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3 **Prolonged Impacted Denture in the Esophagus**
4 **mimicking Gastroesophageal Reflux Disease:**
5 **Case Report**
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10 **ABSTRACT**
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Accidental ingestion of denture resulting in esophageal impaction is fairly reported in the literature. It is, however, uncommon to find such impaction lasting more than a few days without the development of serious complications. We present a 38-year-old man with denture impaction in the esophagus for 20 years who presented with features of gastroesophageal reflux disease. This case brings to fore the need for a thorough evaluation of all patients who incidentally ingest denture irrespective of the severity of the initial symptoms.

12
13 *Keywords: Esophageal denture impaction, Esophageal foreign body impaction,*
14 *Gastroesophageal reflux disease, Nigeria*
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18 **1. INTRODUCTION**
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20 Impaction of foreign body in the esophagus is a common occurrence worldwide. The
21 common types of foreign objects ingested by children and adults vary significantly. While
22 coins, bottle-tops, button-batteries and safety pins are the commonly reported esophageal
23 foreign bodies in children; bone, dentures, solid meat and metallic wires are commoner in
24 adults [1,2].

25 The clinical manifestations of esophageal foreign body impaction depend on the type of
26 foreign body ingested and the location of impaction (cervical, thoracic or abdominal portion
27 of the esophagus). The common symptoms of esophageal impacted foreign body of less
28 than 24 hours tend to be mainly gastrointestinal and include dysphagia, throat pain,
29 odynophagia, drooling and vomiting [3]. Respiratory problems such as cough, chest pain,
30 stridor, wheeze, respiratory tract infection, hemoptysis etc. tend to appear weeks or months
31 after ingestion [3].

32 Generally, an esophageal impacted foreign body induces acute symptoms that necessitate
33 immediate search for medical attention, diagnostic evaluation and removal. In rare
34 instances, however, the impaction may not produce initial alarm symptoms that warrant
35 urgent medical intervention thereby resulting in prolonged impaction. We present a 38-year-
36 old man with esophageal impacted denture that lasted 20 years before presentation. To the
37 best of our knowledge, this seems to be the longest reported duration of impacted denture in
38 the esophagus before a definitive diagnosis was made.
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40 **2. CASE REPORT**

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42 A 38-year-old man presented to our clinic with a history of recurrent retrosternal pain of 20
43 years. The latest episode of the pain started 3 months before presentation. The pain was
44 initially mild and dull-aching but later became moderately intense and burning in nature. It
45 scored 8 on a visual analog scale, 0 and 10 been the lowest and highest scores respectively.
46 The pain woke him up at night and interfered with his daily activities occasionally. It was
47 relieved by intake of nonsteroidal anti-inflammatory drugs (NSAIDs), antacids, and proton
48 pump inhibitor. There was associated history of regurgitation and occasional epigastric pain.
49 **He had no dysphagia, odynophagia or vomiting. He had an episode of melena 17**
50 **years earlier. He admitted to frequent use of NSAIDs at that time. There was no history**
51 **of hematemesis, recurrent vomiting or weight loss. He neither smoked cigarette nor**
52 **consumed alcohol.**

53 Physical examination was unremarkable apart from mild epigastric tenderness.

54 We made a provisional diagnosis of gastroesophageal reflux disease (GERD) at this time.

55 At esophagogastroduodenoscopy (EGD), we found a dark hard object that was partly
56 covered by a cheesy material attached to the esophageal mucosal at a distance of 30cm
57 from the incisors. The surrounding mucosal area appeared thickened. The object occluded
58 the esophageal lumen partially but the endoscope passed into the stomach without difficulty
59 [Figure 1]. The oropharynx, stomach and the first and second part of the duodenum were
60 normal in appearance.

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66 **Further questioning after the procedure revealed that the patient sustained a dental**
67 **injury at age 11, 27 years before presentation, after which he developed recurrent**
68 **dental infection. A dental hygienist removed three of his teeth because of the**
69 **recurrent infection at age 18, 20 years before presentation, and gave him a denture to**
70 **wear. He swallowed the denture incidentally shortly before the retrosternal pain**
71 **started. Thereafter, he consulted with a physician who told him not to worry. No**
72 **investigation was done to exclude esophageal impaction.**

73 **He had a barium esophagogram which showed a filling defect and marginal**
74 **irregularity in the lower thoracic esophagus [Figure 2].**



Figure 2: Barium esophagogram showing filling defect and marginal irregularity in the lower thoracic esophagus

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80 A definitive diagnosis of prolonged impacted denture in the esophagus was made.
81 A joint review by an otorhinolaryngologist and a cardiothoracic surgeon indicated that he
82 needed thoracotomy with esophagotomy and/or esophagectomy to remove the foreign body.
83 He has not had the surgery because of financial constraint 17 months after diagnosis. He
84 has since been taking PPI and antacids to relieve the symptoms.

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87 **3. DISCUSSION**

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89 Previous reports have shown that esophageal denture impaction is not uncommon in Nigeria
90 [4–7]. The reported prevalence of denture impaction among patients with impacted
91 pharyngoesophageal foreign bodies in Nigeria varies widely depending on the time and
92 location of the study [4,5,7]. Onyekwere and colleagues reported a prevalence of 38.6 %
93 among adults with esophageal impacted foreign bodies in Ibadan, southwest Nigeria [5]. A
94 prevalence of 18.4% was reported by Adedeji and colleagues among all patients with
95 various pharyngoesophageal foreign body impaction in Osogbo, southwest Nigeria [7].

96 The male gender appears to be generally more prone to denture ingestion and impaction
97 than the female gender [5–8]. Other identified predisposing factors include high-risk behavior
98 like sleeping or masticating with the denture; inappropriate fabrication of denture; prolonged
99 usage and failure to present for routine medical checkup [4,5].

100 Majority of ingested foreign bodies pass through the gut without complication but large sharp
101 objects like denture and bones could easily get impacted [9]. Ingested dentures often get
102 impacted in the esophagus and are difficult to retrieve because of their large size, rigidity
103 and pointed edges. Though foreign body impaction could occur at any of the three anatomic
104 areas of constriction in the esophagus, the commonest location of denture impaction is in the
105 upper esophagus just below the cricopharyngeal junction [5–7].

106 **Sacko reported three cases of prolonged coins impaction in the cervical esophagus**
107 **of children for 8, 10 and 14 months respectively in Mali [10]. Cases of prolonged**
108 **denture impaction of the esophagus in adults with mild or no initial symptoms have**
109 **been reported in Singapore, Iran, and India lasting 6 months, 9 months, and 3 years**
110 **respectively before diagnosis [11, 12, 13]. We observed that none of these cited cases**
111 **mimicked GERD.**

112 Plain radiographs of the neck and chest x-rays are often used as the initial diagnostic
113 method to localize esophageal impacted denture, like other foreign bodies. However,
114 localization of acrylic dentures could be challenging because they are made of a radiolucent
115 material (polymethylmethacrylate) which may be difficult to detect with the standard plain
116 radiograph. Radiologic features that may suggest denture impaction include air entrapment
117 and increased prevertebral soft tissue shadow [5,7]. Additional investigative procedures that
118 could aid the localization of impacted denture before removal include barium swallow and
119 computed tomographic scan [5,7,9]. In the event that the denture could not be localized
120 despite the aforementioned procedures and the patient remains symptomatic, a flexible
121 esophagoscopic examination may be done to exclude esophageal impaction.

122 Usually, the longer the denture stays in the esophagus, the more the likelihood of
123 complications that could increase morbidity and mortality [7,14]. Such complications include:
124 peri-esophagitis, necrosis and perforation of the esophageal wall, neck abscess, fistula
125 formation, vascular erosion with excessive hemorrhage and extraluminal migration with
126 subsequent diverticulum formation etc [5–7,14,15]. The possibility of esophageal impaction
127 should always be considered and promptly investigated in all cases of incidental or
128 deliberate ingestion of dentures. There is no room for conservative management. Removal
129 by rigid esophagoscope under general anesthesia is the commonly used method. Adequate
130 precautionary measures should be taken during the procedure to prevent catastrophic
131 esophageal perforation [5,7]. Shear forceps could be used to fragment large dentures before
132 extraction to reduce the chances of iatrogenic complications [5–7]. The use of overtube may
133 be necessary to prevent esophageal tear from the sharp edges of the denture during
134 retrieval. The procedure should not be done hastily or overenthusiastically. **Flexible upper**
135 **gastrointestinal endoscopy can also be used to remove the impacted foreign body**
136 **and it is as effective as rigid esophagoscope. [16-17]** Difficult cases and those with
137 complication could be removed via transcervical or transthoracic esophagotomy or
138 esophagectomy as may be required [5,7,18].

139 140 **4. CONCLUSION**

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142 The clinical presentation of esophageal denture impaction is usually dramatic and the
143 diagnosis often straight-forward. Nevertheless, it may occasionally pose a diagnostic
144 challenge in those with mild symptoms. Our patient had to go through the ordeal of recurrent
145 chest pain and regurgitation and prolonged use of drugs because he was not properly
146 evaluated at the beginning. At such instance when there is a history of foreign body
147 ingestion but esophageal impaction could not be easily dispelled, a high index of suspicion

148 and meticulous evaluation are required by the clinician in order to prevent the development
149 of major complications.

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152 **CONSENT**

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154 The authors declare that 'written informed consent was obtained from the patient for
155 publication of this case report and accompanying image. A copy of the written consent is
156 available for review by the Editorial office/Chief Editor/Editorial Board members of this
157 journal.

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159 **ETHICAL APPROVAL**

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161 Not applicable

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