

A New In Vitro Porcine Model for Spiral Enteroscopy Training: The Akerman Enteroscopy Trainer

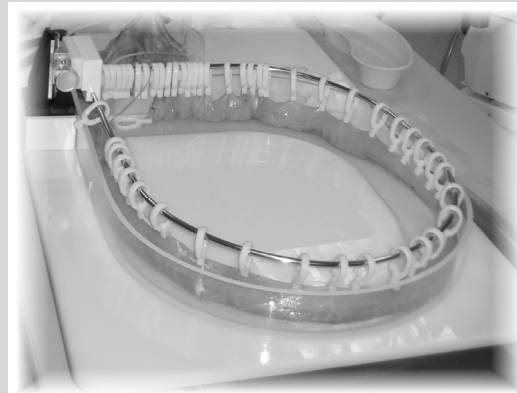
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Abstract

Introduction: Bench-top model training for enteroscopy is critical to teach techniques and concepts. The most common in vitro model for enteroscopy consists of the esophagus/stomach and 100-200cm of small bowel with mesentery removed. This model attempts to reproduce the mesentery of the small bowel to better mimic the in vivo pleating and unpleating seen in spiral enteroscopy.

Methods and Model: The Akerman Enteroscopy Trainer consists of 2 major components. The upper component corresponds to the esophagus, stomach and duodenum. The lower component corresponds to the freely mobile small bowel past the LOT. An artificial mesentery is formed with clips hanging from a curving metal rod that attaches to the mesenteric side of the small bowel along its entire length. Clips are attached every 3cm along the length of the small bowel and at the terminal end of the small bowel an elastic band is attached and gives mild resistance to pleating.



Findings: In one setting 24 trainees used the device over the course of 4 hours. The small bowel length was 130cm. Spiral enteroscopy pleating techniques for advancement and controlled withdrawal were demonstrated. The endoscopic appearance with spiral enteroscopy exactly mimics that seen in vivo. The model showed no appreciable diminution of function or performance after 4 hours of continuous use.

Conclusion: This new porcine in vitro bench-top model is very useful to demonstrate spiral advancement and pleating techniques along with counterclockwise withdrawal. The model exactly mimics the endoscopic images seen with spiral pleating enteroscopy in vivo. The model is a durable and rapid way to demonstrate SE. The model may be very useful to demonstrate other enteroscopy techniques including single and double balloon enteroscopy.