Two swallowed dentures found in the hypopharynx and rectum of an elderly Japanese woman simultaneously

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ABSTRACT

The aging Japanese population has led to an increase in the number of accidentally swallowed dentures. Therefore, we report the case of an elderly Japanese woman with dementia who accidentally and sequentially swallowed two dentures. The patient presented to our hospital with a diagnosis of a single impacted denture in her hypopharynx although we subsequently identified a second impacted denture in her rectum after taking a careful clinical history. Open surgery was required to remove the second denture from her rectum. This case highlights the importance of carefully considering the patient’s history if there is a possibility of latent swallowed dentures.

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Introduction

The use of removable dentures can improve oral function and esthetics for elderly people. However, the accidental ingestion of dentures can create a medical emergency with serious complications, including death from aspiration of the foreign body [1,2].

Case report

An 83-year-old Japanese woman was living in a nursing home before she was admitted to our emergency department because she had unintentionally swallowed a removable denture. She had dementia and an otherwise unremarkable history, and had never undergone abdominal surgery. The patient’s dementia made it difficult for her to communicate with her caregivers, and they were initially unaware that her denture had been displaced. A nurse at the home subsequently noticed the denture’s displacement 1 day before the patient’s admission, and the staff was unable to find the denture. She kept eating and drinking after the denture’s displacement. Thus, the patient was brought to another hospital with a chief complaint of fever 6 hours before her admission into our hospital. At that hospital, radiography and computed tomography (CT) of the patient’s neck and chest revealed neck emphysema and that the missing denture was impacted in her hypopharynx (Figures 1 and 2). The patient was subsequently transferred to our hospital for surgical removal of the denture.

At the patient’s admission to our hospital, we observed that she had a fever (38.3°C), elevated total leucocyte counts, and no respiratory distress. Endoscopic laryngoscopy revealed that the denture was in the pharynx, with one end embedded into the hypopharynx, as well as swelling on both sides of the arytenoid cartilages. In order to avoid airway obstruction, we performed tracheostomy under local anesthesia. Subsequently, we induced general anesthesia from the tracheostoma and removed the denture through her mouth using rigid esophagoscopy. As the hook of the denture pierced the wall of the right pyriform sinus, the patient remained under close observation because of the risk of neck abscess.

We could not take enough history on the admission day since the patient had dementia and she was in emergent situation. Therefore, on the day after her admission, we took additional careful history from the patient’s family, who reported that the patient had lost another denture approximately 2 months before the current admission. We subsequently performed
abdominal radiography, which revealed that the second denture was lodged in the small intestine or rectum (Figure 3). After consulting with a gastroenterological physician and surgeon, we elected to follow the patient in the hope that the denture would spontaneously pass out of the rectum.

At 4 days after the admission, radiography and computed tomography from the neck to the abdomen revealed a possible neck abscess around the perforated hypopharynx, and that the second denture remained in the patient’s rectum. We planned to perform incisional drainage for the neck abscess, and attempted endoscopic removal of the denture from her rectum. However, the denture got stuck in the rectum, and we subsequently performed laparoscopy to evaluate the denture’s position. The laparoscopic surgery showed that the rectum adhered to the sigmoid colon and surrounding tissue firmly, which implicated the denture was penetrating the rectum. We could not separate the rectum from the surrounding tissue endoscopically, which led us to open surgery. Finally, we removed the denture with approximately 20 cm of the rectum and the sigmoid colon by open surgery and performed the neck incisional drainage, simultaneously. The specimen of the rectum showed the denture damaged mucosa causing multiple ulcers (Figure 4). The patient resumed oral feeding on the sixth postoperative day. The patient experienced a gradual recovery during a 3-week course of antibiotic therapy for the neck abscess, and was subsequently transferred to another hospital with her neck stoma open to prevent aspiration pneumonia.

Discussion

Dentures help improve masticatory efficiency and aesthetics, reduce over-eruption and drifting of unopposed teeth, and restore phonetics [3]. However, dentures are associated with risks of displacement, ingestion, and aspiration, especially among elderly people who cannot expel the displaced dentures by themselves. Ingested dentures may lead to serious clinical conditions, and dentures or orthodontic devices remain the most common type of ingested foreign bodies which cause perforation of the gastrointestinal tract (73%) [4]. Moreover, the aging Japanese population will increase the prevalence of wearing dentures,
which will likely result in a higher incidence of accidental denture ingestion or aspiration.

In the present case, the patient experienced two instances of denture displacement, and the dentures became lodged in her hypopharynx and rectum. A previous case series [5] revealed that dentures most commonly become lodged in the esophagus (33 of 83 cases), although other common sites are the hypopharynx or larynx (12 of 83 cases) and the lower gastrointestinal tract (17 of 83 cases). In this case, the newer denture was almost as large as the older one, except that the newer one had a clasp, which could make it stuck in the hypopharynx easier than the older one. There have been many cases of ingested dentures reported, however, to the best of our knowledge, there is no report of two concurrently impacted dentures. Furthermore, dementia can make it difficult or impossible for the patient to alert caregivers to the displaced denture, and the patient may even be unaware of its displacement. For example, the case series [5] revealed that, in only 58% of cases (53/86), the situations that the denture had been displaced were known. Moreover, prolonged denture impaction can increase the likelihood of complications, and early detection with therapeutic management is important for achieving good outcomes [6]. Caregivers should always be aware that denture impaction can result in severe complications.

It usually takes >7–10 days for ingested foreign bodies to be spontaneously passed out of the body [7], and some authors believe that radiographic surveillance and conservative management are indicated for all objects that have passed a duodenal sweep. In addition, endoscopic or surgical intervention is only indicated when significant symptoms develop or when the object fails to progress through the gastrointestinal tract [7]. However, we surgically removed the denture from the patient’s rectum based on a fear of bowel obstruction although she did not have any abdominal symptom. We believe this approach was warranted, given the fact that the patient had swallowed the denture approximately 2 months earlier, and that it had remained asymptomatic in the rectum, despite penetrating the rectum and resulting in adhesion to the surrounding tissue. The reason why she had no history of abdominal symptom was supposed to be that the sigmoid colon covered the penetrated site of the rectum and prevented peritonitis.

**Conclusion**

In conclusion, a thorough and attentive history taking is needed to diagnose denture ingestion, especially if the patient has limited ability to communicate [8]. For example, we would not have become aware of the second denture if we hadn’t taken additional history the day after admission, and the patient’s family had not informed us that she had lost two dentures. Therefore, we recommend a careful history taking in similar cases, even though cases with two concurrently impacted dentures are extremely rare. This approach will be important, given the aging Japanese population, the increasing prevalence of wearing dentures, and the potential need for surgery after ingesting a denture.

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