

Foreign Body Ingestions Quiz Answers

1/04

1. Asymptomatic esophageal coins have been reported by several researchers (including me, see Conners GP, Chamberlain JM, Ochsenschlager DW. Symptoms and spontaneous passage of esophageal coins. *Archives of Pediatrics & Adolescent Medicine* 1995;149:36-39), making response A incorrect. Even well supervised children swallow foreign bodies; if B were correct, foreign body ingestions alone would overwhelm the child protection system. Repeated foreign body ingestions or other evidence of neglect might, however, prompt a child protection referral. Since 1982, U.S. pennies have been 97.5% zinc; they show up readily on radiographs. Pennies can lodge high in the esophagus or even in the pharynx, making it important to include those areas when attempting to rule-out esophageal coin impaction, so the correct answer is C.
2. Nearly all children with coins in the lower GI tract pass them in the stool without complication. Exceptions include children who have had abdominal surgery and those with unusual intestinal anatomy, such as, for example, a Meckel's diverticulum. Thus, it makes sense to tell the parent that the penny will likely pass, but to make sure they are aware that abdominal pain, fevers, hematochezia, and the like may represent a complication and should prompt a call or ED visit. Serial radiographs on otherwise normal children are unnecessary, since they will likely not prompt any intervention, even if the coin is present for several weeks or longer, in the absence of signs or symptoms. Stool inspection is unreliable (and messy); I usually reserve it for parents who feel they must be "in control," but even then I try to help them understand that there is no time limit after which, if they do not find the coin, action must be taken. The correct answer is B.
3. Zinc reacts with HCl, leading to heat and breaking down the zinc. This has led to a few reports of zinc pennies being associated with gastric mucosal irritation (see SM O'Hara et al. Gastric retention of zinc-based pennies: radiographic appearance and hazards. *Radiology* 1999;213:113-117; the abstract version of this paper was presented at a national meeting and reported on in *Time Magazine* in December 14, 1998, in a brief story entitled "Bad news on pennies."). Although pennies that have spent considerable time in the stomach often have a pitted or partly dissolved appearance, association with important clinical findings is clearly an unusual occurrence. This penny has not spent much time at all in the stomach, and so is not at risk of acid-associated mucosal irritation. A and C are clearly unnecessary. While D is always funny, B seems like a better answer here.
4. When adults get meat impacted in the lower esophagus, glucagon, nifedipine, and benzodiazepines are often successful alternatives to endoscopic removal. They rarely work, however, in children (see, for example: Mehta DI, Attia MW, Quintana EC, Cronan KM. Glucagon use for esophageal coin dislodgment in children: a prospective, double-blind, placebo-controlled trial. *Academic Emergency Medicine* 2001;8:200-203) and especially do not work for proximal esophageal foreign bodies. D is clearly the best answer; your institution may prefer surgical or gastroenterology consultation.
5. Button batteries rarely leak their heavy metal contents, especially after acute ingestion, making C a non-priority. They do, however, lead to extensive damage to moist tissues in which they are in constant contact, such as when they are lodged in the esophagus, a nose, or an ear. This happens fairly rapidly. The battery should be urgently removed from the esophagus, with psychiatric evaluation a lower priority. Endoscopy is clearly the method of choice, since it allows for battery removal and inspection of the mucosa for damage (see Sheikh A: Button battery ingestions in children. *Pediatric Emergency Care* 1993;9:224-9). Foley catheter removal is appropriate for removal of fairly large, inert objects, such as coins, from the esophagus, but not button batteries. The best answer is B.

6. Aluminum, unlike most swallowed metallic foreign bodies we encounter, is poorly radiopaque. Small aluminum objects do not always show up on radiographs. Although swallowed objects may lead to persistent symptoms from esophageal abrasions, we cannot rule out a small aluminum esophageal foreign body here. Although a CT scan might show it, using a hand-held metal detector is a simple way to find aluminum foreign bodies, since they generate a strong signal (see Connors GP. Finding aluminum foreign bodies. *Pediatrics in Review* 2000;21:172). Prior training in use of the metal detector is helpful (see, for example, Seikel K, Primm PA, Elizondo BJ, et al. Handheld metal detector localization of ingested metallic foreign bodies: accurate in any hands? *Archives of Pediatrics and Adolescent Medicine* 1999; 153:853-7); for example, metal should be removed from the child and the nearby area. Administering syrup of ipecac to a child who has swallowed a foreign body is generally a bad idea, as it may lead to aspiration, making the child worse. The best answer is A.

7. It is not unusual for an esophageal foreign body, such as a coin, that is initially missed, to remain lodged in the esophagus for a very long time before it is discovered either incidentally or as part of a clinical workup of fever, cough, weight loss, etc. It is important to remember, however, that foreign bodies sometimes migrate. Migration of a coin from the esophagus to the aorta has been reported as a cause of an acquired aorto-esophageal fistula, a potentially deadly complication (see: Dahiya M, Denton JS. Esophagoaortic perforation by foreign body (coin) causing sudden death in a 3-year-old child. *American Journal of Forensic Medicine and Pathology* 1999;20:184-188). The natural history of such a fistula often includes a single large hemorrhage, known sometimes as a “sentinel bleed,” followed a few hours later by exsanguination. This might be the case with this child, and recognition of this entity and appropriate response could be life saving. Nickel allergy can cause a generalized rash, but not isolated hematemesis. D is the best answer.