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Impending Total Airway Collapse Involving a Maxillary Removable Partial Denture: A Clinical Report

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Impending total airway collapse involving a maxillary removable partial denture: A clinical report

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Abstract

This article presents a rare incident of a bilateral maxillary [removable partial denture](#) as an airway foreign body. The removable partial denture and the surrounding soft tissue irritation caused partial obstruction of the airway. Impending airway [collapse](#) was avoided after successful removal of the foreign body. Removing a removable [dental prostheses](#) at night, not only to prevent [soft tissue pathology](#) but also to avoid ingestion or aspiration of the [prosthesis](#), must be emphasized.

Ingestion or aspiration of foreign objects can be a serious medical emergency. More than 92% of swallowed foreign objects will follow the [gastrointestinal tract](#),¹ and approximately 60% of these will reach the stomach.² Once the stomach is reached, most objects should pass through the gastrointestinal tract without complications within 7 to 10 days.²

In dentistry, the ingestion or aspiration of a foreign object is a rare incident³ and makes up about 6.6% of all ingested or aspirated objects.⁴ In most situations, foreign dental objects are ingested,^{5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28} and only a few reports have described aspiration.^{4, 14, 29, 30} Accidents most often happen chairside during [orthodontics](#),^{9, 10, 14} implant dentistry,^{6, 14} [endodontic](#) procedures,^{10, 14} or other restorative procedures^{10, 14, 15, 21} in which small instruments were used or the dental provider did not take preventive measures. However, ingestion of orthodontic devices,^{9, 16} fixed [dental prostheses](#),¹³ and removable dentures^{5, 7, 11, 17, 18, 19, 20, 22, 23, 24, 25, 26, 28} have been reported while the patient was away from the dental office.

Accidental ingestion of dental [prostheses](#) may happen more often in elderly individuals or those with reduced mental function.^{17, 26} Existing evidence-based guidelines for the care and maintenance of removable prostheses recommend removal while sleeping to prevent denture stomatitis.³¹ However, ingestion or aspiration is a much more serious medical emergency and can occur while the patient is eating, speaking, or sleeping. Ingested prostheses, either fixed or unilateral [removable partial dentures](#), have been typically smaller in size,^{5, 7, 17, 18, 19, 23} replaced only a few teeth, and/or were lacking a metal framework.^{11, 20, 22, 25, 28, 29} In addition to airway obstruction, the size of the prostheses and the presence of sharp metal retentive elements may increase the possibility for other complications, such as esophageal erosion or intestinal perforation.³² The purpose of this clinical report was to present a rare airway foreign object incident that involved a large bilateral maxillary removable partial denture with a cast metal framework.

Clinical Report

A 76-year-old man presented to the emergency department at the Clement J. Zablocki VA Medical Center with [dyspnea](#) and productive coughing. He reported that 2 nights earlier he had a coughing episode while lying on his bed that caused him to swallow his [prosthesis](#). The patient was in moderate distress, and because of shortness of breath and presence of secretions he was unable to give more information about his symptoms. A cervical [radiograph](#) showed the denture in the [hypopharynx](#) (Fig. 1). He subsequently underwent a flexible fiber-optic [laryngoscopy](#) to evaluate the airway. The prosthesis was partially visualized in the postcricoid region, and one of the clasps was engaged on the [mucosa](#) of the right [arytenoid cartilage](#) (Fig. 2). [Generalized edema and erythema](#) were noted, as were thick secretions. Because of the longstanding presence of the prosthesis and the tissue irritation, the airway threatened to [collapse](#).



Figure 1. Lateral cervical [radiograph](#) showing foreign body located at [hypopharynx](#).

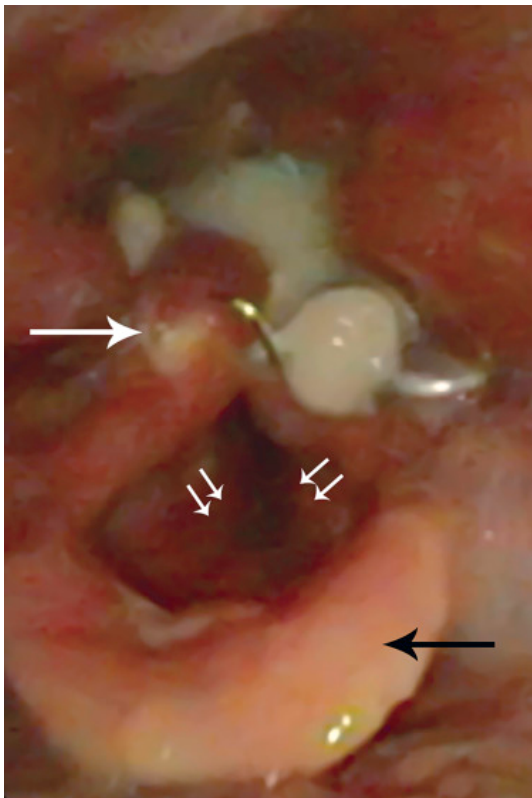


Figure 2. [Laryngoscopy](#) image showing exact location of foreign body. [Generalized edema](#) of surrounding tissues resulting in partial airway obstruction. Single black arrow, [epiglottis](#); single white arrow, right arytenoid/corniculate cartilage; double white arrows, [vocal cords](#).

The patient presented for the removal of a foreign body in the airway. Because the location of the denture was below the [vocal cords](#) in the proximal [esophagus](#) and because it was well engaged with the tissue, the patient would benefit from induction and [intubation](#) with a smaller tube. The patient underwent [general anesthesia](#) and the moderately difficult removal of a foreign body from the airway ([Fig. 3](#), [Supplemental Video 1](#)). The patient was extubated soon after the procedure.



Figure 3. Retrieved prosthesis.

Summary

Although rare, dental prosthesis ingestion or aspiration could be a serious incident. This clinical report presents the management of a rare medical emergency that resulted from a large maxillary partial denture obstructing the airway. The adequate retention and design of a prosthesis can prevent excessive movement while in function. Patients are instructed to remove removable prostheses while sleeping to prevent soft tissue pathology. However, the risks of ingestion or aspiration may impose a life-threatening complication and must be emphasized.

Appendix

<https://ars.els-cdn.com/content/image/1-s2.0-S0022391318300921-mmc1.mp4>

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