz alkalin pil alımını ve bu tip yabancı cisimle ilgili literatürde verilen bilgileri sunuyoruz. Bu tip pillerin yaygın kullanımı nedeniyle doktorların ve toplumun zararlı etkileri ve tedavi özellikleri hakkında daha fazla bilgi sahibi olması gerekir.

Anahtar kelimeler: Alkalin pil, özefagus, yabancı cisim

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Summary

Alkaline batteries found in esophagus as foreign bodies are dangerous because they may have a corrosive action due to release of concentrated potassium hydroxide and can produce perforation and mediastinitis. Batteries found in the esophagus should be removed endoscopically as quickly as possible. We reported a case of accidental battery ingestion by a three-year old boy and reviewed the literatures, discussed the special aspects of this foreign body. Due to the common use of these batteries, physicians and the general public should be more aware of these types of foreign bodies and the peculiarities in their management.

Keywords: Alkaline battery, esophagus, foreign body

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Introduction

Alkaline batteries represent a distinct type of pediatric foreign body because of their potential for severe morbidity and mortality. In childhood, ingestion of a foreign body is commonly encountered by clinicians. The propensity of children to put whatever comes into their grasp into their mouths is well known. The esophagus is a vulnerable site for retention of swallowed materials because of weak peristalsis and multiple narrow points. Ingestion of disc batteries has been seen with increasing frequency over the past decade [1-3]. We presented a case of esophageal mucosa damage due to alkaline battery ingestion, which treated endoscopically.

Case

A-3-year old boy presented with the symptoms of dysphagia to our clinic. The parents were the suspicions of foreign body aspiration about 8 hours before admission. The boy was irritable but physical examination revealed no abnormality. Posteroanterior chest X-ray revealed an opaque lesion with well-defined borders located at the mediastinum supradiaphragmatically. There was a second internal radiolucency at the central portion of the opaque lesion (Figure 1-2). Routine blood laboratory examinations were within the normal limits. Esophagoscopy was performed under general

anesthesia to extract the foreign body. Disc shaped battery, mucosal damage and necrosis due to battery irritation were seen at the inferior portion of the esophagus. After the extraction of foreign body, a nasogastric tube was inserted. Oral nutrition was stopped due to possibility of perforation. The nasogastric tube was removed on the 3rd day, and liquid nutrition is started. The patient discharged on the 7th day. Uneventfully esophagogram, which obtained one month later showed a normal esophagus. There were no complications in follow-up 7 months.

Discussion

The activities of children to recognize surrounding world sometimes cause unavoidable ingestion of some foreign bodies. Careless adults also have an important role on the ingestion of foreign bodies in esophagus. The most important mistake in that situation is permitting the child to play with a object that can be swallowed. To feeding quickly, permitting the child to play with his or her toys during feeding could cause swallowing of the meals without chewing. Children can give these foreign bodies to their little brother or sister intentionally when the care of parent is inadequate. Children constitute 80% of the patients who need medical care and follow-up in foreign body ingestion. It is mostly encountered during the period of 6 months, 3 years of age. In the report of American Association

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Figure 1. An opaque lesion with well-defined borders located at the mediastinum supradiaphragmatically.

of Poison Center in 1999, a totally 182.105 foreign body ingestion was reported under the age of 20. The precise incidence of ingestion of a foreign body is unknown because most cases have a benign clinical course. They generally resolve without the need for medical care and are thus unreported.

The shape and chemical properties of the foreign bodies are very important in the planning of medical therapy. In the treatment of esophageal foreign bodies, the spontaneous passage of the foreign body is waited. Foreign bodies should be extracted endoscopically or pushed to distal side of the passage especially if the foreign bodies are big in size. Open surgery is extremely rare in foreign bodies, which constitutes approximately 1% of the cases.

When the foreign body attaches to esophageal wall, substernal pain, drooling and dysphagia develop. Alkaline batteries and other chemicals become symptomatic both by preventing the passage and by corrosive effects to the mucosa when they attach to esophageal wall. Mucosal erosion can cause perforation [2]. Tracheoesophageal fistula was reported in some cases [4]. In our case endoscopic examination revealed mucosal necrosis, and this treated conservatively.

Disc batteries are being used with increasing frequency in a variety of devices including toys, watches and calculators. Heavy metals and alkaline electrolytes are found in most of those batteries. The damage in those types of foreign bodies occurs in following 4 mechanisms: 1) electrolyte leakage from batteries, 2) alkaline produced from external currents, 3)

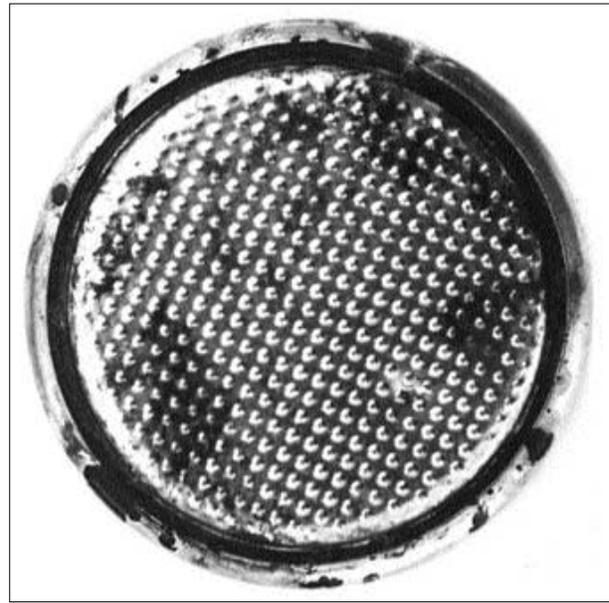


Figure 2. Endoscopically removed alkaline battery.

mercury toxicity, and 4) pressure necrosis. The early diagnosis is essential to prevent the adverse effects. Foreign body should be extracted as soon as possible after diagnosis. [2,5]. In the experimental studies, it was detected that mucosal damage can be begun immediately after 1 hour of foreign body ingestion and include all of the muscular layers approximately in the 4 hours [4]. The foreign bodies that passed to distal side of the passage or were pushed endoscopically can cause metal poisoning [3]. In our case we withdrew the battery endoscopically so metal poisoning did not develop.

In conclusion ingestion of a foreign body is a well-known clinical problem and most of them are treated without any problem. Surgical procedures have priorities in the treatment of alkaline foreign bodies. Urgent treatment is essential when taking into consideration the potential hazards of those kinds of materials.

References

1. Craig RM, Vanagunas AD. Foreign bodies in the esophagus. In: Shields TW, ed. General Thoracic Surgery. Philadelphia: Lippincott Williams and Wilkins, 2000:1763-7.
2. Kost KM, Shapiro RS. Button battery ingestion: A case report and review of the literature. J Otolaryngol 1987;16:252-7.
3. Mant TG, Lewis JL, Mattoo TK, et al. Mercury poisoning after disc-battery ingestion. Hum Toxicol 1987;6:179-81.
4. Maves MD, Carithers JS, Birck HG. Esophageal burns secondary to disc battery ingestion. Ann Otol Rhinol Laryngol 1984;93:364-9.
5. Chen MK, Beierle EA. Gastrointestinal foreign bodies. Pediatric Annals 2001;43:462-5.