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Case Report

Foreign body in the hypopharynx: late prosthesis extrusion after cervical arthrodesis

Sofia Oliva-Costa [1], Rafael Castro [1], Daniel Naves [1], Eduardo Couto [1]

[1] Otolaryngology department of State University of Campinas (UNICAMP), Campinas, São Paulo, SP, Brazil.

* Correspondence: sofiaolivacosta@gmail.com.

Abstract: This is a case report of a rare airway Foreign Body (FB), the first reported case of an extruded prosthesis of previous cervical spine arthrodesis still attached to the wall of the hypopharynx, obstructing the airway, and requiring immediate removal. A 56-year-old man with a history of previous cervical arthrodesis (C3-C7). He presented anterior displacement of the Cage Device and erosion of the posterior wall of the hypopharynx, with the prosthesis causing partial obstruction of the larynx. After the Neurosurgery and Radiology team determined that there were no risks of cervical spine instability, we were able to remove the device in the operating room using Laryngoscope and McGill forceps with success. After proper evaluation of the case, we were able to remove the foreign body uneventfully. Given the rarity of this complication, we hope this case report can assist in the treatment and management of future cases.

Keywords: Foreign-body migration; Airway obstruction; Cervical arthrodesis.

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1. Introduction

The presence of a foreign body (FB) in the airway is a differential diagnosis for airway obstruction, which usually manifests acutely after aspiration, although symptoms depend on the site of impaction [1]. FB aspiration is more common among children (75%-85% of cases), whereas accidental aspiration of organic FBs is more common among adults and usually indicates failure in airway protection mechanisms. iatrogenic aspiration of inorganic FBs is frequently reported during procedures in the aerodigestive tract, such as dental or airway procedures [2–4]. Removal of airway FB is a common procedure on the otolaryngologist routine; however, they are usually small and non-attached to any airway tissue, therefore facilitating its removal.

We report a rare case of aerodigestive tract obstruction by a cage device used in anterior cervical spine surgery, that is the first one to be reported that the FB was still attached to nasopharynx wall by the time of our evaluation, and we describe the strategy we used for the subsequent successful removal.

2. Case Report

A 56-year-old man with a history of previous cervical arthrodesis (C3-C7) conducted at another hospital five years before, reported laceration of the posterior pharyngeal wall during the procedure. The patient required antibiotic therapy and nasoenteric feeding for approximately 15 days after the procedure and reported a full recover 1 month after the surgery, without any complaints.

He presented to our service after five years of the surgery complaining of dysphagia, dysphonia, and dyspnea, without audible stridor on cervical auscultation and no desaturation. The symptoms started approximately 3 months after the surgery, but he lost his

medical insurance and was no longer assisted by the surgeon. By this time, he was complaining only of discrete dysphagia, evolving with symptoms progression. Flexible nasopharyngoscopy showed an oval-shaped plastic FB adhered to the posterior wall of the hypopharynx advancing over the supraglottic region, causing partial larynx obstruction (Figure 1).

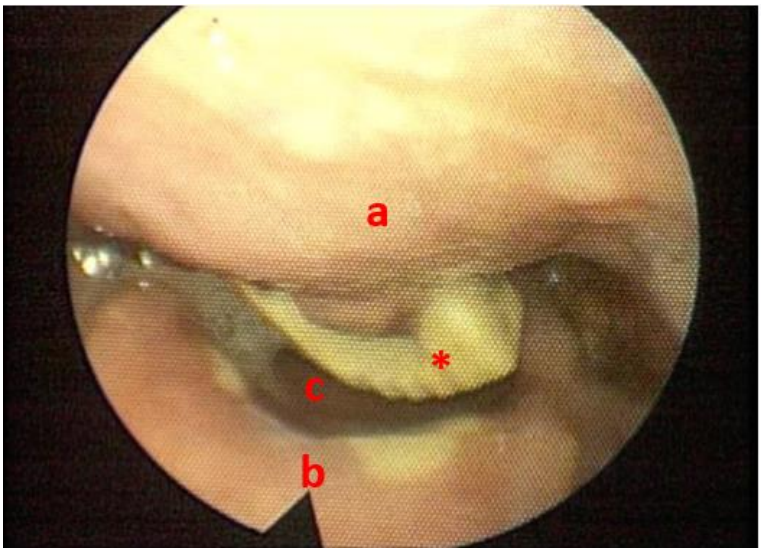

Figure 1. Nasofibroscopy showing the presence of a cage device adhered to the posterior wall of the hypopharynx and advancing over the supraglottic region, causing partial larynx obstruction, not being possible to visualize the vocal folds; a = posterior wall of the hypopharynx / b = epiglottis / c= laryngeal inlet / * = cage device.

Head and neck computed tomography showed evidence of previous cervical arthrodesis (C3-C7) and absence of the intervertebral disc prosthesis used in the procedure at C3-C4, with apparent anterior displacement of the prosthesis and erosion of the posterior wall of the hypopharynx (Figure 2).

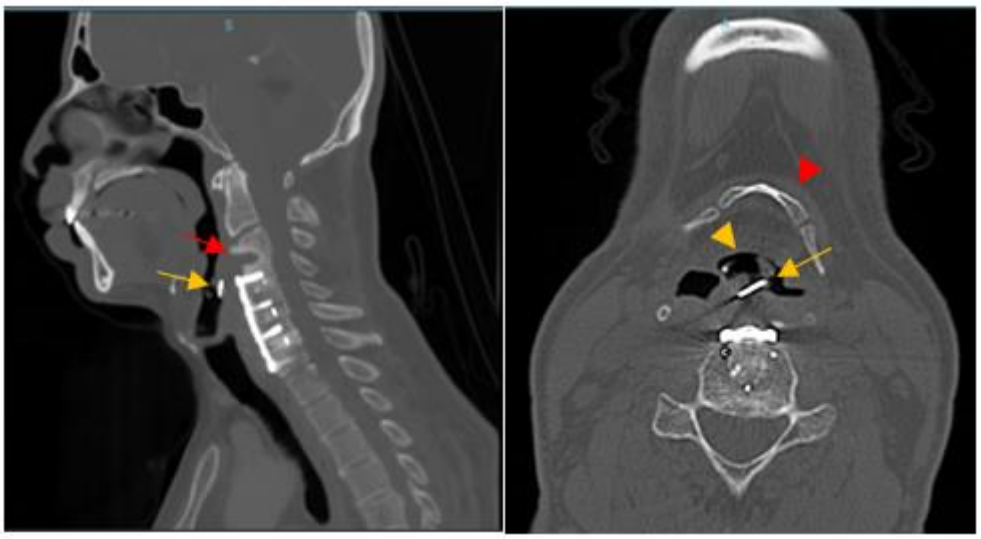

Figure 2. Sagittal and Axial Computed Tomography of the neck, showing signs of previous arthrodesis of the cervical spine from C3-C7, and absence of the Cage Device used between the levels of C3-C4, with apparent displacement of the device, projecting itself over the supraglottic region, causing partial larynx obstruction; Red arrow = empty vertebral space after displacement of cage

device; yellow arrow = cage device misplaced; yellow arrowhead = laryngeal inlet; red arrowhead= hyoid bone.

The Neurosurgery and Radiology team evaluated the patient and allowed FB removal after determining that there were no risks of cervical spine instability. The procedure was conducted in an operating room. With the patient under minimal sedation, allowing the possibility of conversion to general anesthesia for tracheostomy with direct laryngoscopy if needed, a laryngoscope and Magill forceps were introduced to grasp and remove the FB, successful on the first attempt (Figure 3).

Figure 3. Cage device after its removal by direct laryngoscopy using Magill forceps.

One day after the procedure, the patient reported mild local pain but complete resolution of dysphagia, dysphonia, and dyspnea. Indirect laryngoscopy with a 70-degree laryngoscope showed discrete erosion of the posterior wall of the hypopharynx, where the FB was located, but no other lesions or evidence of fistula (Figure 4). The patient showed no signs or complaints of cervical instability and was referred to the neurosurgery team for further evaluation.

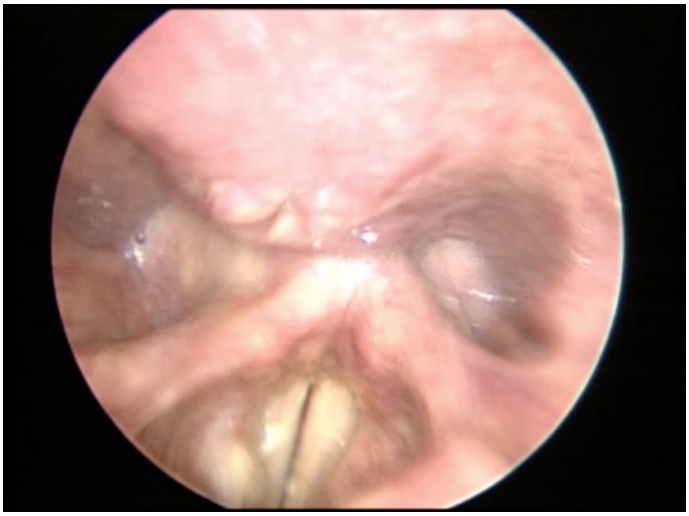

Figure 4. Indirect laryngoscopy with 70° rigid laryngoscope one day after FB's removal, showing discrete erosion of the posterior wall of the hypopharynx (red arrow), with complete visualization of vocal folds (blue arrow), without any other lesions.

3. Discussion and Conclusion

Spinal disease treatment has greatly advanced since the first procedures reported in the beginning of the 19th century. Complications of anterior cervical spine surgery include otolaryngologic complications such as dysphagia (5.3%), esophageal perforation (0.2%), and recurrent laryngeal nerve injuries (1.3%), as well as graft failure (2.1%), with only 5 cases of migration into the pharynx or other regions of the aerodigestive tract having been reported to date [5].

Before FB removal, we performed nasopharyngoscopy, computed tomography, and multidisciplinary discussion to ensure that the procedure would not damage other structures or affect the outcomes of the spinal surgery. We decided it would be safer to perform the procedure in a controlled environment (operating room) in case surgical airway was required. However, there were no complications during the procedure, and patient recovery was uneventful.

We are not able to affirm the cause of the cage device displacement once the procedure took place in another hospital. We can hypothesize that the prosthesis was not adequately placed in the first surgery, justifying the post-operative complication of posterior wall laceration, mentioned by the patient in his admission. The loss of follow-up most certainly contributed to the aggravation of the symptoms over the years and led the patient to present himself to our service with almost complete airway obstruction.

Also, after the FB removal, the patient had no signs or complaints of cervical spine instability, probably because the cage device was misplaced and was not performing its therapeutical purpose for a long time. He was referred to the neurosurgery team for further evaluation. To the best of our knowledge, this is the first reported case of an extruded prosthesis still attached to the wall of the hypopharynx, obstructing the airway, and requiring immediate removal. In previous reports, parts of the graft or the entire graft had been completely extruded, either orally through coughing or through the gastrointestinal tract [6–11]. Given the rarity of this complication, we hope this case report can assist in the treatment and management of future cases.

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Research Ethics Committee Approval: We declare that the patient approved the study by signing an informed consent form and the study followed the ethical guidelines established by the Declaration of Helsinki.

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Conflicts of Interest: We confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere. We have no conflicts of interest to disclose.

Supplementary Materials: None.

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