EDITORIAL

Transnasal endoscopic gastrostomy for patients whose condition limits standard oral endoscopic intubation

Endoscopic screening, accurate diagnosis, and minimally invasive treatment for upper gastrointestinal neoplasms are key challenges for gastroenterologists. In some cases, however, traditional endoscopy may be difficult in transoral intubation, especially when patients suffer from head and neck cancer and their oral insertion route may be limited by tumor obstruction, trismus related to radiotherapy, or submucosal fibrosis due to long-term betel nut chewing. The use of an ultrathin endoscope that can be intubated via the nostrils appears to be an effective approach to overcome such obstacles.

Combined with an enhanced imaging technique, transnasal endoscopy has been shown to be effective in screening synchronous or metachronous esophageal neoplasms and other benign lesions in patients with head and neck cancers [1,2]. Previous studies have compared the transoral and transnasal approaches and showed that, using ultrathin endoscopies, both approaches have an approximately equal success rate and good patient satisfaction [3–5].

Tube feeding is an important resource for facilitating nutritional recovery and is increasingly used because of global population aging. Percutaneous endoscopic gastrostomy (PEG) that is minimally invasive is a good method to provide a permanent route for enteric nutrition. Compared with traditional nasogastric tubes, PEG has the advantage of providing a larger port and preventing the discomfort and complications related to the use of nasogastric tubes [6,7]. In patients whose condition limits oral intubation with a standard endoscope, an endoscopic approach via the nasal route is reasonable, provided that the endoscope is thin, the PEG tube is small in caliber, and the patient’s nostrils are sufficiently large.

In previous studies, transnasal PEG was used in patients with head and neck cancers, dysphagia, neurologic diseases, or facial fracture. Using either the pull method or the introducer method, the success rate approached 100%, and the complication rate was low (Table 1) [8–17]. In Taiwan, Dr Lin first reported a case-series study using transnasal pull-type PEG. In that study, only one case failed transnasal PEG, and the completion rate was 96.8%. Only 10% of the participants developed minor epistaxis, and wound infections occurred in 26.6%. During PEG, contamination from bacteria harbored in the upper aerodigestive tract is inevitable, so the most common complication associated with PEG tubes is infection via the gastrostomy wound [18–21]. Pull-type transoral PEG has a higher infection rate that may be as high as 36% [6,18,20]. The physician’s endoscopic experience and the patient’s underlying diseases are risk factors for transoral PEG-related infection [22]. Theoretically, the introducer method that allows the tube to be introduced directly via abdominal wall puncture into the stomach may more easily avoid bacterial contamination compared with an approach via the aerodigestive tract [9,15,16,20]. However, the introducer method is associated with a higher rate of bleeding and perforation [18,21].

In the present issue of *Advances in Digestive Medicine*, Dr Lin compares transnasal PEG and that using the traditional transoral approach. Highly successful rates were achieved in both groups, but, as expected, a higher frequency of epistaxis was observed in the transnasal group. The study also addresses the infection rate associated with both approaches and shows that infection occurred in 26.3% and 36.8%, respectively, of patients in the transnasal and transoral groups, and more *Pseudomonas* infections were seen in the transnasal group. However, without a randomized allocation of patients, this study provides a descriptive rather than a direct comparison between these two approaches, and there remains a lack of robust evidence for the best clinical options to decrease the infection rate of the transnasal procedure. In a previous study that included oral and nasal swabs prior to the insertion of the PEG tube, a higher colonization rate was observed in the...
Table 1  Summary of published studies of transnasal percutaneous endoscopic gastrostomy.

<table>
<thead>
<tr>
<th>Author, year [reference]</th>
<th>Method/study design/case numbers</th>
<th>Success rate</th>
<th>Complications</th>
<th>Prophylactic antibiotics/infection</th>
</tr>
</thead>
</table>
| Counihan et al. 1996 [8] | Transnasal with pull method (ultrathin scopes)  
Case report: one traumatic case with intermaxillary fixation (n = 1) | 100%         | No            | • Prophylactic antibiotics used  
• No procedure-related infection |
| Lustberg et al. 2001 [12]| Transnasal with push method (ultrathin or pediatric scopes)  
Case series: one cardiac-arrest case and one head and neck cancer patient (n = 2) | 100%         | No            | • Prophylactic antibiotics used  
• No procedure-related infection |
Case series: patients with neurologic disease, head and neck cancer, and facial fracture (n = 12) | 100%         | No            | • Prophylactic antibiotics used  
• No procedure-related infection |
| Ogata et al. 2007 [16]   | Transnasal with introducer method (ultrathin scopes)  
Case series: patients with neurologic disease and head and neck cancer (n = 75) | 100%         | No            | • Prophylactic antibiotics used  
• No procedure-related infection |
| Seth et al. 2010 [14]    | Transnasal with pull method (ultrathin scopes)  
Case report: one cause with head and neck cancer (n = 1) | 100%         | No            | • Prophylactic antibiotics used  
• No procedure-related infection |
| Suzuki et al. 2011 [15]  | Transnasal vs. transoral with introducer method (ultrathin scopes vs. traditional scope)  
Randomized controlled trial: patients with neurologic disease or head and neck cancer (n = 13 vs. 12) | 100%         | Yes           | • Infection  
• Comparable hemodynamic change between both groups  
• Procedure-related infection: one case of pneumonia in transnasal group |
Case series: patients with dysphagia (n = 31) | 96.8%        | Yes           | • Epistaxis: 10%  
• Infection: 33%  
• Procedure-related infection: Pseudomonas wound infection: 8 (26.6%); urinary-tract infection: 2 (6.7%)  
• Prophylactic antibiotics used  
• No procedure-related infection |
| Lee et al. 2014 [9]      | Transnasal with introducer method (ultrathin scopes)  
Case series: patients with neurologic disease or head or neck cancer (n = 75) | 97.8%        | No            | • Prophylactic antibiotics used  
• No procedure-related infection |
Case series: patients with head and neck cancer (n = 16) | 100%         | Yes           | • Poor healing: 6%  
• Infection: 6%  
• Procedure-related infection: wound infection 1 (6%)  
• Prophylactic antibiotics used |
| Lin 2016 [10]            | Transnasal vs. transoral with pull method (ultrathin scopes vs. traditional scope)  
Retrospective case-control: patients with dysphagia (n = 38 vs. 38) | 97% vs. 100%| Yes           | • Epistaxis 5% vs. 0%  
• Choking: 8% vs. 13%  
• Infection: 33%  
• Procedure-related infection: wound infection 10 (26.3%) vs. 14 (36.8%); Pseudomonas wound infection: 9 (90%) vs. 8 (57%)  
• Prophylactic antibiotics used |
oropharyngeal group than nasal colonization (68% vs. 19%) [18]. The authors suggested that differences in the PEG infection rate might be attributable to differences in bacterial colonization between the nasal and oral cavities. Further studies are therefore necessary to evaluate the use of prophylactic antibiotics or nasal/oral cavity disinfection on the decrease of the infection risk related to this procedure. Then the prognosis and outcome for these patients may be improved.

Conflicts of interest

The authors declare no conflicts of interest.

References


