Gastroscope-assisted oral cavity and nasopharynx examination

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Background and Aims: The oral cavity and nasopharynx are often overlooked during EGD, despite their relevance in early detection of upper aerodigestive pathologies. This video introduces a standardized, cap-assisted gastroscope technique to assess these areas during routine EGD that aims to improve anatomical recognition and opportunistic screening.

Methods: We demonstrate a cap-assisted technique using a standard gastroscope with a distal attachment to evaluate the oral cavity presedation via 4 standardized positions (tongue down, right, left, up), and the nasopharynx via retroflexion in sedated patients. Both assessments are completed within 20 seconds and recorded for educational and diagnostic value.

Results: Oral cavity assessment enables visualization of key anatomical landmarks and allows identification of mucosal abnormalities. Nasopharyngeal visualization is successful in more than 90% of cases, with clear views of structures such as the Eustachian tubes and posterior pharyngeal wall. Both techniques are safe, efficient, and reproducible, enhancing procedural scope and trainee education.

Conclusions: Cap-assisted oral cavity and nasopharynx examinations can be safely integrated into routine EGD, expanding its diagnostic reach. These standardized techniques offer educational value and potential for early lesion detection, justifying further prospective validation in high-risk populations. (VideoGIE 2025;10:615-8.)

INTRODUCTION

EGD is a cornerstone procedure for evaluating the esophagus, stomach, and duodenum, yet it frequently overlooks the oral cavity and nasopharynx, despite their critical role in the upper aerodigestive tract. These areas are susceptible to pathologies, including mucosal lesions and nasopharyngeal carcinoma, which may go undetected without targeted examination. Research has highlighted the importance of incorporating pharyngeal assessment, including the oropharynx, into EGD to identify abnormalities that could otherwise be missed.[1] Structured evaluation of the oropharynx, hypopharynx, and larynx during EGD has been shown to enhance detection of pre- and early cancerous lesions, particularly in populations at elevated risk, underscoring the need for expanded endoscopic protocols.[2] This video article introduces a novel cap-assisted gastroscope technique to assess the oral cavity and nasopharynx, broadening EGD's diagnostic and educational scope for practicing endoscopists and trainees. The approach is rapid, requiring less than 20 seconds per assessment, and uses a distal cap attachment to deliver high-resolution, in-focus mucosal visualization with minimal additional cost, making it practical for routine clinical use.[3] Techniques like transnasal endoscopy with advanced imaging have shown promise for pharyngeal visualization, suggesting similar innovations can enhance EGD's utility.[4] These methods are particularly valuable in regions with high nasopharyngeal carcinoma prevalence, where opportunistic screening could improve outcomes.[5] In our practice, structured oropharynx, hypopharynx, and larynx

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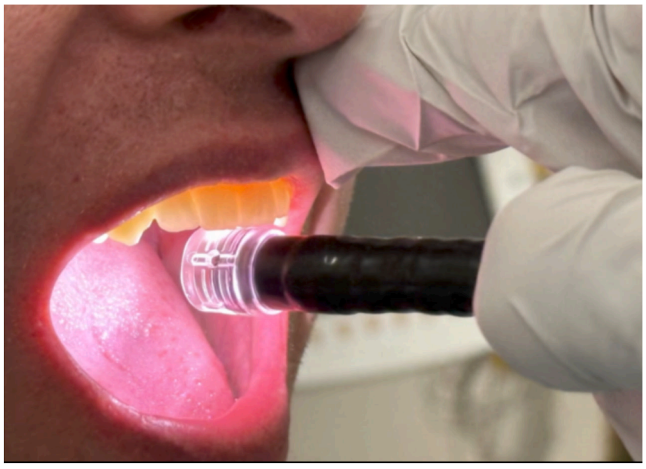

Figure 1. Single fixed scope position is maintained throughout the entire standardized assessment of the oral cavity.

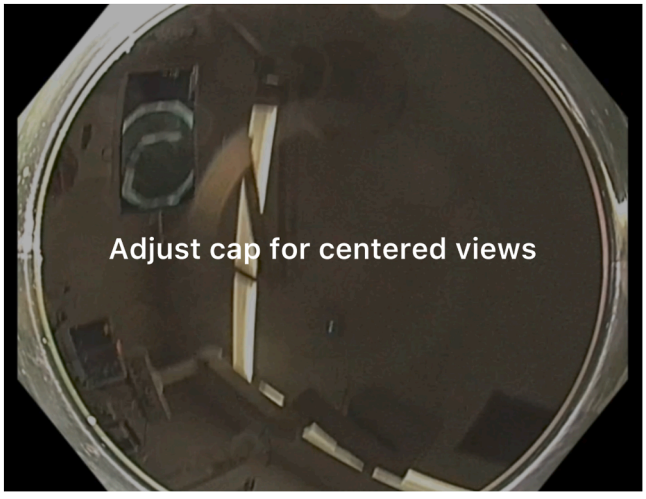

Figure 2. Correct distal cap attachment on the gastroscope tip, resulting in centered views without tunnel vision.

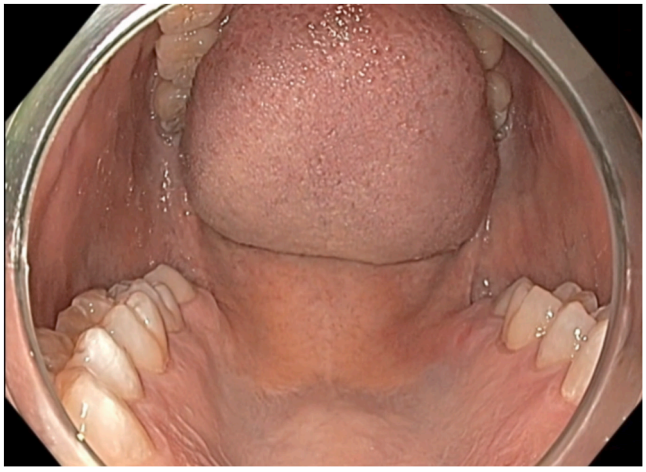

Figure 3. First standard image of the oral cavity with tongue down.

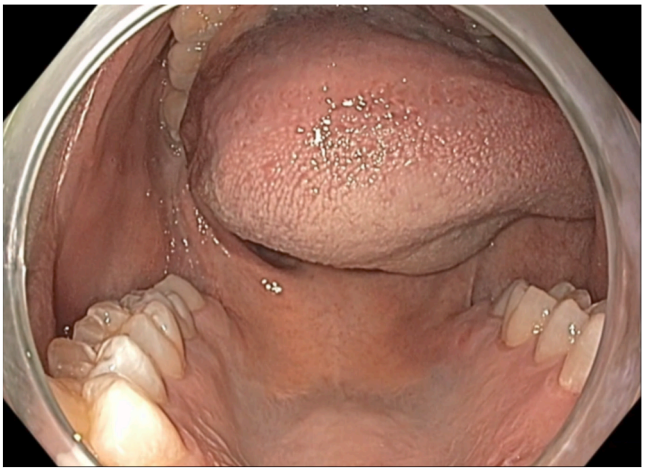

Figure 4. Second standard image of the oral cavity with tongue right.

assessment is already standard, providing a foundation for integrating these novel techniques.[2] Video 1 (available online at www.videogie.org) aims to standardize these assessments, offering a reproducible, time-efficient method to enhance training curricula and inspire prospective studies to evaluate diagnostic yield, particularly in high-risk populations.[1,5]

PROCEDURE DESCRIPTION

Video 1 demonstrates 2 cap-assisted techniques performed during EGD, using a gastroscope equipped with a distal cap attachment. These techniques are designed to be quick, safe, and easily integrated into routine EGD, providing clear educational value for practicing endoscopists and trainees by emphasizing standardized protocols and anatomical landmarks.[6]

Oral cavity assessment

This technique addresses a significant gap in standard EGD by evaluating the oral cavity for mucosal abnormalities often overlooked. The cap-assisted gastroscope tip is carefully positioned at the upper incisors, allowing direct views of the oral cavity (Figs. 1 and 2) to capture 4 standardized images: tongue down (Fig. 3), tongue right (Fig. 4), tongue left (Fig. 5), and tongue up (Fig. 6). The distal cap stabilizes the scope tip, ensures high-resolution visualization of mucosal surfaces, and protects the endoscope from teeth, enhancing procedural safety and image quality. Completed in less than 20 seconds, the assessment highlights normal anatomical structures, including the tongue, buccal mucosa, palate, and uvula, providing endoscopists with a clear reference for normal anatomy. When abnormalities, such as erosions or leukoplakia, are identified, they are documented via additional high-resolution images for referral to otolaryngology (ear-nose-throat) specialists, ensuring appropriate follow-up.[3]

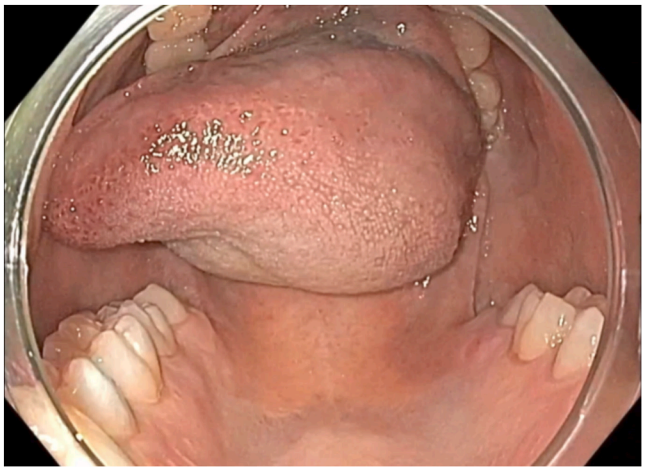

Figure 5. Third standard image of the oral cavity with tongue left.

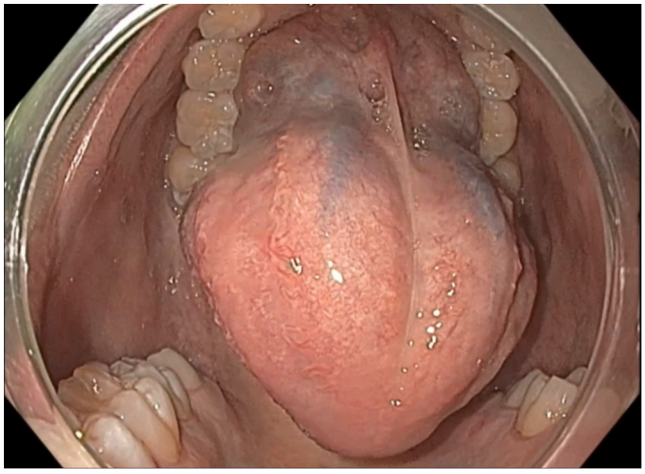

Figure 6. Fourth standard image of the oral cavity with tongue up.

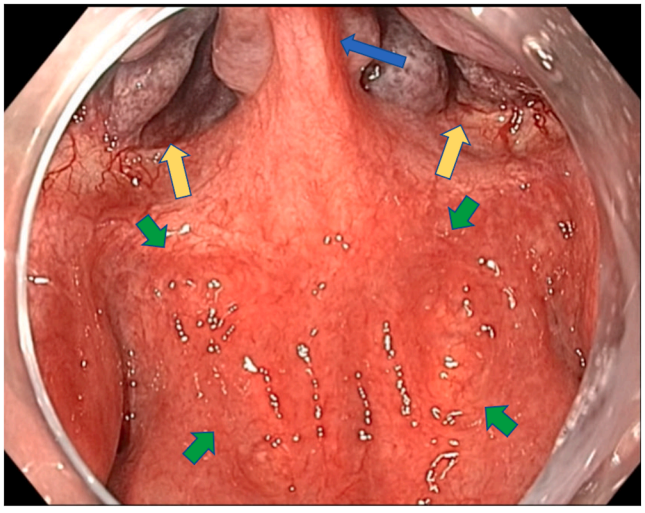

Figure 7. First standard image of the nasopharynx demonstrating the roof of the nasopharynx (*green arrows*), nasal septum (*blue arrow*), and the choanae (*yellow arrows*).

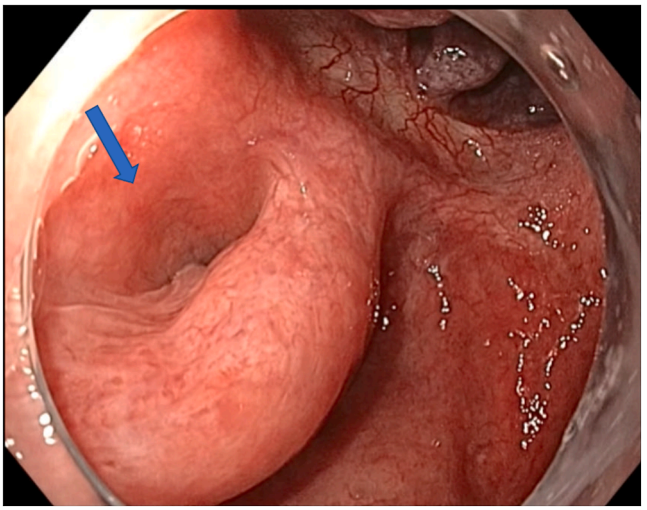

Figure 8. Second standard image of the nasopharynx demonstrating the right Eustachian tube (*blue arrow*).

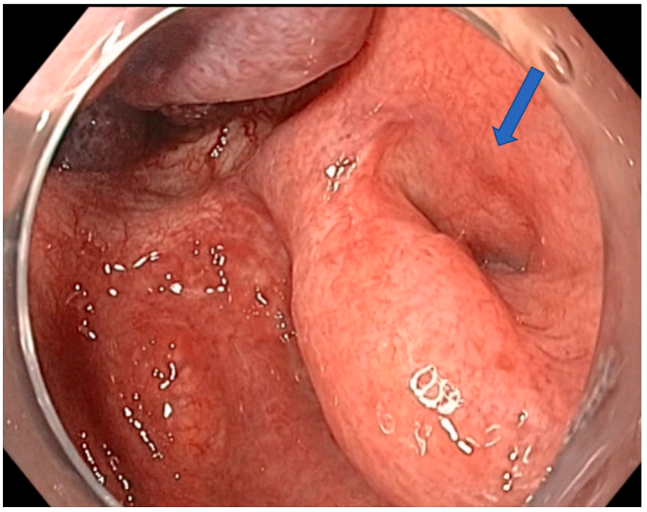

Figure 9. Third standard image of the nasopharynx demonstrating the left Eustachian tube (*blue arrow*).

Nasopharynx assessment

Indicated for opportunistic screening in high-risk patients, particularly in regions with elevated nasopharyngeal carcinoma prevalence, this technique involves retroflexing the cap-assisted gastroscope into the nasopharynx in sedated patients. Excellent visualization is achieved in more than 90% of cases, showcasing normal nasopharyngeal anatomy (Fig. 7), such as the Eustachian tube openings (Figs. 8 and 9) and posterior pharyngeal wall. The procedure, completed in less than 20 seconds, benefits from the cap's ability to enhance mucosal clarity and procedural safety, minimizing patient discomfort.[4]

Video 1 briefly includes oropharynx visualization, an established practice in our group, to provide context for trainees. This aligns with previous work demonstrating the value of structured oropharynx assessment during EGD, integrated into our standard protocol.[2] The

narration in Video 1 emphasizes the introduction of novel standardized techniques developed by our group and demonstrates the visualized normal anatomical landmarks, ensuring accessibility for practicing endoscopists and endoscopy trainees.[6]

OUTCOMES AND DISCUSSION

Video 1 demonstrates that cap-assisted oral cavity and nasopharynx assessments are feasible, safe, and highly efficient, each requiring less than 20 seconds. The oral cavity technique addresses a critical gap in EGD practice by visualizing normal anatomy, such as the tongue and palate, and preliminary findings like leukoplakia or erythroplakia, which may indicate early mucosal pathology.[1] The nasopharynx assessment, with more than 90% visualization success, supports opportunistic screening, especially in high-risk regions, potentially identifying abnormalities like lymphoid hyperplasia or early nasopharyngeal carcinoma.[4,5] Structured oropharynx, hypopharynx, and larynx assessment, already standard in our practice, can be seamlessly integrated with these techniques, as evidenced by improved lesion detection in previous studies.[2] In our experience, this approach has identified early oropharyngeal lesions, such as squamous cell carcinoma precursors, reinforcing its clinical utility.[1,2] The simplicity and brevity of these techniques make them ideal for incorporation into endoscopic training programs, equipping trainees with skills to enhance diagnostic yield.[6]

Limitations include the need for specialized training, as GI endoscopists may lack expertise above the upper esophageal sphincter. To address medicolegal concerns, abnormalities are referred to ear-nose-throat specialists for definitive diagnosis and management, and an additional informed patient consent for the extended EGD assessment could be considered dependent on the local medicolegal concerns. The use of sedation and adherence to institutional protocols further mitigate risks.[6] The distal cap's low cost and compatibility with standard gastroscopes enhance the technique's accessibility.[3] We are planning a prospective study to evaluate the diagnostic yield of these techniques, cataloging typical pathologies such as oral mucosal lesions or nasopharyngeal abnormalities to guide broader adoption. Although the video focuses on normal anatomy to standardize training, preliminary findings suggest potential for detecting significant pathologies, warranting further research. These methods expand EGD's role in both education and diagnostics, offering trainees a reproducible framework and encouraging other groups to evaluate these techniques in diverse populations.[2,5]

PATIENT CONSENT

We confirm that no external patient or participant was involved in the procedure. The procedure shown in the video was performed on one of the authors (B.M.) of this work (self-experiment/author volunteer). Therefore, there is no requirement for patient consent, as no third-party patient is depicted or involved. We attest that the author volunteer fully understood what was being recorded, the intended use of the video, and agreement to its use for publication.

DISCLOSURE

All authors disclosed no financial relationships.

DECLARATION OF GENERATIVE ARTIFICIAL INTELLIGENCE AND ARTIFICIAL INTELLIGENCE–ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work, the authors used ChatGPT 4.0 (OpenAI, Inc, San Francisco, Calif, USA) and Grok (xAI Corp, Palo Alto, Calif, USA) in order to improve the readability and language of the manuscript. After using these tools/services, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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