

ADVANCES IN ENDOSCOPY

Current Developments in Diagnostic and Therapeutic Endoscopy

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Use of a Through-the-Scope Balloon System for Deep Enteroscopy



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G&H How does a through-the-scope balloon system work? How does it differ from push enteroscopy and specialized single- and double-balloon enteroscopy?

SG The through-the-scope balloon system consists of a balloon catheter that is placed through the end of a colonoscope and allows the endoscopist to advance deep into the small intestine via the stomach or the colon. The balloon is pushed out in front of the colonoscope, anchored in the small bowel, and inflated. Through a series of balloon inflations and deflations, the colonoscope advances along the catheter to the balloon deep into the small intestine. The catheter can be removed and reinserted for therapeutic intervention while retaining the endoscope position.

Push enteroscopy uses a pediatric colonoscope that the endoscopist advances as far into the digestive tract as possible. One of the limitations of push enteroscopy is a phenomenon called looping, which occurs when the colonoscope stays in the stomach or the colon without being able to advance further into the digestive tract. The through-the-scope balloon system allows the endoscopist to pleat and shorten the intestine to prevent looping, thereby providing further intubation into the small bowel for a deeper examination.

One of the key differences between the through-the-scope balloon system and single- and double-balloon enteroscopy is the length of the procedure. The through-the-scope balloon system can be completed in approximately 20 minutes, whereas single- and double-balloon examinations take a minimum of 60 minutes. Additionally, single- or double-balloon enteroscopy requires special

equipment, such as enteroscopes or processors, which can be costly. The through-the-scope balloon system allows the endoscopist to use equipment that is already in an endoscopy suite.

G&H What are the benefits and limitations of using this system compared to standard endoscopy?

SG Standard endoscopy, in terms of upper endoscopy, is intended to evaluate only the upper digestive tract (ie, the esophagus, stomach, and duodenum), and colonoscopy is used to evaluate the colon and terminal ileum. The small intestine is approximately 18 to 20 feet long and is in need of a procedure that can examine the length of the digestive tract. Therefore, the aim of the through-the-scope balloon system is to provide a deep enteroscopy, or a deep inspection, of the small intestine. This system allows further access into the jejunum and ileum than what is provided by a standard upper endoscopy and colonoscopy. The through-the-scope balloon system could potentially replace traditional push enteroscopy, which is limited by its shorter reach.

However, the insertion depth of the through-the-scope balloon system is not as deep as that of a double-balloon enteroscope, and is more similar to a single-balloon enteroscope in that regard. Regardless, studies (including one I conducted with my colleagues) have shown that the depth of insertion is not necessarily as important as finding something during the procedure, which is a concept known as diagnostic yield. The diagnostic yield for both the single- and double-balloon procedures are similar, even though the double-balloon enteroscope can advance further into the tract.

G&H Are there any increased risks or adverse events that are associated with a through-the-scope balloon system?

SG The risks of the through-the-scope procedure are similar to those found in endoscopy, colonoscopy, or other forms of deep enteroscopy. My colleagues and I conducted a multicenter study that evaluated a through-the-scope balloon catheter system for deep enteroscopy, and did not find any adverse events or complications related to the procedure. Overall, it is considered low risk. Because the procedure takes approximately 20 minutes to perform, general anesthesia is not typically needed. However, an anesthesiologist could provide the patient with monitored anesthesia care, if necessary, to keep the patient comfortable while the endoscopist performs the procedure.

G&H What role does the through-the-scope balloon system play in the current algorithm for investigating small bowel disease?

SG The through-the-scope balloon system is intended to accomplish deep enteroscopy. For patients who have had upper and lower endoscopies that are normal, and have a capsule endoscopy that may show abnormal results, the through-the-scope system could be a nice alternative to push enteroscopy. The other forms of deep enteroscopy (ie, single- and double-balloon) may not be available because they tend to be time-consuming and are costly due to the need for special equipment. In addition, not every site of service has the patient volume to support their use.

However, a fair number of physicians perform push enteroscopy. If that procedure is available, the through-the-scope balloon system is an alternative procedure to consider in order to allow a deeper examination of the small intestine.

G&H How does insurance reimbursement of a through-the-scope balloon system compare with standard endoscopy?

SG The billing codes for a through-the-scope balloon system are the same codes for enteroscopy, and the endoscopist would bill the enteroscopy code family.

G&H Who is the ideal patient for this procedure? In whom should it be avoided?

SG The patients who benefit from this type of examination or enteroscopy are those who have undergone upper endoscopy and colonoscopy with no symptoms or

abnormal laboratory test results, and in whom the concern is whether the small intestine is causing difficulties. Often, before a patient undergoes any enteroscopy, whether it is single- or double-balloon, he or she tends to have a history of undergoing a capsule endoscopy. That provides endoscopists with a sense of whether anything is happening in the small intestine and whether an antero-grade or retrograde approach is best.

Patients who do not need a small bowel examination should not undergo this procedure.

G&H What was your experience with using the through-the-scope balloon system for both upper and lower small bowel visualizations?

SG In our study, my colleagues and I were able to achieve good visualization (and therefore good evaluation) of the small intestine. We had steady control of the colonoscope and balloon that allowed us to perform very careful inspections, both going in and coming out. One of the nice aspects about this system is that the balloon helps with deep insertion into the small intestine, and when the balloon is withdrawn in order to take a biopsy or to perform a therapeutic intervention, the colonoscope does not slip and maintains its position.

G&H Have there been any studies comparing the through-the-scope balloon system with other systems?

SG To my knowledge, no head-to-head comparisons have been conducted between the through-the-scope balloon system and single- or double-balloon procedures. A future direction would be to consider conducting a trial comparing single- or double-balloon enteroscopy with the through-the-scope balloon system.

Dr Gross has no relevant conflicts of interest to disclose.

Suggested Reading

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