

# Swallowed Faulty Partial Denture: A Case Report & Review of Literature

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## Abstract

Foreign body ingestion is a common occurrence and the majority of foreign bodies that reach the gastrointestinal tract pass spontaneously, some patients require non-operative intervention or even surgery. The one-tooth or two - tooth removable partial denture provides no cross-arch stabilization and there is the chance that it may be swallowed if it becomes dislodged. Patients should be educated on the importance of adherence to instructions of mechanics of use, life span, maintenance of dentures, and maintenance recall visits to assess the retention of dentures. It is also important the incorporation of radio opaque material in dental appliances, because the location of a swallowed or aspirated dental prosthesis often is accomplished radio graphically. This case report based on faulty prosthesis swallowed by patient which leads to non-surgical intervention under General Anesthesia.

**Keywords:** Faulty partial denture, Esophagus, Foreign Bodies.

## Introduction

Foreign body ingestion is a common occurrence and the majority of foreign bodies that reach the gastrointestinal tract pass spontaneously. However, 10 to 20% of the patients require non-operative intervention, and 1% or less require surgery [1]. The majority of foreign body ingestion occurs in the pediatric population. In adults, it occurs more commonly among those with psychiatric disorders, mental retardation, alcoholism, those seeking some secondary gain with Access to a medical facility, and denture wearers [2, 3].

It were reported a case of suicide attempted by ingestion of dentures, ingestion in mentally incompetent patient, and a dislodged fixed partial denture while undergoing general anesthesia[4,5].

Swallowing seems to be more common than aspiration, and is observed most often in the elderly [6].

Most of time the Diagnosis of ingested foreign body is delayed which sometimes leads to complication based as, throat pain or discomfort, persistent sensation of foreign body in the Throat, retrosternal pain, tenderness in the neck, total dysphasia, pooling of saliva in the or pharynx, perforation, abscess or enter colic fistula formation.

Foreign body ingestion should be considered as a differential diagnosis in patients who present with abdominal and constitutional symptoms, and whose laboratory examination results for more

Common pathologies are negative [7]. Reported late complications of the undiagnosed swallowed denture include extra luminal migration from the esophagus causing either a diverticulum or perforation (once a

perforation has occurred, further severe sequel may be anticipated, e.g.

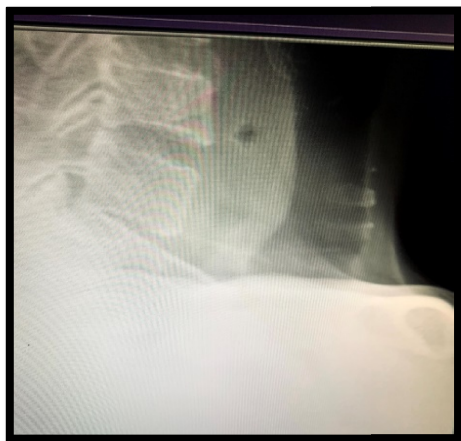
tracheo-oesophageal fistula), enter colonic fistula, sigmoid colon perforation and death [8-10]. It was reported a case in which a removable partial denture was seen seated in the mid portion of the esophagus with its lateral wings deeply embedded in the wall of the esophagus causing laceration and severe hemorrhage [11]. In cases of complications such as impaction, perforation or obstruction most often occurs at areas of acute angulation or physiological narrowing in gastrointestinal tracts [7]. Risk factors that increase the probability of perforation include the Presence of intrinsic bowel disease, such as adhesions, inflammatory bowel disease, tumors, diverticulitis, hernia or blind segments [12] Several techniques for removal of a swallowed foreign body have been reported: endoscopic (colonoscopy or gastro scopic) removal, gastronomy, laparotomy, rigid esophagoscopy, and cervical esophagotomy [2, 6, 7, 13].

This case reported based on patient swallowed faulty partial denture placed over mandibular anterior two – tooth, which was removed by non – surgical intervention.

## Case Report

A patient age 38 year presented to Rama Dental College Hospital & Research Centre after he inadvertently swallowed a faulty prosthesis present over mandibular anterior two – tooth region (Mandibular incisor) while drinking water, there was associated complaint of mild discomfort during speaking and deglutition with no significant

regurgitation. X – ray including Chest, and Abdomen (AP view) performed which shows nothing of significant, reason is due to absence of metallic retentive pins as prosthesis made was faulty. On performing Lateral view, there is mild radiopacity shown over mid Esophagus region (reason behind the porcelain nature of tooth) (**FIG 1**). Patient was immediately taken for non-surgical intervention to remove the faulty prosthesis, patient post – operative course uneventfully; the retrieved prosthesis was cleaned and returned to the patient (**FIG 2**).



**Figure: 1**



**Figure: 2**

## Discussion

Usually the diagnosis of an impacted denture is not in doubt, as the patient's history and clinical signs indicate this, as observed in the present case, although two of the patients of **Hashmiet al2**, were unable to give an initial history of having swallowed their dentures when presenting with secondary symptoms. In the present case, the patient felt mild discomfort especially during speaking and deglutition. If the patient had not noticed that the

prosthesis had been ingested while eating, perhaps he could never suspect that it had been ingested. Serial radiological follow-up for signs of foreign body migration, intestinal obstruction and perforation is mandatory in the management of these patients [7].

Several techniques for removal of a swallowed foreign body have been reported. Cervical esophagotomy is a safe method for removing foreign bodies impacted in the cervical oesophagus when they cannot be removed endoscopically [13]. Early diagnosis and treatment will avoid the oedematous reaction and mucosal infection and necrosis that heighten the risk of rigid esophagoscopy [14].

Colonoscopy has emerged as an important tool in the management of foreign bodies in the colon, and it allows the retrieval of objects formerly accessible only by surgical intervention. The indications for colonoscopy extraction are obstruction, contained perforation, failure of object to pass through the ileocecal valve and the presence of a pointed or elongated foreign body [7]. **De Ruiter et al3**. Reported complications which occurred in a patient following an attempt to remove a partial denture by esophagoscopy: laceration of the oesophagus with subsequent mediastinitis, pneumothorax, and pneumo pericardium. This is why in this type of case it is recommended the use of a flexible scope and a flexible hood attachment [3].

Direct visualization of a swallowed denture with a flexible or rigid endoscope is possible while the prosthesis remains in the hypo pharynx or oesophagus. [2] However, endoscopic extraction of dentures from the oesophagus carries a high risk of perforation [14, 15]. Factors responsible for this include the size, rigidity, sharp edges of the dentures, and attempting extraction in less than-ideal situations. In addition to these, the degree of periesophagitis at the site of impaction may increase the risk of perforation [14].

All metal partial dentures are readily detected on standard radiographs, but this fact did not prevent one epileptic patient from carrying such prosthesis in the pyriform sinus for eleven months while a series of doctors tried to resolve his complaints of choking, dyspnoea and Dysphasia[16]. Metal components in a plastic denture, such as wire retainers or clasps, will also aid location on a radiograph. Radiological studies and endoscopic intervention may afford the opportunity to diagnose and remove the foreign body. However, surgical intervention may be needed, as in the present case, because endoscopic removal may not always be successful and can potentially be complicated by massive bleeding and perforation [7].

In cases of ingested dental prostheses of acrylic resins, these are often radiolucent, and are difficult to visualize using radiological methods [3]. It may be possible to observe air entrapment around the denture or increase in the prevertebral soft tissues on plain x-rays in cases of entrapment in the oesophagus, especially when a local inflammatory response has set in [15]. It is advisable to make removable dental prostheses radio opaque or to avoid using them with the identified risk-group [3]. Poly-methyl-methacrylate, the polymer from which most dentures are made, is radiolucent. **Brauer [17]** found no plastic radio-opaque material commercially available with physical properties, appearance and ease of handling to match those in radiolucent products. The amount of heavy metal salts and glass fillers that needed to be incorporated was sufficient to weaken the material, thereby increasing the possibility of fracture and the risk of swallowing a denture fragment. These inclusions also affected the appearance of the material.

It was demonstrated the use of 40% poly- 2, 3-dibromopropylmethacrylate, introduced into the poly-methyl-methacrylate to render the denture base plastic radio opaque. Because bromine was incorporated into the polymeric structure rather than present as filler, the strength of the material was less affected. The material does not seem to have been marketed, possibly because of concerns that the halide might have cancer-inducing potential [18]. Acrylic dentures are more likely to be discernible by CT, since the process is more sensitive to small changes in X-ray attenuation, than by plain radiography [19].

A denture does not have to be small to be swallowed. Configuration as well as overall dimensions is important. Thus a horseshoe shaped denture swallowed 'end on' and vertically may well rotate into the hypo pharynx and oesophagus, though its width would make it difficult to swallow flat and transversely [2]. Such a consideration would explain why swallowing complete lower denture has been reported [7]. But the hazard of swallowing small one-tooth unilateral removable partial denture which provides no cross-arch stabilization is higher [6].

Alternatives include conventional fixed bridge prosthesis and implant supported prosthesis. There remains the possibility that such fixed prostheses will become detached and swallowed but, because they are smaller, have metal components and lack features liable to engage and traumatize the gut wall; such an event is less likely to cause the complications of a swallowed denture [20].

## Conclusion

The consequence of swallowing a small one-tooth or two - tooth removable partial denture which provides no cross-arch stabilization is higher. Thus, the fabrication of such prosthesis should be avoided.

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To cite this article: Swallowed Faulty Partial Denture: A Case Report & Review of Literature: Dr. Dr. Shivendra Singh, Dr. Waseem Khan, Rama Univ. J. Dent. Sci. 2020 September; 7 (3): 1-4