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## **Esophageal Foreign Bodies, Injury, and Trauma**

*Patient and family information, brought to you by the Education Committee of APSA*

### **Overview - “What is it?”**

Esophageal problems can happen when children swallow small objects that can be stuck in the esophagus. These include coins, pins, or toys. Sometimes, a disc battery can be swallowed. Disc batteries are VERY DANGEROUS!!! They release acid and have electricity and can cause a hole in the esophagus in a very short period of time.

Esophageal problems can also be caused by swallowing of household chemicals that cause burn damage to the esophagus. The most commonly swallowed products include cleaning products with bleach, dishwasher soap, laundry detergents, oven cleaners, toilet bowl cleaners and swimming pool products. Cosmetic products such as hair relaxer can also cause esophageal burns. The severity of injury varies with the concentration and the length of time the agent remains in contact with the mucosa. Severe exposure can lead to chronic narrowing of the esophagus or even a hole in the esophagus.

In adolescents who have meat stuck in their esophagus, the diagnosis of eosinophilic esophagitis should be ruled out.

In 2014, 2.1 million caustic ingestions occurred in the US. 48% occurred in children younger than five years of age. In the younger age group, most swallowing incidents are accidental. The most commonly swallowed products in children five years or younger are personal care products, household cleaners, pain medications and toys. In the adolescent age group, these incidents may be part of a suicide attempt.

### **Signs and Symptoms - “What symptoms will my child have?”**

**Early signs:** If the event of swallowing an object or chemical is witnessed, then intervention for removal and evaluation of possible damage to the esophagus can happen quickly.

- Objects stuck in the esophagus may block the esophagus. The child may not be able to swallow food, water or even saliva. There may be neck or chest pain upon swallowing.

The child may make gagging, choking or coughing sounds. There may be discomfort in the neck or chest.

- Ingestion (swallowing) of dangerous products can cause damage to the esophagus. Because these products cause burns of the skin, tongue and mouth, burns can be seen in these areas. In addition, the substances can also damage the breathing organs such as the windpipe and lungs. The child may make gagging, choking and coughing sounds. Wheezing may also be present.
- Severe vomiting or retching can present with chest pain or blood in the vomit depending on the extent and depth of injury.

**Later signs/symptoms:** A foreign body may present later as:

- Chest pain or fever
- Blood in the saliva or phlegm
- Ingestion of dangerous substances may have swelling of the lips and mouth. The child may develop problems swallowing if the esophagus scars.
- If there is a hole in the esophagus, the child can be very sick with a severe life-threatening infection. This will be with very high fevers and chills.

## Diagnosis - “What tests are done to find out what my child has?”

### Labs and Tests:

- Chest x-ray is usually the first test done. If there is a coin or other material stuck in the esophagus, it may show the location (**Figure 1**). In addition, if there is fluid in the right or left chest cavity, there may be a hole in the esophagus which is a surgical emergency.



**Figure 1:** X-ray below shows a coin stuck in the esophagus.

*Image credit: pedsurglibrary.com*

- An **esophagram** is a test where the patient is made to drink barium, and X-rays are taken during the swallowing process. This may show where something is stuck or whether there is a hole in the esophagus.
- If the child had fevers or has been vomiting for a while, bloodwork may be needed.

**Conditions that mimic this condition:**

- Gastroesophageal reflux/Esophagitis—when food and acid in the stomach backwash into the esophagus and cause heartburn and inflammation to the esophagus
- Esophageal webs or duplication cyst—abnormalities of the esophagus that a child has been born with. These can cause partial blockage.
- Pneumonia—infection of the lung
- Eosinophilic esophagitis—inflammation of the esophagus because of allergies

**Treatment - “What will be done to make my child better?”**

**Medicine:**

- Medicine to treat the pain may be given
- Antibiotics may be given if there is concern for a tear in the esophagus
- If there is wheezing, the child may need inhalers.
- MEDICINES TO MAKE THE CHILD VOMIT (IPECAC) ARE NOT RECOMMENDED IN THIS SITUATION.
- Non-surgical procedures for coin removal: If a coin is stuck in the esophagus for less than 24 hours, there are a couple of alternatives that can be tried in the emergency department. One option is where the doctor will pass a tube with a balloon on the end of it down past the object, inflate the balloon, and then pull the object back into the mouth. Another procedure is to have the child swallow a smooth tube to push the coin into the stomach, where it would pass through the intestine and out into the stool. An X-ray is taken afterwards to make sure that the coin is gone. If these are unsuccessful, the child will require removal of the coin under anesthesia.

**Surgery:** The goals of the surgical procedure are different depending on the type of material swallowed, the length of time passed since it was swallowed and how sick the child is.

**Esophagoscopy/upper endoscopy:** Endoscopy is when a telescope is placed in the mouth and is gently pushed through the esophagus, stomach and part of the small intestine. The doctor can look at evidence of damage or injury directly. If there is an object stuck in the esophagus, it is removed during this procedure. The telescope used can be flexible or rigid, depending on what the child needs. The picture below shows damage in the esophagus from a disc battery stuck in the esophagus.

**Bronchoscopy:** In this procedure, a telescope is used to look at the airways—the vocal cords, voice box, windpipe, and bronchus to assess for damage and possible stuck objects.

**Preoperative preparation:** If there is a concern of a hole in the esophagus, antibiotics will be needed.

**Postoperative care:**

- Foreign object with no damage to the esophagus: Most of the time, the child can be discharged from the hospital after the procedure once they are able to swallow and eat without vomiting.
- Foreign object with damage to the esophagus: The care depends on the severity of injury. Patients with mild injuries may be discharged soon after the procedure. Patients with moderate injuries may require hospitalization for a few days with a follow-up esophagram or esophagoscopy. Those with severe injuries will require hospitalization until the extent of the injury matures.
- Ingestion of hazardous materials: Depending on the findings, care may be minimal or may require hospitalization. Severe injuries may require stays in the intensive care unit.
- Esophageal injury
- Holes or perforation of the esophagus may require placement of drainage tubes or operations on the chest.
- Severe bleeding may require endoscopic procedures to or even surgical procedures to stop the bleeding.
- Scarring of the esophagus can cause blockage requiring future endoscopic or surgical procedures.

**Risks/Benefits:**

- **Risks:** Esophagoscopy may cause injury of the esophagus. The child may aspirate saliva or contents of the stomach into the lungs.
- **Benefits:** Removal of a foreign body often gives immediate relief of symptoms. Endoscopy can show how bad the injury can be.

## Home Care - “What do I need to do once my child goes home?”

**Diet:** After foreign body removal, children will often return to their normal diet. For deeper and more severe esophageal injuries, the child may require feeding through a tube or may only be allowed clear liquids or soft foods.

**Activity:** Typically, activity can return to normal.

**Wound care:** There will not be wounds for endoscopic procedures.

**Medicines:** You may be given medicines for pain.

**What to call the doctor for:** Call your surgeon or primary care physician for any difficulty swallowing, vomiting, fevers or for any wound problems.

**Follow-up care:** Follow-up depends on the degree of damage to the esophagus. The more severe the damage, the more intense the follow-up would be.

### **Long-Term Outcome - “Are there future conditions to worry about?”**

Scarring or narrowing of the esophagus is the most common long-term complication associated with moderate to severe esophageal injury. These may require dilations or in severe cases, resection, or surgical replacement of the involved area.

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