

Invisible Ingested Foreign Body; Aluminium Can Top

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Introduction

We report a patient who ingested a ring pull from a coke can in which could not be seen on radiography. We also want to emphasize the ability of this tool in detecting thin metallic and aluminium objects that are invisible on standard radiograms. Saz et al. found the sensitivity, specificity, positive and negative predictive values (PPV, NPV) of handheld metal detectors to be 88.6%, 100%, 100% and 55.5% respectively (95% confidence intervals) in patients who ingested a metallic foreign body [1].

Case Report

A 12 year-old boy presented to our emergency department with odynophagia after ingested a ring pull from a coke can. He was not taking any medications. On physical examination there was no focal tenderness or evidence of drooling. Radiographs (anteroposterior and lateral) of the neck, chest, and abdomen were obtained and considered normal (Figure 1). The patient was scanned by metal detector and visual signal in addition to audible alarm was detected at the sternal notch. Endoscopic removal of the pull from the middle portion of esophagus was performed uneventfully and the patient was discharged (Figures 2 and 3).

Discussion

Although taps of aluminium beverage cans are unusual foreign bodies, they have been reported in both pediatric and adult population [2,3]. Esophageal impaction may be suspected clinically from difficulty in swallowing and retrosternal discomfort [4]. Management of this clinical condition should include inspection of the oropharynx and radiography of the neck and chest if the foreign body is thought to be radio-opaque. Aluminium has a low radiodensity, but this fact is not widely well known. A case report by Bartalena et al. demonstrated that radiographs of the neck, chest, and abdomen were not adequate to exclude esophageal impaction of an aluminium foreign body [5]. The minimal thickness of steel detectable *in vivo* is 0-12 mm, and



Figure 1: Radiographs were negative for MFB.



Figure 2: Endoscopic visualisation of MFB.

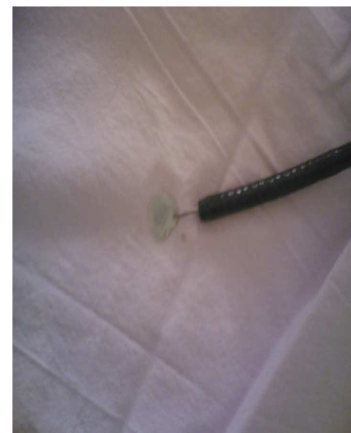


Figure 3: Removed MFB.

aluminium is 10 times less radio-opaque. The average thickness of an aluminium pop is 0.35 mm. Aluminium foreign bodies may be easily missed on plain radiographs. If symptoms persist but no foreign body has been identified the metal detector should be used as a preliminary

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Received March 12, 2013; Accepted April 19, 2013; Published April 22, 2013

Citation: Eylem Ulas SAZ (2013) Invisible Ingested Foreign Body; Aluminium Can Top. Emergency Med 3: 137. doi:10.4172/2165-7548.1000137

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scan before endoscopic intervention. Our previous report showed that metal detector can be used safely and reliably in children suspected of having ingested metallic foreign bodies [1]. Since the metal detector has several advantages (easy to use, inexpensive and radiation-free) it should be the first screening test for children who ingested a MFB. Moreover, the radio-opaque ingested MFB can be detected by radiological imaging and are therefore easy task for the emergency medicine physician. Contrary aluminium has lower opacity than other metals and physicians must accordingly be aware that this can result in missed aluminium foreign bodies on radiograms [4,5].

Physicians must be aware of the low radio density of aluminium because superficial assessment of radiographs may result in missed aluminium foreign bodies. In this case metal detector screening should be a mandatory part of the investigation.

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