

Through-the-scope deep enteroscopy (TTS-DE): New technique for deep small-bowel endoscopy.

– A pilot study

Helmut Neumann¹, Klaus Mönkemüller, Michael Vieth², Claudia Günther¹,
Markus F. Neurath¹, Jürgen Siebler¹

¹Department of Medicine, University of Erlangen-Nürnberg, Germany

²Institute of Pathology, Klinikum Bayreuth, Germany

Objectives: Balloon-assisted enteroscopy allows visualization of the small-bowel. Nevertheless, deep intubation mostly requires a significant amount of time. For this study, a new device for small bowel enteroscopy was evaluated.

Aims: To prospectively determine safety and feasibility of the new TTS-DE system for oral deep small bowel enteroscopy.

Material & Methods: The TTS-DE device consists of a disposable balloon-device which is advanced through the working channel of any endoscope with a minimal length of 160 cm and a working channel of 3.8mm. After the endoscope is advanced into the upper jejunum the TTS-DE is inserted through the working channel and then advanced ahead of the endoscope inside the small intestine. Next, the balloon at the distal tip of the TTS-DE device is inflated. Once the balloon is completely inflated movement is applied by pushing the endoscope forward while pulling the anchored balloon gently backwards. Straightening of the small-bowel is performed with the balloon at the distal tip of the endoscope inflated while pulling the endoscope slightly backwards.

Results: 11 consecutive patients (7 males; mean age 65 years; Range 26-72 years) were included. The indications for the procedure were obscure gastrointestinal bleeding, suspicious small-bowel Crohn's disease and abdominal pain. The average time to prepare the system was 3 minutes (Range 2 min to 5 min). The average time of the procedure was 15 min (Range 14 min to 18 min). The estimated small bowel intubation depth was 200 cm (Range 160 cm to 280 cm) past the ligament of Treitz. No procedure related complications occurred. Findings included small bowel Crohn's disease (n= 1), angiovascular malformations (n= 3), and NSAID enteropathy (n= 2).

Conclusion: The new TTS-DE device allows safe on demand deep enteroscopy within only 15 minutes and can become an additional device to explore the small bowel. Future studies should now focus on the learning curve and if even total enteroscopy with the new device is feasible.