

RADIOLOGY ROUNDS

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Department Editor

An infant who swallowed a coin

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A mother brought her 1-year-old daughter to our emergency department and reported that the child had swallowed a coin. She had vomited once without recovery of the coin. The mother said the baby had not been coughing or wheezing and had no respiratory distress, but she refused to eat.

She had been taken first to a local community hospital where a chest radiograph displayed a foreign body at the level of the fifth cervical vertebra. The infant was referred to our university medical center where she was admitted, still in no respiratory distress and with an unremarkable chest examination.

An anteroposterior radiograph (Figure 1) and a lateral radiograph of the neck (Figure 2, page 23) revealed a coin at the lower cervical level of the esophagus. A chest radiograph (not shown) and an anteroposterior radiograph of the abdomen (Figure 3, page 23) demonstrated that the coin had moved into the stomach.

Before radiography, the differential diagnosis included a foreign body in the esophagus and a foreign body in the airway. After the radiographic studies, laryngoscopy and esophagoscopy performed under anesthesia in the operating room confirmed the first diagnosis and eliminated the second.

Discussion

A leading cause of emergency admissions for infants and children is foreign body aspiration or swallowing. The foreign body may lodge in the three sites where the esophagus narrows: below the cricopharyngeal muscle at the arch of the aorta, at the hiatus of the diaphragm, and at the cardia. Congenital and developmental strictures may also be responsible for trapping foreign bodies.

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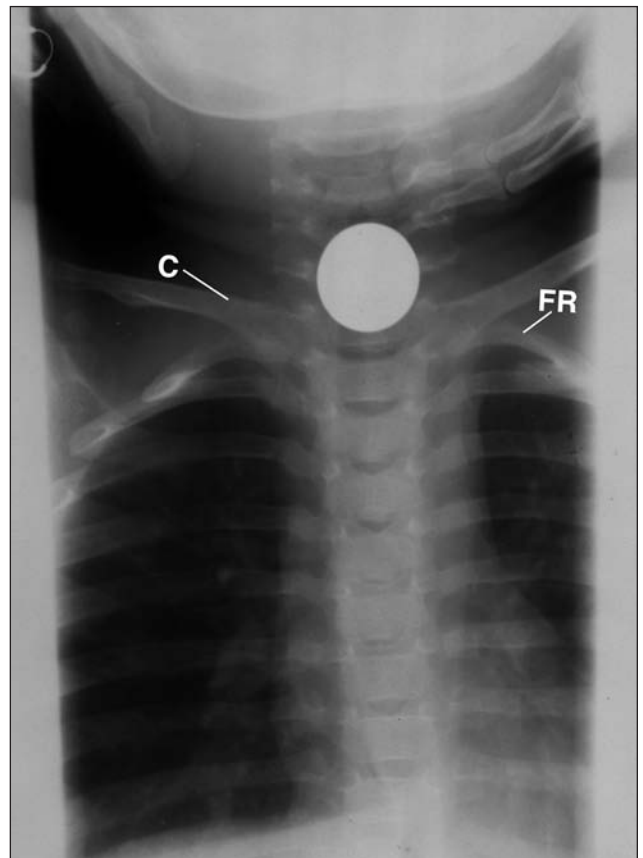


Figure 1 This anteroposterior cone-down image of the chest displays the metal coin in the coronal plane over the midregion of the lower neck at the thoracic inlet. C = clavicle, FR = left first rib of the thoracic spine.

The initial symptoms may include gagging, choking, and coughing. If the object is left in place, localized pain can develop at the thyroid cartilage along with drooling and difficulty swallowing. If the object becomes fixed, edema develops, and infection with perforation may follow.

A parent may see the child swallow the object and make the initial diagnosis. If the object appears dis-

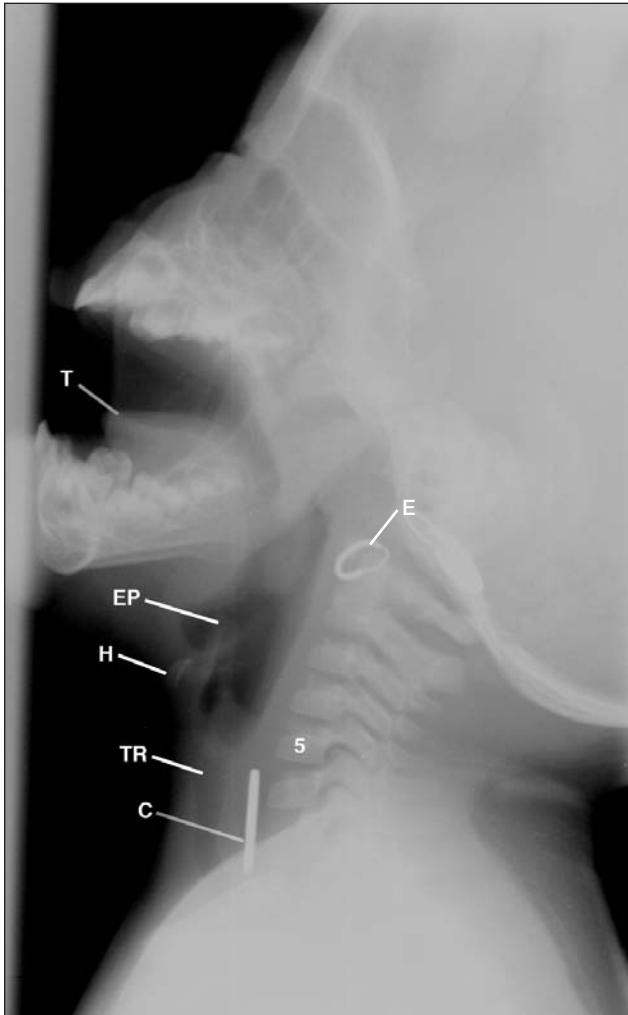


Figure 2 In this left lateral view of the neck, the metal coin lies in the sagittal plane over the region of the esophagus anterior to the lower cervical spine. No significant edema is demonstrated. C = coin, E = earring, EP = epiglottis, H = hyoid bone, T = tongue, TR = trachea, 5 = 5th cervical vertebra.

coin on a radiograph as it did in this patient, it will occupy the coronal plane and can be easily distinguished from an object in the trachea. Fluoroscopic examination of the neck, chest, and abdomen may locate the object documented by radiographic imaging as in this case.

A foreign body in the esophagus requires immediate attention. Esophagoscopy can be performed to locate and remove the object without complication. Foreign bodies in the alimentary tract distal to the



Figure 3 This anteroposterior radiograph of the abdomen displays the metal coin over the region of the atrium of the stomach. DP = diaper pin, S = stomach.

esophagus will usually pass unless they have an unusual shape or are sharp or larger than 3.5 cm (the limiting size for passage beyond the ligament of Treitz). Surgical removal may be required. The rule is radiologic evidence of a stationary foreign body beyond the pylorus for 5 days or symptoms of obstruction. In this case, the metal object was passed through the alimentary tract without further complications.

Take-home message

When an infant or child swallows an object and it is not immediately recovered, parents should seek immediate medical attention. Documentation by permanent radiographs should be mandatory before any invasive studies are requested. Oral contrast studies may be necessary to identify the object. Food and liquid intake should be withheld until the child is medically released to avoid aspiration. ■