Risk factors associated with accidental ingestion of dental prosthesis in a Nigerian tertiary hospital

P. R. Adobamen and * S. A. Okeigbemen

*Ear, Nose, Throat, Head and Neck Surgery Department, and *Department Of Preventive Dentistry, University of Benin Teaching Hospital, Benin City, Edo State, Nigeria. (E-mail: ajimen240@yahoo.com)*

Correspondence to: Dr P. R. Adobamen, Ear, Nose, Throat, Head and Neck Surgery Department, University of Benin Teaching Hospital, Benin City, Edo State, Nigeria. P. O. Box 6741, Benin City, Edo State, Nigeria. (E-mail: brotherpaulchima@yahoo.com), Phone no: +234 802 420 6872

Abstract

Background: Ingestion of dental prosthesis is a challenging health problem that may result in severe and at times fatal complications.

Aim: To identify risk factors that may lead to accidental ingestion of these dental prosthesis and suggest preventive strategies.

Methods: This was a prospective observational study at the University of Benin Teaching Hospital, Benin City, between 1st January, 2009 and 31st December, 2010 of patients presenting with ingestion of dental prosthesis. The bio data and data relating to circumstances surrounding the ingestion of the dental prosthesis were obtained from the patients and analyzed manually.

Results: During the study period, eight patents were see, seven male and one female. Their ages ranged from 35 to 85 years with an average of 61.13 years. All the dental prosthesis retrieved from patients in this study were unsecured. Most of the patients with impacted dental prosthesis did not have the habit of removing their denture before sleeping; eating or taking drugs orally, even-thought the activity engaged in during ingestion of dental prosthesis in all the patients were during eating, drinking water or drugs. Only one of the patients ever went for check-up after the initial fitting of their denture.

Conclusion: Removal of unsecured dental prosthesis before eating, drinking water or drugs will likely reduce the incidence of their ingestion in our environment.

Keywords: Preventive, Strategies, Dental prosthesis, Impaction, Health education, Oesophagus.

Introduction

Impaction of foreign bodies especially dental prosthesis in the upper aero-digestive tract is a common problem[1] . Severe haematemesis may be a complication associated with failure to diagnose impacted dentures[2].Perforation of the oesophagus and sigmoid colon, entero-colonic fistula, retropharyngeal and mediastinal abscess, luminal stenosis and even death are other complications associated with failure to diagnose swallowed denture[3-5].

With emergency radiological investigations and endoscopy, impacted dentures can be identified and safely removed[6]. However the presence of preventive strategies against dental prosthesis ingestion will prevent or reduce the incidence of ingestion of dental prosthesis and its attendant complications[1,6,7].

Denture ingestion has been reported to cause even death in our hospital[8]. This study was therefore carried out with the aim of highlighting the circumstantial factors associated with dental prosthesis ingestion in the patients in this study. If health education preventive strategies against these riskfactors are put in place, it will go a long way to prevent or reduce the incidence and associated

complications of denture ingestion to the barest minimum.

Patients and Methods

This was a prospective observational study that was done at the Ear, Nose, Throat, Head and Neck (ENTH&N) Surgery Department, University of Benin Teaching Hospital (UBTH), Benin City, between 1st January, 2009 and 31st December,2010. All patients who presented with history of dental prosthesis ingestion were included into the study. Data retrieved from the patients included age and gender, the practice of denture removal before sleeping; eating; drinking and taking drugs and how often they went for check-up after the dental prosthesis were fitted. The mechanism of ingestion of the dental prosthesis and their behavioural reaction after ingestion of the dental prosthesis were assessed. Approval for this study was granted by the hospital'sInstitutional Research and Ethics Committee. The data were analysed manually. The results were presented in prose and tabular formats.

Results

There were 8 patients in this study; 7 males and 1 female. The ages ranged from 35years to 85 years with an average age of 61.13 years. Table 1 shows the frequency of adoption of preventable measures by patients against denture ingestion. Seven out of 8 patients do not usually remove their denture before sleeping, 6 out of 8 patients do not remove their denture before eating, while all the patients do not remove their denture before taking drugs. Table 2 shows the practice of going for dental check-up after fitting, the duration of fitting of denture in the patients and the behavioral reaction after ingestion of the dental prosthesis. One out of 8 patients have ever gone for check-up of their denture after it was fitted while 5 out of 8 patients engaged in one form of manipulative behaviour to dislodge the ingested denture.

Inspection of the dental prosthesis was done visually. All were sub-standard, locally fabricated acrylic dentures without clasps or other retentive components (unsecured).

Table 3 shows the activities the patients were

Table 1. Frequency of adoption of preventable measures by patients

Removal for drinking N (%)	Removal for taking drugs N (%)	Removal for eating N (%)	Removal for sleep N (%)	Check -ups	Total
0 (0 %)	0(0%)	2 (25 %)	1 (12.5%)	1(12.5%)	8(100%)

Table 2. How often patients went for check-up, duration since denture was fitted and behavioral reaction after ingestion of dental prosthesis

Patient	How often	Duration of fitting (Years)	Behavioural reaction after ingestion of dental prosthesis
A	Never	>15	Tried to induce vomiting but failed
B	Never	2	Tried to induce vomiting but failed
C	Never	2	Tried to dislodge by swallowing a bolus of food but symptoms persisted
D	Never	5	Tried to induce vomiting by insertion of fingers into the throat
E	Never	2	Aspirated while trying to induce vomiting
F	No response	3	No response
G	Never	5	No previous manipulation to remove denture
H	Only once	13	No response

Table 3. Activity engaged in when dental prosthesis was dislodged

During drinking N (%)	During taking drugs N (%)	During eating N (%)	During sleep N (%)	Total
2 (25%)	5 (62.5%)	1 (12.5 %)	0 (0%)	8(100%)

engaged in when the dental prosthesis were dislodged, with all the patients ingesting their denture either while trying to swallow water, food or drugs.

Discussion

The results showed that most of the patients had no habit of removing their dentures before sleeping, eating or taking drugs(Table 1). This becomes an important omission when Table 3 revealed that all the patients ingested their denture either while swallowing water, food or drugs. The first preventive strategy from this study will therefore emphasize that patients with dental prosthesis (unsecured type) should remove their dental prosthesis before eating or drinking anything. Although this might appear a bit difficult and embarrassing when in the public; this is however not to be compared with the complications that can arise from dental prosthesis ingestion and subsequent impaction[2-5,8]. The above finding was corroborated in a study by Elusoji and co-workers [6], where all the 9 patients ingested their denture either while eating or trying to swallow tablets.

No patient swallowed his or her denture during sleep in this study. Other studies have, however, implicated sleep as another very important activity during which patients may swallow their dental prosthesis[1,9].

From Table 2 we can deduce another preventive strategy by encouraging patients with denture (especially the unsecured type) to go for regular check-ups as dental prosthesis may wear or become ill-fitting with time due to structural changes in the prosthesis or oral cavity. This will therefore increase the likelihood of a denture being easily displaced by food or water while eating or drinking drugs, leading to denture ingestion.

The behavioural reactions in Table 2 are only to be mentioned for the purpose of condemnation as seen in one of the patients who aspirated while inducing vomiting to dislodge the ingested denture, which led to severe aspiration pneumonia. Also trying to dislodge a dental prosthesis by swallowing a bolus of solid food can convert an incipient to an overtly impacted denture and can also lead to severe injuries and more fatal complications especially in well impacted dental prosthesis.

Another preventive strategy involves the awareness of the potential for dental prosthesis ingestion by the dental surgeon during dental procedures[10] and therefore to be very careful. Similarly, the use of preventive practices/strategies such as the use of barriers (rubber dam), attaching ligatures to the dental prosthesis and the use of throat pack during dental procedures to prevent ingestion are equally important[7,10].

In case of ingestion of a dental prosthesis, early presentation to a specialist ENTH&N service and prompt emergency management is required to decrease morbidity and mortality[1,6].

The limitation of the study was the few patients seen during the study period.

Conclusion

Removal of unsecured dental prosthesis before eating, drinking water or drugs will likely reduce the incidence of ingestion associated with them. Early presentation to the hospital and prompt

management are also advocated.

References

1 Abdullah BJ, Teong LK, Mahadevan J, Jalaludin A. Dental prosthesis ingested and impacted in the esophagus and orolaryngopharynx. *J Otolaryngol* 1998; **27**:190-194.

2 Elusoji SO, Tabowei BI. Fatal haematemesis due to impacted foreign body in the oesophagus. *J Pak Med Assoc* 1993; **43** :39-40.

3 Rajesh PB, Goiti JJ. Late onset tracheo-oesophageal fistula following a swallowed dental plate. *Eur J Cardiothorac Surg* 1993;**7**:661-662.

4 Osinubi OA, Osiname AI, Pal A, Lonsdale RJ, Butcher C. Foreign body in the throat migrating through the common carotid artery. *J Laryngol Otol* 1996;**110**:793-795.

5 Lam HC, Woo JK, van Hasselt CA. Management of ingested foreign bodies:a retrospective review of 5240 patients. *J Laryngol Otol* 2001;**115**:954-957.

6 Elusoji SO, Ogundiran O, Mafeni J. Management of impacted dentures in the oesophagus. *Niger J Med* 1998;**7**:120-121.

7 Hill EE, Rubel B. A practical review of prevention and management of ingested/aspirated dental items. *Gen Dent* 2008;**56**:691-694.

8 Ekanem VJ, Obuekwe ON, Unuigbe A. Death from ingestion of removable partial denture: a case report. *Niger Postgrad Med J* 2005; **12**:65-66.

9 Firth AL, Moor J, Goodyear PW, Strachan DR. Dentures may be radiolucent. *Emerg Med J* 2003;**20**:562-563.

10 Fredekind RE, McConnell TA, Jacobsen PL. Ingested objects: a case report with review of management and prevention. *J Calif Dent Assoc* 1995;**23**:50-55