

A Case Study
on
GIF-N180

controlled trials have demonstrated the tolerability, safety and accuracy of the slimmer instruments compared to conventionally sized endoscopes passed with sedation. This new N180 videoscope provides technical improvements needed to address the shortcomings found in the above studies. Specifically, it is of sufficient length and stiffness to easily intubate the duodenum, yielding a complete upper endoscopic exam. The reduced-diameter 4.9 mm caliber instrument easily passes through the nasal tract, reducing the occurrence of pain and epistaxis, and avoiding the gagging often produced by peroral scope passage. It has an accessory channel so that mucosal findings can be biopsied during the examination. With one up-down control knob, the left-right control is easily obtained by torquing the endoscope shaft.

When performing transnasal upper endoscopy, I recommend taking sufficient time to explain the procedure and reduce patient anxiety. The steps to adequately anesthetize the nasal passage and pharynx are of major importance. While some endoscopists perform transnasal exams with the patient in a sitting position, I have found that patients relax well in the left lateral recumbent position, in the fashion of conventional upper endoscopy.

Topical pontocaine or lidocaine should be applied to the surfaces of the nasal passage to be intubated. I have the patient assist in choosing which nostril by asking them to occlude first one and then the other while inhaling with a closed mouth, and selecting the side (if there is a difference) that seems more open. I use a long wooden cotton-tipped swab dipped in liquid pontocaine, and advance it slowly to the posterior wall of the nasopharynx, painting the inner surface of the nasal canal. I believe that my patients relax better for the subsequent passage of the endoscope after seeing and experiencing the passage of the cotton swab to the back of the nose. After applying topical benzocaine to the pharynx, I then carefully insert the slim-caliber scope into the selected nasal passage and negotiate the turbinates to the posterior pharynx. From that point onward, the exam is like a regular upper exam.

The recent introduction of an esophageal capsule endoscope provides another option for low-impact, sedationless diagnostic evaluation of the esophagus. However, in contrast to the esophageal capsule endoscope, passage of the N180 videoscope permits real-time visualization of the esophagus, stomach and duodenum. It allows careful assessment of the gastroesophageal junction, including u-turn assessment of the cardia. With its accessory channel, targeted biopsies can be taken during the exam in areas of suspected intestinal metaplasia, obviating the additional follow-up endoscopy if the pill-cam image suggests the presence of this finding. With the N180, the examined patient is immediately aware of the endoscopic findings and even able to watch the procedure as it occurs.

The performance of outpatient screening upper endoscopy will be enhanced by the N180 endoscope. Safe, unsedated transnasal examination and biopsy of the entire proximal gastrointestinal tract is possible with this unique super-slim videoscope. It will improve patient tolerance and comfort and contribute to increased procedural efficiency.

Unsedated, ultrathin transnasal upper endoscopy

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Case Reports

Case 1

A 28 year-old female psychiatry resident presented with a history of 2 years of intermittent dyspepsia, which usually responded to the use of acid suppression. She was a non-smoker, but used NSAIDs monthly to control menstrual pain. More recently the dyspeptic symptoms were increasing in frequency and intensity, and she was seeking additional evaluation and treatment. There was no family history of peptic disease. There was no dysphagia, weight loss, change in appetite, melena or other alarm symptoms. She was interested to undergo an upper endoscopy, but wanted to avoid spending hours in sedation, recovery and having to arrange a friend to drive her home.

Procedure

To minimize the impact of the upper endoscopy on her clinical practice, arrangements were made to perform an unsedated esophagogastroduodenoscopy during the lunch hour, following a three hour fast. Her left nasal cavity was topically anesthetized with liquid pontocaine on a cotton-tipped wooden swab passed to the mucosal surface of the nasopharynx. The oropharynx was anesthetized with topical benzocaine spray. The patient was reclining comfortably in the left lateral position, and a 4.9 mm outer diameter (OD), 110 cm long ultra-thin videoendoscope (N180, Olympus Corp., Melville, NY) was easily passed through the nasal passage to the posterior pharynx, and subsequently through the esophagus to the duodenum without difficulty. The esophagus, stomach (including retroflexed view of the fundus and cardia) and duodenum were all easily visualized, and no mucosal lesions were noted. The endoscope was withdrawn. The patient tolerated the procedure well, and was pleased to have been able to view the procedure on the monitor and to know the results in real time. Following the endoscopic procedure, she left for lunch and to resume her afternoon schedule of clinic appointments.

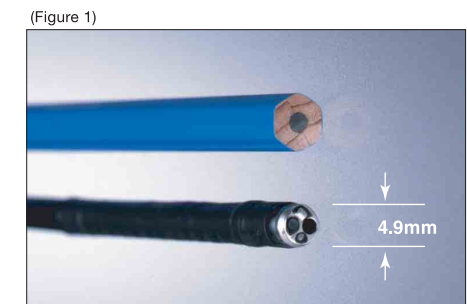
Case 2

A 54 year old male school teacher presented for discussion of his chronic gastroesophageal reflux (GERD) symptoms. For many years he had been bothered by near daily pyrosis and intermittent regurgitation. His symptoms were improved by the use of acid suppressors, and he was currently using a daily over-the-counter proton pump inhibitor. He had no alarming symptoms and was otherwise healthy. Not wanting to continue on medications indefinitely and concerned about the laparoscopic intervention for GERD, he was interested to know about the endoscopic treatment options to manage his symptoms. After reviewing several protocols in which he might participate as a volunteer, he agreed to pre-procedural testing with esophageal manometry, upper endoscopy and ambulatory pH monitoring. He wanted to avoid the need for sedation and preferred to drive himself back to work following the planned procedures.

Procedure

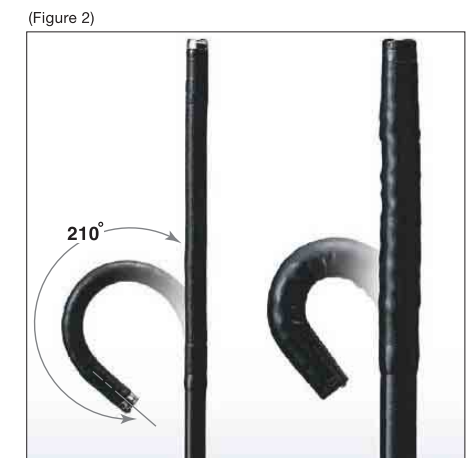
Subsequently, he returned for a visit in which he underwent esophageal manometry following a three hour fast from solids, and then an unsedated upper endoscopy with placement of a Bravo™ pH capsule. These procedures were performed following the application of topical nasal and pharyngeal anesthesia in the fashion described for the patient above. The Olympus N180 ultra-thin videoendoscope (4.9 mm OD, 110 cm) was passed easily transnasally into the duodenum. (Figure 1) There was a 1.5 cm proximal extension of the z-line with salmon-colored epithelium and a 2 cm

hiatal hernia, and the rest of the examination was normal. Multiple biopsies were taken in the area that looked like short-segment Barrett's esophagus and this was confirmed to be nondysplastic intestinal metaplasia at microscopy. His esophageal manometry was normal and the ambulatory pH testing revealed 11.5% and 8 % total acid exposure time with pH < 4 on days one and two respectively. He returned to the office a week later to discuss various management options.



The Device

The new "super-slim" Olympus GIF type N180 videoendoscope has appropriate working length (110 cm) and stiffness to permit easy passage into the duodenum. It is a forward viewing instrument with a 3 to 100 mm depth of field and 120 degree field of view. The distal end and shaft of the instrument has a 4.9 mm outer diameter and there is a 2 mm diameter instrument channel, which allows for suctioning of fluids and passage of various accessories. This endoscope has one knob for two-way angulation control, 210 degrees up and 120 degrees down. (Figure 2) Additional maneuverability comes from hand-torquing the shaft of the endoscope for left-right positioning. There are controls for air insufflation, water irrigation, suction, and picture capture.



Discussion

Most upper endoscopy in the United States is performed with sedation. While generally permitting the procedure to be conducted without discomfort, the administration of sedatives requires resources and time-consuming patient monitoring, has substantial cost, and can produce side effects and rare complications. With standard sedated endoscopy, patients need to arrange a driver to take them home, and may need to arrange child care or home care for dependents, adding to the impact of the endoscopic examination. Unsedated upper endoscopy provides a cost-effective alternative to standard endoscopy, is well tolerated and can permit more efficient examinations. Sedationless upper endoscopy is ideal for increasing population screening for conditions such as Barrett's esophagus, esophagitis, and esophageal varices in appropriate candidates.

In the mid-1990s, the introduction of thinner outer-diameter endoscopes encouraged the use of these instruments for transoral and transnasal unsedated esophagoscopy or esophagogastroduodenoscopy. A number of randomized