



CONTACT: ipm@innovatecalgary.com • 403.284.6400

Minimally Invasive Approach to Full-Thickness Gastric Biopsy

Tech ID:868.1

Background

To realize a minimally invasive procedure for acquiring full-thickness stomach biopsies, researchers at the University of Calgary have conceived a Percutaneous Endoscopically-Assisted Transenteric (PEATE) approach. The PEATE approach involves endoscopy partnered with the passage of a needle across the stomach wall via a small skin incision 3 mm wide (compared with approximately 10 mm during a laparoscopy). Proof-of-concept has been achieved in a canine model and the PEATE approach has also been performed clinically on humans. Future use of this procedure may lead to a new diagnosis protocol for motility disorders.

Currently, surgical incision of the abdominal wall during laparoscopy or laparotomy allows for the exploration or treatment of medical conditions of abdominal organs. A full-thickness gastric biopsy—removal of stomach tissue or cells for further examination—can be achieved through the incision; however, performing a laparoscopy solely for biopsy purposes is considered relatively invasive. To date, a minimally invasive technique for full-thickness biopsy (e.g., comparable to the percutaneous approach taken for biopsies of solid organs such as the liver or kidneys) has not been applied to the stomach because of the mobile nature of this organ. Newer research suggests that some motility disorders of the stomach have pathological findings in the nervous tissue sandwiched between the layers of muscle of the stomach wall. Since this tissue is not accessible to standard biopsy forceps, a full-thickness biopsy sample may be preferable.

Areas of Application

- Obtaining full-thickness gastric biopsy tissue via a minimally invasive procedure
- Examining the pathology of the enteric (digestive) nervous system
- Research and potential diagnosis of motility disorders

Competitive Advantages

- Safety: less invasive than laparoscopy or laparotomy
- Accessibility: this method can be performed by gastroenterologists; a specialized surgeon is not required
- Speed: open surgery not required, clipping of biopsy sites not routinely required

Stage of Development

- Proof-of-concept achieved in a canine model and several human patients

TECHNOLOGY



- Specialized biopsy needles designed
- Human biopsy samples will be collected for research on the diagnosis of motility disorders such as diabetic gastroparesis

Intellectual Property Status

- Patent filed

Publications

- [Gastrointest. Endosc. 2010 Apr;71\(4\):831-4.](#)
- [Gastrointest. Endosc. 2011 Mar;73\(5\):949-954](#)