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Mis-Swallowing Sharp Pointed Object in the Esophagus: An Alarming Case Series

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ABSTRACT:
The majority cases of foreign body ingestion reported are usually children. This reflecting the tendency of children to use their mouth to explore their new surroundings and objects. While coins are the usual ingested foreign body in children, a brooch is the culprit for one of the cases we are reporting here. Denture ingestion, meanwhile, is one of the most common foreign body ingestions in adult. Acrylic denture is a type of denture made up of plastic material but having a retainer that usually made of stainless steel. This type of tooth denture with exposed end of the stainless-steel retainer is sharp with thin pointed end might traumatised the mucosal wall lining the digestive tract by lacerating, puncturing and migrating to neighbouring structures or soft tissue (airway or nearby blood vessels). This can further lead to serious complications such as upper GI bleed, oesophageal perforation, tracheoesophageal fistula, tracheal injury, mediastinitis, deep neck abscess and bowel perforation. Immediate intervention is crucial once diagnosis is confirmed to prevent those complications. Here, we also elucidate a case of a double tooth wired denture ingestion in a 60-year-old male who complaint of dysphagia immediately after swallowing his denture. After confirming the presence of foreign body in both cases with neck X-Ray, emergency esophagoscopy done to remove the foreign body. Herein, highlighting the importance of immediate intervention and removal technique to prevent unwanted complications.

KEYWORDS: denture, foreign body, emergency, esophagoscopy

INTRODUCTION:

Dentures are commonly used in adult for both functional and aesthetical purposes. The sharp physical aspect of denture for functional purpose, combined with a stainless-steel retainer in a multiple tooth denture can cause serious complications. Accidental denture ingestion is more commonly reported among elderly. A brooch is a decorative pin that fastens onto a piece of clothing. It's colourful and shining appearance made it appealing for children to explore it. The sharp pointed pin's end if left exposed while being ingested would further cause serious complications. Any adult especially elderly wearing dentures or children complaining of dysphagia and informed of accidental foreign body ingestion need to be attended immediately as the complications can be fatal.

CASE REPORT:

CASE 1:

A 60-year-old male with underlying hypertension and have been wearing denture for the past 5 years came

to the emergency department complaining of dysphagia after taking his dinner which he immediately aware that he accidentally swallowed his denture. He arrived at ETD within 2 hours post ingestion. He was referred to ENT department for further examination. Besides the persistent dysphagia, patient did not demonstrate any respiratory distress symptoms. When examining the patient, the two upper incisors which the patient use the dentures at were missing. Indirect laryngoscopy was done, no foreign body or any traumatized mucosa visualized at the supraglottic and glottic region except for minimal pooling of saliva noted over supraglottic region. Xray of chest and neck (PA and lateral view) were ordered to rule out any foreign body in the oesophagus. X-Ray images revealed a metallic wire in the shape of staple's bullet from PA view and coiled wire's shape from the lateral view at the level of upper oesophagus (Figure 1). He then underwent emergency rigid esophagoscopy and foreign body removal under general anaesthesia. The denture was identified at the level of 10cm from incisor. Both end of the denture and exposed wire identified and carefully removed in one piece using a grasp forceps (Figure 2). Post removal, no bleeding at the impacted area of oesophagus seen. Post operatively, patient was covered with antibiotic and feeding was allowed per orally with fluid and soft diet on day one post op. Post operative chest x ray was done and revealed no abnormalities. He recovered well and discharged home after one day of close monitoring post operatively. He was as fit as fiddle after one week post operation during routine clinic follow up.

CASE 2:

A 4-year-old girl informed her mother that she ingested one of her mother's brooch and started to feel discomfort at her throat. She was immediately brought to ED, approximately one hour post ingestion and was referred to ENT department. She was calm, not in pain and not in respiratory distress. Neck Xray shows a radio-opaque foreign body at the level of upper oesophagus. An operation theatre immediately booked for an emergency rigid esophagoscopy and foreign body removal under general anaesthesia. Foreign body was visualized at the level of 9cm from central incisor and was removed in one piece. It was a scarf's brooch measuring 1cm x 1cm (Figure 3) with its pin firmly closed. No ulceration or bleeding visualized during and post procedure. Post operatively, patient was started with antibiotic and feeding was per orally on day one post operation. She was discharged on the next day and was well during routine check-up one week later.

DISCUSSION:

FBs in esophagus are commonly encountered emergency cases in both children and elderly. The type of foreign body ingested varies with patient age. Children typically tend to swallow inorganic object compared to organic object such as metallic materials (paper clips, safety pins, earrings, coins, magnet, and battery) and toys. Most common FBs in adults are usually organic in particular meat boluses and bones. In contrary, denture prosthesis and medicine wrapper/ aluminum foil are commonly reported in elderly due to reduce in sensory discrimination in oral cavity, weak laryngopharyngeal motor control and poor vision as results of aging process. Coins and dentures are most reported esophageal FBs in pediatrics and elderly cases respectively[1,2]. We encountered two cases of esophageal FBs of which one is a brooch in children and another one is denture in elderly.

Adults or elderly usually complaint of dysphagia and foreign body sensation post foreign body ingestion together with timing of event. Most of children often unable to give helpful history. In cases of children presented with drooling of saliva, vomiting and poor feeding, high index of suspicion of esophageal FBs

needs to be considered. An analytical study done by Khan et al reported dysphagia and neck tenderness are the most common clinical features for foreign bodies in the esophagus[3].

Ingested FBs frequently lodged at the level of C6 on neck radiography in which location anatomically matched the first constriction in the upper esophagus at the cricopharynx approximately 15cm from the upper incisor. Patel et al reported majority of FBs were found impacted in cricopharyngeal junction of esophagus in 50 out of 60 cases in his study[4].

Some partial dentures have sharp metal clasps or retaining wires that may predispose them to impaction and this can lead to serious complications[5]. Retained FBs in esophagus especially sharp pointed object may cause local injury to mucosa, esophageal perforation, tracheoesophageal fistula, mediastinitis, deep neck abscess and vascular injury. Consequently, will lead to gastrointestinal hemorrhage, sepsis, respiratory distress and eventually death if left untreated. A case reported death in Japan from massive gastrointestinal hemorrhage due to aortaesophageal fistula after 8 days history of swallowing foreign body[6]. Therefore, early diagnosis and intervention is necessary to reduce morbidity and prevent mortality. After 24 hours of FBs ingestion, rate of complication increases from 3.2% at 24 hours to 23.5% after 48 hours[7].

Lateral neck x-rays are routinely performed as the first line investigation to rule out foreign body but FBs esophagus cannot be ruled out if no FBs found as it only detect radio-opaque objects. A Castan senar et al reported that the indirect sign of a presence of any pharyngoesophageal FB is the finding of prevertebral soft-tissue swelling in lateral neck x-ray. Other radiographic findings may suggest the presence of complications, such as a prevertebral air-fluid level indicating an abscess and finding of gas in retropharyngeal soft tissue in cases of perforation[8].

Then, endoscopic evaluation using indirect laryngoscope or flexible scope is practically done to confirm any FBs. Luk et al reported that CT scan is useful when endoscopy showed negative findings and patient still has persistent symptoms associated with FBs ingestion as it had a high negative predictive value and specificity of 96%[9].

We performed rigid esophagoscopy under general anesthesia in both cases after confirmed diagnosis as evidence by plain radiograph. Both patients recovered well postoperatively without any complications. The advantage of rigid esophagoscopy is that it has a wider lumen for instruments in manipulating and extracting nonfood, larger size FBs. As stated by Nadir et al, instruments used in rigid esophagoscopy can easily grasp FBs as they were larger and more powerful[10] as compared to instruments used in flexible esophagoscopy. X Zhang et al also reported rigid esophagoscopy is helpful in removing sharp and bulky foreign bodies within 24 hours with less complication and reduce postoperative hospital stay[11]. There are other alternative methods proven to be effective in removal of FBs esophagus. Foley balloon extraction of FBs technique has been reported to achieve success rate of more than 80% in a study by Little et al[12]. In cases where removal via rigid esophagoscopy is unsuccessful, cervical esophagotomy was done[13]. Due to the nature of sharp hook of the dentures, it is likely to cause impaction and make it difficult to be removed endoscopically and many preferred it to be removed surgically[14,15]. Overall, the best modality of treatment is still depending on a case-by-case basis and surgeon preferences.

With a success rate between 94% and 100%, the rigid esophagoscopy remains the universally preferred method of extracting foreign bodies from the oesophagus[16]. Complications such as oesophageal perforations are one of the complications of rigid esophagoscopy. It may arise, especially when an inappropriate rigid esophagoscopy instruments were used and lack of experience from the surgeons[17,18].

This perforation can further complicate into mediastinitis and mortality[19]. Incidence of oesophageal perforation with rigid esophagoscopy was 0.34% with a mortality rate of 0.05%[20].

CONCLUSION:

We have illustrated a successful endoscopic removal of a denture with sharp edges and a brooch in upper esophagus. Prompt medical attention after the event of accidental foreign body ingestion and dysphagia, confirmed with plain radiograph and early surgical intervention prevent the sharp pointed edges part of the denture and brooch to be impacted in the esophagus, thus making endoscopic removal of foreign body feasible. Public awareness in seeking early medical treatment is crucial to prevent unwanted complications as early removal of foreign body by rigid esophagoscopy is a relatively effective and safe procedure.

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FIGURES:

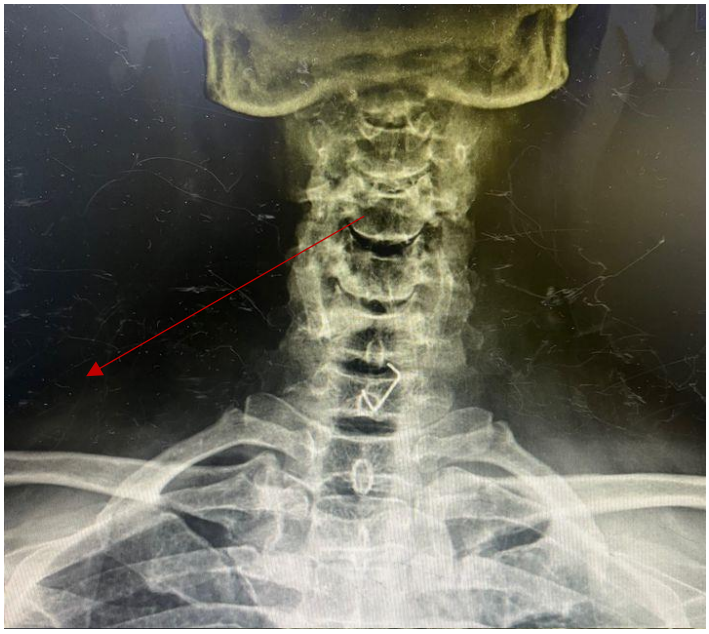

Figure 1: Anterior Posterior view of neck xray showed foreign body (red arrow) at level of C5-C6 vertebrae.

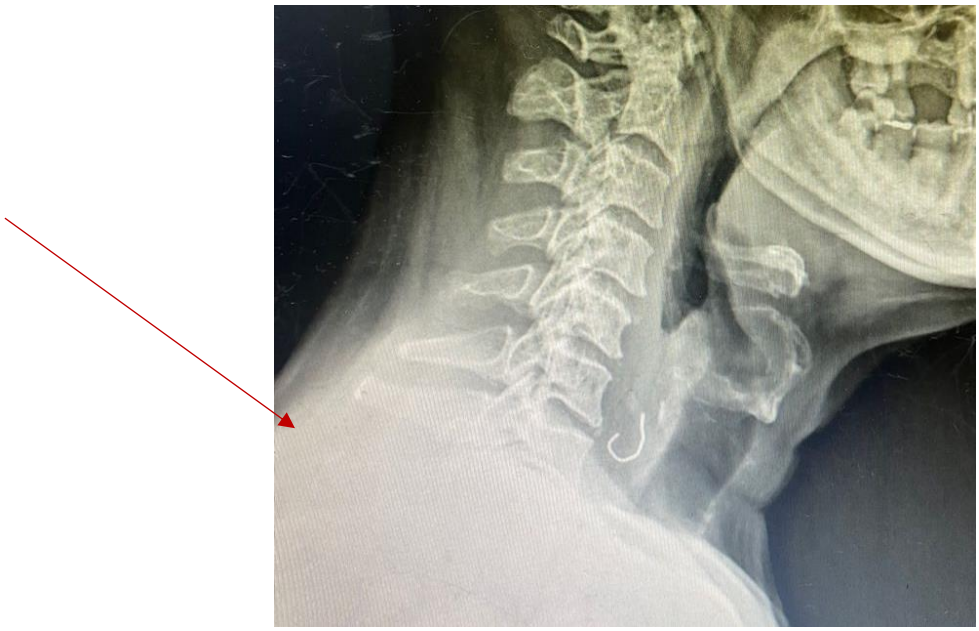

Figure 2: Lateral view of neck xray showed foreign body (red arrow) at level of C6 vertebrae.

Figure 3: Foreign body (acrylic partial denture), anterior view.

Figure 4: Foreign body (acrylic partial denture), posterior view.

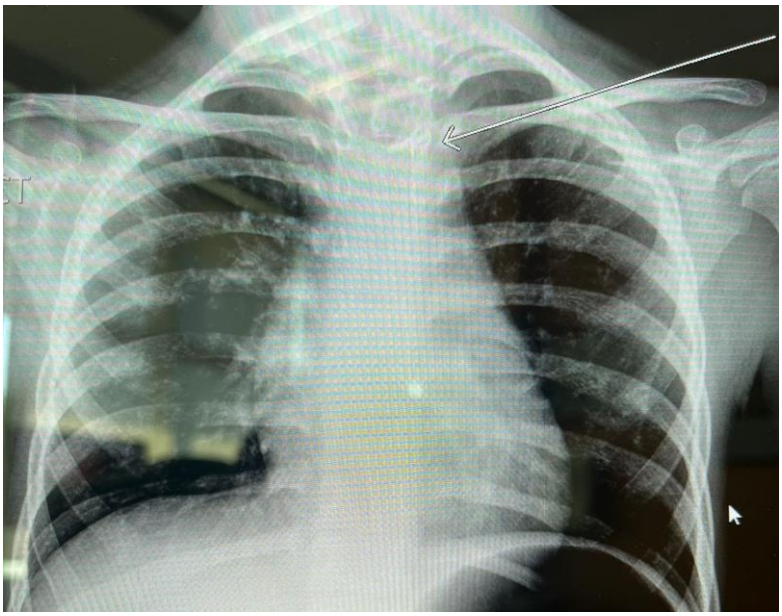

Figure 5: Anterior Posterior view of neck xray showed foreign body (white arrow) at level of T1-T2 vertebrae.

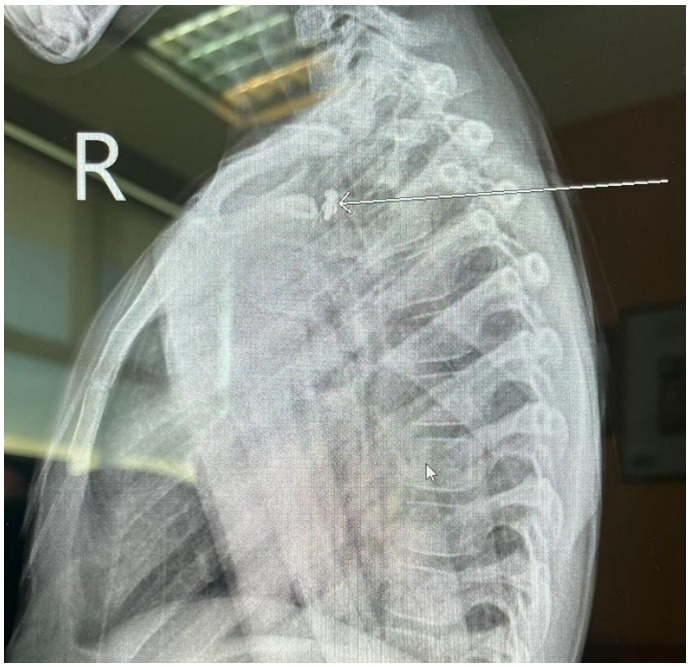

Figure 6: Lateral view of neck xray showed foreign body (white arrow) at the level of T2 vertebrae.

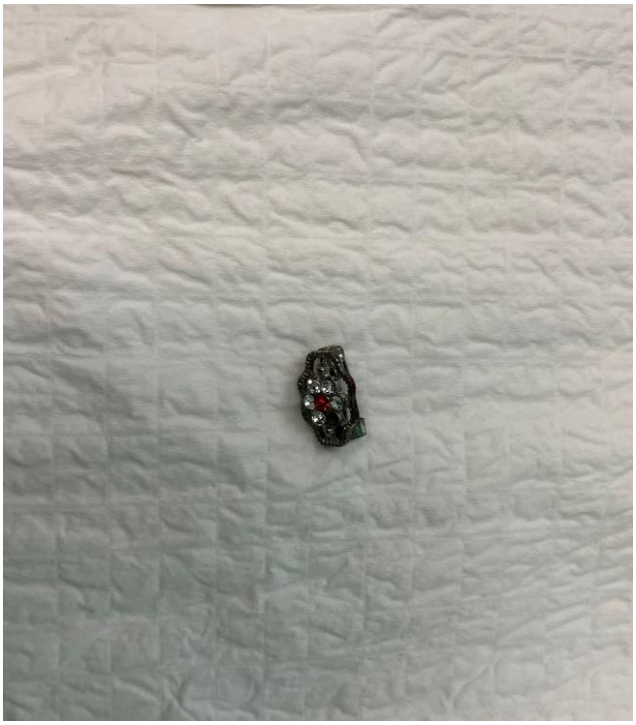

Figure 5: Foreign body (scarf's brooch), anterior view.

Figure 6: Foreign body (scarf's brooch), posterior view.