Case Report

Esophageal Foreign Body Extraction Using Transnasal Esophagoscopy

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Abstract

Objectives: This report concerns office-based esophageal foreign body extraction using transnasal videolaryngoscopy and advantages of this intervention.

Methods: A videolaryngoscope with a working channel for irrigation, air insufflation and forceps was used. The diameter of the videolaryngoscope tip was 5.3 mm. Transoral esophageal foreign body extraction using transnasal esophagoscopy was performed under surface anesthesia.

Case Report: A seventy-one-year-old male complained of having a sore throat after taking medicine. An X-ray examination showed the esophageal foreign body (PTP: Press through package medicine). Transnasal esophagoscopy was performed in a sitting position on a procedure chair at the outpatient clinic without sedation. In this case, the foreign body was too large to extract through the nasal cavity. Therefore, after extracting the foreign body as far as the oropharynx, the PTP was extracted transorally.

Results: The patient could be treated in a sitting position on a procedure chair at the otolaryngology outpatient clinic, which obviates the need for sedation or general anesthesia. The videolaryngoscope diameter is relatively small and results in less discomfort to the patient.

Conclusions: Transoral esophageal foreign body extraction using transnasal videolaryngoscopy is one of the options that have widened the indications for office-based foreign body extraction.

INTRODUCTION

The videolaryngoscope has a small charge-coupled device (CCD) chip built into its tip which provides clear image. Since the videolaryngoscope has come on the market, relatively thin videolaryngoscopes have been developed which have a forceps channel and provide a clear image of an object with excellent resolution. The videolaryngoscope has many advantages compared with conventional flexible fiberscopes, not only for observation and examination but also for treatment, such as surgery and foreign body extraction.

This report concerns office-based transoral esophageal foreign body extraction using transnasal videolaryngoscopy and the advantages of this intervention.

CASE PRESENTATION

Foreign body extraction procedure

The videolaryngoscope for transnasal foreign-body extraction in the esophagus has a diameter of 5.3 mm, which is narrow enough to allow for comfortable transnasal passage in most adult patients. The scope is also equipped with an air insufflation port, an irrigation port and working channel for forceps.

In performing the endoscopic foreign-body extraction, surface anesthesia of the pharynx and larynx was performed. The inhalation of 4% lidocaine hydrochloride as an aerosol was conducted before endoscopy. In addition, the nasal mucosa was shrunk and anesthetized using gauze strips impregnated with 4% lidocaine hydrochloride with epinephrine (1:5000). Sedation and general anesthesia were not performed.

An operator conducts the endoscopy and an assistant manipulates the forceps, while observing the exceptionally clear image on the color video monitor in real time.

Case report

A seventy-one-year-old male complained of having a sore throat after taking medicine. An X-ray examination showed the esophageal foreign body (PTP: Press through package medicine).
Transnasal esophagoscopy was performed in a sitting position on a procedure chair at the outpatient clinic without sedation. In this case, the foreign body was too large to extract through the nasal cavity (Figure 2). Therefore, after extracting the foreign body as far as the oropharynx, the PTP was extracted transorally (Figure 3).

RESULTS

The videoendoscope system is compact and can be set up near a procedure chair and a cabinet at an otolaryngology outpatient clinic.

The advantages of esophageal foreign body extraction using transnasal videoendoscopy were: 1) The videoendoscope diameter was relatively small and resulted in less discomfort to the patient. 2) The patient could be treated in a sitting position on a procedure chair at the otolaryngology outpatient clinic, which obviated the need for sedation or general anesthesia. 3) Per nasal endoscopy allowed the doctor to treat the patient who had a strong gag reflex. 4) The patient could talk with a physician during the intervention. 5) The videoendoscope presented clear dynamic fine images on a color video monitor and provided excellent resolution and recording, and thus yielded high diagnostic accuracy and excellent intervention. 6) Good image documentation on the color video monitor allowed the physician to carry out safe intervention even for elderly patients.

The disadvantage of this procedure is that the extraction of some varieties of foreign bodies is limited. Consequently, not only transnasal esophageal foreign body extraction but also transoral extraction using transnasal esophagoscopy is one of the options of this intervention.

DISCUSSION

Traditionally and routinely, otolaryngologists have inserted the flexible videoendoscope, such as laryngopharyngoscope, through the nasal passage. Patients could be examined without surface anesthesia in a sitting position on a procedure chair at the otolaryngology outpatient clinic. Per nasal endoscopy allowed the doctor to treat patients who had a strong gag reflex. Patients could phonate and talk with a physician during the intervention.

Since the videoendoscope has come on the market, the videoendoscope has many advantages compared with conventional flexible fiberscopes, not only for observation and examination but also for treatment, such as surgery and foreign body extraction.

Clear dynamic fine images obtained by videoendoscopy

The videoendoscope has a small charge-coupled device (CCD) chip built into its tip which provides a clear image. The videoendoscope presents clear dynamic fine images on a color video monitor and provides excellent resolution and recording, and thus yields high diagnostic accuracy and excellent intervention. Good image documentation on the color video monitor allows the physician to carry out safe intervention.

Regarding the extraction of pharyngeal foreign bodies, clear dynamic fine images by videoendoscope have contributed to reliable intervention [1]. Transnasal extraction of minute pharyngeal foreign bodies with transnasal videoendoscopy is a reliable procedure of office-based endoscopy of the pharynx [1].
We previously reported the performance in a clinical trial of a videoendoscope [2,3] manufactured in cooperation with Asahi Optical Co., Ltd (PENTAX) [4]. This new experimental videoendoscope is equipped with a transparent hood at its tip to observe and treat the hypopharynx and cervical esophagus, especially the entrance of the esophagus, and has many new features. A small charge-coupled device chip built into the tip of this videoendoscope provides a clear image with excellent resolution on a color video monitor that is equipped with a video recorder, thus tiny lesions of mucosa can be well depicted, and the videoendoscope’s diagnosis accuracy is high. The transparent hood does not cut off images and provides a wide field of view. We are able to perform not only observations but also examinations and treatments, such as biopsies and foreign body extraction [5] with this scope. Indications for office-based endoscopy for the hypopharynx and cervical esophagus have thus been widened.

Diameter of the videoendoscope

Since the videoendoscope has come on the market, relatively thin videoendoscopes have been developed which have a forceps channel and provide a clear image of an object with excellent resolution.

In 2000, the distal-chip camera esophagoscope (videoendoscope) was introduced to our field by PENTAX (Asahi Optical Co., Ltd) [6]. Since that time, its otolaryngologic applications have grown exponentially [6]. The external diameter is small enough to be comfortably introduced transnasally [6]. In addition, there is a 2-mm working channel that allows irrigation, air insufflations, biopsy, and the performance of a variety of procedures [6].

We reported on office-based transnasal cervical esophageal foreign body [7] or esophageal foreign body [8] extraction using transnasal videoendoscopy and the advantages of this intervention [7]. The advantages of this intervention are that 1) Patients can be treated in a sitting position on a procedure chair at the otolaryngology outpatient clinic, which obviates the need for sedation or general anesthesia. 2) The videoendoscope diameter is relatively small and results in less discomfort to the patient. 3) Video videoendoscopes present clear dynamic color images on a color video monitor and provide excellent resolution and recording, and thus yield high diagnostic accuracy and fine intervention. 4) Pernasal endoscopy allows the doctor to treat patients who have a strong gag reflex. 5) Good image documentation on the color video monitor allows the physician to carry out safe intervention even for elderly patients. The disadvantage of this procedure is that extraction of some varieties of foreign bodies is limited. Consequently, not only transnasal but also transoral esophageal foreign body extraction using transnasal esophagoscopy is one of the options of this intervention.

In the present study, office-based transoral esophageal foreign body extraction using transnasal videoendoscopy was reported. The advantages of this intervention were same as those of the office-based transnasal esophageal foreign body extraction using transnasal videoendoscopy [7,8]. The disadvantage of this procedure is that extraction of various kinds of foreign bodies is limited, depending in part on the size and shape of the foreign body.

Tips for this procedure are 1) To prevent tearing of the esophageal mucosa by the sharp tip of a foreign body, the foreign body should be manipulated and rotated under videoendoscope in order not to injure the mucosa (minimize the progressive area of the foreign body). 2) After grasping the cephalad edge of the foreign body with foreign body forceps, the foreign body should be fixed at the tip of the videoendoscope by pulling the forceps. 3) The videoendoscope and foreign body at the tip of the videoendoscope should be slowly extracted together. 4) The foreign body should be passed through the entrance of the esophagus when it is open (cricopharyngeal muscle relaxed). 5) When the foreign body is too large to extract through the nasal cavity, after extracting the foreign body as far as the oropharynx, the foreign body should be extracted transorally.

This procedure is one of the options that have widened the indications for office-based esophageal foreign body extraction.

CONCLUSION

This report concerns office-based esophageal foreign body extraction using transnasal videoendoscopy. Transoral esophageal foreign body extraction using transnasal videoendoscopy is one of the options that have widened the indications for office-based esophageal foreign body management. The esophageal foreign body management depends on the anatomic location, shape and size of the foreign body, and duration of impaction. In planning the extraction, one of the important points to be considered is the proper choice of the instrument. It is important to select patients who will benefit from this intervention.

REFERENCES