

Esophageal Foreign Body: A Case Presentation

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A case report is presented of a 10-month-old child with a 1-month history of respiratory symptoms, followed by 3 to 4 days of fever, progressing to poor feeding, vomiting, and weight loss. The child is cared for by his mentally disabled young parents. A chest radiograph revealed a metallic foreign body obstructing the proximal esophagus. Esophagoscopy and removal of a penny resulted in immediate resolution of the acute gastrointestinal symptoms; the respiratory symptoms resolved

shortly thereafter. Diagnostic and therapeutic considerations in the management of pediatric aerodigestive foreign bodies are discussed. High-risk parenting, such as in this case, is a risk factor for pediatric foreign-body ingestion.

Key words. Foreign bodies; esophagus; child of impaired parents.
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A history of foreign body ingestion or aspiration by a child usually prompts immediate evaluation and removal of the object if necessary. In some situations, however, there is no known history of foreign body ingestion or aspiration, and these children may be initially asymptomatic. Alternatively, they may present to their physician with symptoms suggestive of common pediatric ailments, making the diagnosis of retained foreign body more problematic. A high index of suspicion is needed to make appropriate decisions in caring for such children. This case presentation highlights a child living in a high-risk social situation. He had common acute symptoms that could be logically accounted for by an upper respiratory tract infection, otitis media, and secondary dehydration. Further evaluation revealed an obstructing esophageal foreign body.

Case Report

A 10-month-old male infant was brought to clinic by his mentally disabled parents. The child presented with a 1-month history of intermittent nasal congestion and

cough. During the 3 to 4 days before presentation, he had developed a subjective low-grade fever and vomiting of solid foods, which progressed to vomiting of all oral intake.

The patient's past medical history included an uneventful term vaginal delivery after a normal prenatal course. His family history was significant in that both parents were mentally retarded and his mother had a seizure disorder. They cared for their son at home under close observation and with assistance by social services and home health personnel. The child had sustained a right femur fracture at 4 months of age, when dropped by his mother during one of her seizures. The fracture had shown normal healing after casting, and the child had no known subsequent physical disability. Immunizations were up to date. He was taking no regular medications. Developmental milestones were normal. He had had several bouts of acute otitis media, but there was no prior history of chronic respiratory disease or feeding dysfunction.

A physical examination revealed a temperature of 101.2°F, pulse of 148 beats per minute, and respirations of 32 per minute. Weight of 17 lb 3 oz was 1 oz less than his weight 1 month previously. Upon presentation, the infant was drooling and irritable but alert. The fontanelle was soft and somewhat sunken. Purulent rhinorrhea and bilateral otitis media were present. The neck was supple

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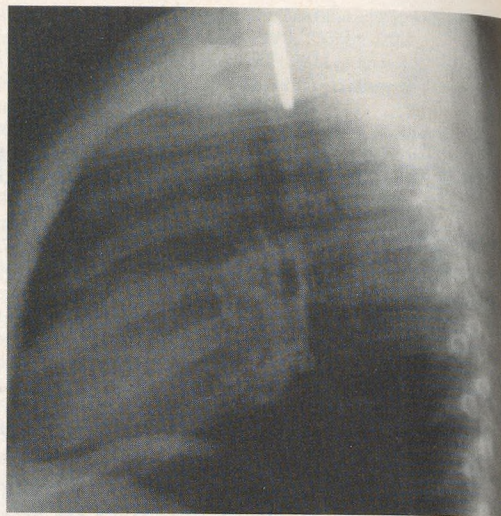
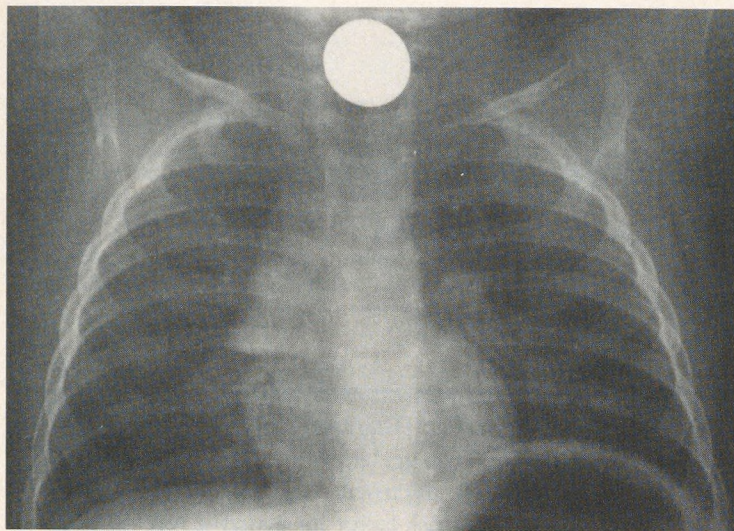


Figure *Left*: Chest radiograph revealing a coin lodged in the esophagus of a 10-month old infant. *Right*: Lateral radiographic view of coin lodged in the esophagus of the same patient.

without palpable masses or adenopathy. No heart murmurs were present. The lungs were found to have diffuse coarse rhonchi but no rales, and he was moving air well bilaterally. The abdomen was soft and scaphoid without tenderness, organomegaly, or masses. Findings from the rest of the physical examination were within normal limits.

The poor social situation and mental retardation of the parents were felt to be of major significance in the patient's poor health status. The patient was admitted with the diagnoses of acute otitis media and purulent rhinitis with secondary dehydration and weight loss.

Unexpectedly, the admission chest radiograph revealed a rounded metallic foreign body, consistent with a coin, lodged in the proximal esophagus (Figure). The parents were unaware of any particular time of possible ingestion, but it was speculated that the coin had probably been ingested at least 3 to 4 days previously, correlating with the child's course of worsening symptoms. Admission laboratory studies were significant for a white blood cell count of $15,300/\mu\text{L}$ and hemoglobin of 11.7 g/dL . Results of blood chemistries and liver function tests were within normal limits.

Surgical consultation was obtained, and the infant was taken to the operating room, where rigid esophagoscopy revealed a penny entirely obstructing the esophagus. The coin was removed without difficulty. No significant esophageal disease or injury was noted. After the coin was removed, the child's vomiting and dehydration completely resolved. Appetite and oral intake rapidly improved, and he began to gain weight in the hospital. His respiratory symptoms normalized, and the purulent rhinorrhea and tympanic membrane inflammation improved

on oral antibiotic therapy. He was discharged after 3 days of hospitalization, with continued close medical and social services follow-up as an outpatient.

Discussion

Common presenting symptoms in children with esophageal foreign bodies may include vomiting, choking, neck pain, dysphagia, refusal to take foods, drooling, coughing, or stridor. Coins are the most frequently ingested foreign bodies in children and are most likely to become lodged at the level of C6 or the cricopharyngeal muscle.¹ Such children are usually symptomatic, but between 5%² and 30%³ of children with coins in the esophagus have been found to be asymptomatic at presentation in the emergency department. Even asymptomatic coin ingestions have resulted in esophageal perforation.⁴

Binder and Anderson⁵ noted a strong correlation between foreign-body ingestion and high-risk social situations, such as poor maternal care or child abuse. Mental or developmental retardation or hyperactivity in the child was also related to higher risk for foreign body ingestion. As many as 30% of children in this study had a medical history with at least one of these types of risk factors.

The patient in our reference case had a relatively acute presentation, and his radiopaque esophageal foreign body was diagnosed rather easily after minimal evaluation. It has been reported, however, that 27% of gastrointestinal⁵ and 34% of aspirated foreign bodies¹ were not detectable by routine plain radiograph on initial presentation within 24 hours of the occurrence. Twenty per-

cent of cases of inhaled foreign bodies may involve a negative history as well as negative plain radiographs.¹ Delay in diagnosis and treatment of retained esophageal foreign bodies may result in long-term late complications, such as tracheoesophageal fistulas, mediastinal inflammation, or failure to thrive.⁶

An appropriate course of action in dealing with suspected foreign body ingestion in children is as follows. If the ingested object is readily visible on plain radiography and the child is symptomatic, endoscopic removal is indicated. Ideally, this should be done within 24 hours.¹ A child with a positive history of foreign body ingestion, however, particularly of objects such as glass, bone fragments, aluminum, wood, plastic, or other radiolucent material, may have negative plain radiographs. In such case, the physician can proceed with further evaluation using thin barium to attempt to locate the object before endoscopy.⁷ Foreign body ingestion or aspiration, or both, should be suspected in any child (1) who has unexplained respiratory or upper GI symptoms, (2) in whom symptoms persist or recur despite appropriate therapy, or (3) who is living in a high-risk social situation with poor maternal care or who personally has mental or developmental retardation. In such cases, the diagnosis should be established following the course of action described above, and direct therapy should be instituted. Removal of esophageal foreign bodies can often be accomplished with flexible endoscopy without general anesthesia.⁸

Esophageal obstruction by a foreign body is not rare, may initially be asymptomatic, can be difficult to diagnose, can result in significant short- and long-term morbidity, and has great potential for prompt resolution once diagnosed and appropriately treated.

It is important to recognize the correlation between increased risk of esophageal foreign body and poor maternal care and social developmental status of the child.⁵ No studies could be found that address the effect of parental mental retardation, as exists in our reference case, with any increase in pediatric foreign body ingestion or aspiration. Perhaps this is an area for future research.

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