

Case Report

Removal of Foreign Body (Glass of Mirror) in Esophagus with Direct Laryngoscope

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Abstract

Literature contains fewer reports discussing the use of direct laryngoscope in esophageal foreign body extraction. Foreign bodies in esophagus was diagnosed based on anamnesis, physical examination, radiological finding. The choice of treatment influenced by many factors, such as the patient's age and clinical condition, the size and shape of the ingested foreign body, the anatomic location and the skills of the physician. A case of impacted glass of mirror in esophagus and mental disorder in a 38 years old male was reported, which had been performed direct laryngoscope and an extraction with Magill forcep.

Keywords: Foreign body, glass of mirror, direct laryngoscope, Magill forcep

Abstrak

Sedikit sekali kepustakaan yang membahas mengenai penggunaan laringoskopi langsung pada pengangkatan benda asing esofagus. Benda asing esofagus didiagnosis berdasarkan anamnesis, pemeriksaan fisik, radiologi. Pilihan penatalaksanaan dipengaruhi oleh usia pasien dan kondisi klinis, ukuran dan bentuk benda asing, lokasi anatomi dan kemampuan dokter. Dilaporkan satu kasus kaca cermin di esofagus pada laki-laki usia 38 tahun dengan gangguan mental, yang telah dilakukan laringoskopi langsung dan ekstraksi dengan forsep Magill.

Kata kunci: Benda asing, kaca cermin, laringoskopi langsung, Forsep Magill

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INTRODUCTION

Patients with foreign bodies in the upper gastrointestinal tract commonly present to the otorhinolaryngology emergency for evaluation. The foreign bodies involved differ in children and adults. Children typically ingest object they pick up and place in their mouth. In contrast adult are more prone to ingest food boluses, chicken or fish bone, dentures, or toothpick. Variety object was found in prisoner and psychiatric patient.^{1,2}

People with derranged mental status might ingest a foreign body that might get stuck for prolonged period as a neglected one. Their clinical presentation may be delayed and may include multiple foreign bodies. Pica, or the compulsive ingestion of

nonfood articles, may be common in those with serious mental impairment or developmental delay. These patients are at risk of complications from expectant management of foreign body ingestion.^{3,4} Additionally, the literature contains fewer reports on this topic that focus on psychiatric issues involved.

Neglected foreign bodies are also not uncommon in the pediatric population. Children having the common habit of putting things in their mouth will swallow the foreign body that might get stuck in the esophagus without being noticed by the parent.³

Mirrors are commonly used for personal grooming or admiring one self (in which case the archaic term **looking-glass** is sometimes still used), decoration, and architecture. Glass of mirror are object that are rarely found in the case of foreign bodies impaction at esophagus. Physically glass is solid with smooth surfaces. common household glass is composed of 60–75% silica, 12–18% soda, and 5–12% lime and as such is radiolucent. This was why the

radiopacity on the radiograph created diagnostic doubts.⁵

A glass of mirror is a silvery-coated household glass and in this case the silver nitrate coat acted as a "radiologic marker" thus aiding easy identification (via prevertebral soft tissues on plain x-rays) of the level of impaction, and subsequent removal.⁵

The physical findings and symptoms of aspirations caused by foreign body was vary, depending on the location, tissue reaction, the size, the form, and the constitution of the object.⁶ Impacted foreign bodies in the esophagus can easily cause mucosal ulceration, inflammation or even infections and can also result in various fatal complications such as para or retroesophageal abscess, mediastinitis, empyema, perforation or even esophago-aortic fistula.⁷

The main symptoms of patients complained of were difficulty in swallowing, acute onset of pain, dysphagia and excessive salivation.⁷ It is usually presented with dysphagia or inability to swallow the saliva in children, and is often mistaken from odynophagia, symptoms such as pain in the retrosternal region and the back, angina pectoris, and cardiovascular injuries. Additional findings may be present in case of complications.³

Physical examination may be normal in as many as 90% of patients with esophageal impaction. Rare findings on physical examination include; fever, pharyngeal erythema, palatal abrasion and subcutaneous emphysema suggestive of esophageal perforation.⁵

The best modality of foreign body removal has been a subject of much controversy for years.^{6,7} The choice of treatment is influenced by many factors, such as the patient's age and clinical condition, the size and shape of the ingested foreign body, the anatomic location and the skills of the physician.⁷

Endoscopy is currently the most commonly used method for removal. The greatest advantage is the one of direct examination and evaluation of the degree of esophageal injury inflicting by the foreign body and search for multiple ones.⁷

Today, either rigid or flexible endoscopy performed under general anesthesia or conscious sedation respectively, are considered to be safe and

effective methods in experienced hands. Of course, for both, there are some advantages and disadvantages. On the one hand, flexible endoscopy can be cost-effective because it is performed on an outpatient basis without general anesthesia, but on the other hand, when sharp or penetrating foreign bodies are in question, rigid endoscopy is required.⁷

Impacted FB in the pharynx or upper end of the esophagus should be removed as soon as possible and should not be left alone with the hope that it will pass spontaneously. Objects lodged immediately below the cricopharyngeus muscle or upper end of the esophagus can be safely easily and quickly removed under direct vision with the laryngoscope and Magill forceps.²

If the foreign bodies are not removed at the earliest, they can cause erosion, perforation, abscess or mediastinitis. One of the early symptoms of mediastinitis is supraclavicular subcutaneous emphysema. The incidence of such complications occurs even after the removal of foreign body which is often due to anesthesia, or due to delayed presentation. However other studies showed complications like esophageal perforation, esophago-aortic fistula, empyema thoracis, mediastinitis and lung abscess.^{8,9}

CASE REPORT

At 06.10 am, on April 13th 2012, 38 years-old man with MR 708623 applied to the emergency department M. Djamil hospital with chief difficulty in swallowing since 13 hours before admission. Previously the patient was sleeping, suddenly had a cough and vomitted 3 times, he felt there was something stuck at the throat. His family took him to Solok District Hospital, and refered by ENT Specialist to M Djamil Hospital.

History of mental disorders since 4 years ago, at that time he was swallowing a piece glass of a mirror. There was bleeding from the mouth after the incident, about 2 teaspoon but he didn't go to the doctor.

No history of choking. The patient was hospitalized at HB Saanin Hospital 4 years ago for about 1 month, after that the patient took medicine regularly at primary health care. Pain in swallowing is not clear (difficult to

communicate with patients), no difficulty in breathing, no hypersalivation, no fever.

On physical examination, General condition was moderately ill, Compositus, blood pressure 120/80 mmHg, Respiratory rate 19 x/mnt, pulse rate 82 x/mnt, Temperature afebrile, thorax: no stridor, no retraction, no wheezing.

On ENT examination revealed no abnormality was detected in the ear and nose. Inspection of throat was obtained, pharyngeal arch was symmetric, tonsil T1-T1 not hyperemic, posterior pharyngeal wall not hyperemic. Indirect laryngoscope found epiglottic and arytenoid was edema minimally, ventricular band and vocal cord was normal and the movement was symmetric, there was foreign body at introitus esophagus, flat, shiny, for about 4x0,5 cm in size, standing secretion.



Fig 1. Indirect laryngoscope

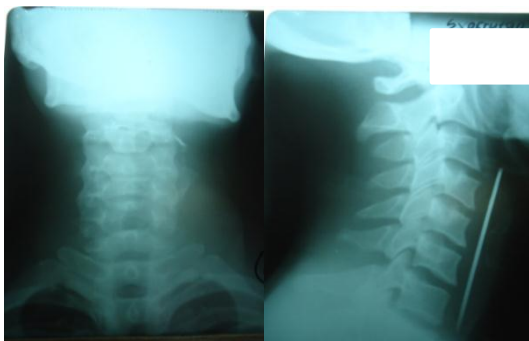


Fig 2. Cervical anteroposterior and lateral radiograph on April, 13th 2012



Fig 3. Cervical anteroposterior and lateral radiograph on April, 13th 2012

We diagnosed by foreign body (glass mirror) at esophagus and mental disorders. Our planning was esophagoscopy and removal of foreign body under general anesthesia and consult to psychiatric department. Laboratory findings were haemoglobin 14.4 g/dl, leucocytes $10,900/\text{mm}^3$, thrombocytes $272,000/\text{mm}^3$, haematocrit 46%, PT/APTT 10.7"/37.7".

Radiology finding was seen radiopaque appearance at level cervical III-VII. Patient was given therapy ceftriaxone inj 2x1 gram, dexamethasone inj 3x5mg and ranitidine inj 2x1 ampul.

Operating Report (April 13th, 2012, at 11.00 WIB) The patient was laid down in supine position on operation table with head hyperextension and ETT 7,5 was inserted by anesthesiologist. Aseptic and Antiseptic procedure. Head was elevated and esophagoscope with 12x16 mm in diameter, 30 cm in length was inserted to mouth in vertical position until uvula and posterior pharyngeal wall and pyriformis sinus was visible.

There was a piece of glass at 12 cm from incisivus. The piece of glass was pulled out slowly together with esophagoscope. The forceps was too small to extract the foreign body and the foreign body was slipped because it was slippery. The

esophagoscope was pulling out the mouth slowly then evaluated with laryngoscope. Then The piece of glass size 7x4x0,5 cm (figure 4) was extracted successfully with magill forcep. After that we performed evaluation, there was exoriation at 10 cm from incisivus, 0,3x 0,1 in size and laceration at hard palate 0,4x 0,1 in size. Nasogastric tube no 16 was inserted. Operation has finished.



Fig 4. Picture of the glass of mirror
Size : 7x4x0,5 cm

Patient was hospitalized with therapy ceftriaxone inj 2x1 gram, dexamethasone inj 3x5 mg, ranitidine inj 2x1 amp, liquid diet through NGT.

One day post operation the general condition was good, compos- mentis cooperative. Fever and difficulty in breathing were not found. Nasogastric tube was stand in and subcutaneous emphysema was not detected. Cervicothorax anteroposterior radiograph was performed and subcutaneous emphysema was not found.

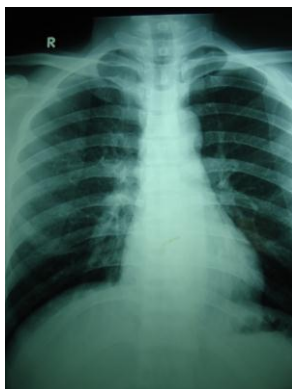


Fig.5. Cervicothorax anteroposterior radiograph on April, 14th 2012

From Psyciatric department the patien was diagnosed with Recurrent depressive disorder,

currently in remission (F33.4) and give therapy amitriptilin 2x12,5 mg, trihexypenidil 2x2 mg, haloperidol 2x2,5 mg, chlorpromazin 1x100 mg.

On second day, April 15th 2012 the general condition was good, compos-mentis cooperative. Fever and difficulty in breathing were not found. Pain in swallowing was not presented. Nasogastric tube was stand in and subcutaneous emphysema was not detected.

The patient was hospitalized in ENT Departement for 10 days (April 14th-23th 2012). Nasogastric tube was removed in April 23th 2012. We performed drinking test before removed the NGT (the patient can drink without chocking and without difficulty).

Patient was asked to control to ENT outpatient clinic one week later. Patient was controlled one week after to ENT outpatient clinic, no fever and no difficulty in swallowing. In physical examination subcutaneous emphysema was not found, neither.

DISCUSSION

A 38 years-old man with mental impairment was diagnosed by foreign body (glass mirror) in esophagus. Material retained in the esophagus generally falls into two categories, foreign bodies and food bolus. Children most often ingest coins and toys, whereas adults commonly tend to have problems with meat and bones. Preexisting physical or mental conditions predispose patients to esophageal impaction.⁶

Self-injurious behavior is fairly common in patients with severe personality disorders, post-traumatic stress disorder, and some psychotic disorders. In patients with personality disorders, intentional ingestion is a form of self-injury. These behaviors are usually nonsuicidal and are considered to be parasuicidal in intent (ie, the ingestion is not done with the intention to die but due to a number of other psychological processes). Self-injury can be an expression of rage toward oneself and/or caregivers, punishment for oneself and/or others, or a way to force others to provide care.¹⁰

Atluri¹¹ recorded foreign body in psyciatric disorder patients were a variety of foreign bodies, with the most common items being pens, batteries, knives,

razor blades, metalobjects, pencils, toothbrushes, spoons, and coins. Case of the glass mirror foreign body covered in several journals, but it is not clear how the number of events.

Patient came with difficulty in swallowing and excessive salivation in throat. The main symptoms of patients complain were difficulty in swallowing, acute onset of pain, dysphagia and excessive salivation.^{4,9} Singhals¹² reveals that dysphagia (92%) and tenderness in neck (60%) are the most common clinical features.

Ritcliff¹³ described symptoms associated with esophageal foreign body impaction are listed in table 1.

Table 1. Incidence of Symptoms in Esophageal Foreign Body¹³

Symptom	Incidence (%)
Dysphagia	42
Pain	24
Foreign body sensation	21
Regurgitation	21
Salivation	19
Gagging	14
Cough	13
Choking	10
Fever	4
No symptom	18

Nwaorgu¹⁴ reported twenty two cases impacted foreign body, 100% pain or discomfort in the throat, 81% foreign body sensation in the throat, 13.6% hoarseness, 13.6% fever, and 9.1% referred otalgia.

Physical examination may be normal in as many as 90% of patients with esophageal impaction. Rare findings on physical examination include fever, pharyngeal erythema, palatal abrasion, and subcutaneous emphysema suggestive of esophageal perforation.⁵

Radiological finding in this case was found radio opaque at level cervical III-VII. Lodgment of foreign body most commonly just below the cricopharyngeus and follow in the thoracic esophagus at the compression of the esophagus by the aortic

arch or left bronchus or at a stricture.^{1,11} The diameter of the esophagus is reduced at four points: the cricopharyngeus, the crossing of the aorta at 25 to 30 cm from the incisors, the crossing of the left bronchus, and the hiatus at the diaphragm.¹²

Ashoor¹⁵ described The three common areas for esophageal foreign body impaction are just below the cricopharyngeal muscle (70%), the site where the aortic arch crosses the anteromedial wall of the esophagus (20%), and at the gastroesophageal junction (10%). The other author recorded that the entrapment of the foreign body was in the cervical esophagus in 57% of cases, in the thoracic one in 26% and at the cardioesophageal junction in 17%.⁴

Physically glass is solid with smooth surfaces. common household glass is composed of 60–75% silica, 12–18% soda, and 5–12% lime and as such is radiolucent. This was why the radiopacity on the radiograph created diagnostic doubts. A glass of mirror is a silvery-coated household glass and in this case the silver nitrate coat acted as a “radiologic marker” thus aiding easy identification (via prevertebral soft tissues on plain x-rays) of the level of impaction, and subsequent removal.⁵ In this case there is part of radiopaque of mirror in radiological examine was showed.

In extraction of foreign body, choice of instrument is crucial factors. Rigid esophagoscope is technique commonly used to extract foreign body, with success rate 80%.⁶ The most commonly used method for removal of impacted foreign bodies in the esophagus is rigid endoscopy, which was described in 1937 by Jackson and Jackson. The rigid endoscope gives a better view of hypopharynx and upper cervical esophagus and also provides a more controlled situation for removal of sharp foreign bodies with improved visibility. It has been recommended that the rigid endoscope is used for foreign bodies lodged at the level of the hypopharynx and crico-pharyngeus, with the flexible endoscope being reserved for obstructions distal to this.⁷ In this patient the foreign body was impacted below cricopharyng level. Weissberg¹⁶ described the succeeded rate rigid esophagoscope was 94% and 100%. Athassiadi⁷ recorded rigid esophagoscope used by 343 cases (85.7%) from 400 cases.

ASGE (American Society for Gastrointestinal Endoscopy)¹⁷ described direct laryngoscopy is an option to remove objects lodged at or above the cricopharyngeus. Otherwise, rigid or flexible endoscopy may be performed when laryngoscopy is unsuccessful or for treatment of objects lodged below this area. Athanassiadi recorded⁷ five cases (1,3 %) foreign body that found with direct laryngoscope and the foreign body removed with Magill forcep.

In this case the top of the foreign body (widest part) seen in cricopharynx and the shape of the glass mirror was inverted triangle, so we decided to extract with Direct Laryngoscope and grabbed with Magill Forceps. Another reason for the size of the glass (7x4x0,5 cm) is too big to fit into esophagoscope and too big and slippery to be drawn with alligator forceps.

Khasawneh² described two anesthetic technique used for extraction foreign body with direct laryngoscope:

1. For coins: After 4-6 hours of fasting, mask inhalational anesthesia using 60% nitrous oxide in 40% oxygen with gradual introduction of 1-4% halothane. Extractions of foreign body were done in Trendelenburg's position to keep the coin out of trachea.
2. For other types of foreign body: The patients were dealt with as high risk for aspiration into the tracheobronchial tree whilst protective laryngeal reflexes are obtunded and where anesthetized with standard endotracheal technique using crash induction

Glass mirror was successful removed in general anesthesia in this case.

If esophagus perforation was presented, extraction cannot be performed so require surgery intervention. Successful in extraction require experience of operator, visibility of foreign body and choice of instrument.^{6,8,9}

Nwaorgu¹⁴ described complication of operation based on the degree of mucosal injury varied from bruising of the esophageal mucosa which was noted in ten (45.5%), erythema and inflammatory edema in seventeen (77.3%), and laceration in two (9.1%) patients. All mucosal injuries were successfully managed conservatively with NGT feeding, parenteral

broad-spectrum antibiotics and analgesics within a week postoperatively. Onotai described¹⁸ All confirmed esophageal mucosal injuries were successfully managed conservatively with nasogastric tube feeding and parenteral broad-spectrum antibiotics like intravenous ceftriaxone and metronidazole for the first 48 hours. Besides, the patients had post operative check radiographs of the chest to look out for features of mediastinitis before commencement of oral feeding, antibiotics and analgesics. For the patients with esophageal perforations the nasogastric feeding tube was left insitu for a period of 10-14 days postoperatively as a rule to allow for wound healing and prevention of further complications. In this case, the patient use NGT ten days post operation.

Those with foreign bodies impacted for more than 24 hours were 14.1 times more likely than those with foreign bodies impacted for less than 24 hours to have a major complication.¹⁵ In this case glass mirror extraction was performed in more than 24 hours after impacted.¹⁶

Complication of rigid esophagoscope can minimize when extraction performed in 24 hours after impaction.⁷ Shinghals reported 89% patient came to hospital in 24 hours. Complication in adult 18% was more than children 8.8%.¹⁰ It estimate esophagus perforation occur 0.34% with mortality 0.05%.¹²

The natural history of an untreated impacted foreign body in the adult is poor, with complications such as esophageal perforation, mediastinitis, fistula formation and development of a pleural empyema resulting in mortality figures as high as 50%.¹⁷

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