The Advanced Luminal Therapeutic GI Endoscopy Unit at the Peter Lougheed Centre (PLC) has successfully implemented state-of-the-art endoscopic tissue resection for the treatment of early GI cancers, such as those arising from large colorectal polyps, gastric neoplasia and dysplastic Barrett’s esophagus.

The first endoscopic submucosal dissection (ESD) in Calgary was completed by Dr. Paul Belletrutti and a multidisciplinary team – comprised of gastroenterologists, advanced endoscopists, anesthetists, specialized pathologists, as well as nurses and other professional care staff – on November 14, 2019. The procedure was one of the first completed in Western Canada. “We are now at the forefront of advanced endoscopic GI tissue resection both in Canada and worldwide. Only five or six other places in Canada are able to perform these types of procedures, and they are not commonly performed in the US,” says Paul Belletrutti, MD, FRCPC. Belletrutti is the Medical Lead for the PLC Advanced Luminal Therapeutic GI Endoscopy Unit in the Calgary Zone, Alberta Health Services and a Clinical Associate Professor in the Department of Medicine at the Cumming School of Medicine, University of Calgary.

The ESD procedure on November 14, 2019 was one of the first in Western Canada. ESD is currently being performed in Vancouver, Calgary, Edmonton, London, Toronto, Ottawa, and Montreal.

To date, 20 patients have been treated by the advanced resection team. The types of lesions targeted include high risk colorectal polyps, neuroendocrine tumours, dysplastic polyps, and early esophageal squamous and Barrett’s related cancers. All patients have recovered well, some with no hospital stay required and all have had good clinical outcomes.

“This is an incredible accomplishment and a great example of how teamwork and innovation can create significant advancements to benefit patient care. I would like to specifically acknowledge the out of the box thinking and dedicated effort by Karen Foudy and Madonna Atkinson in the PLC Administration Team. I also want to recognize the Calgary Health Trust, the section of GI, and the Department of Medicine for their significant support and contributions that paved the way for the successful implementation of this wonderful advance in patient care,” says Mark Swain, MD, Professor and Head of Gastroenterology & Hepatology within the Department of Medicine.
The specialized video equipment and monitors required to perform these procedures were provided through $100,000 in funding from Calgary Health Trust.

Traditionally, the management of early GI cancer still required a major surgical resection, which is associated with significant potential GI tract dysfunction, morbidity, and mortality.

However, when performed by experts such as Belletrutti, advanced luminal endoscopic tissue resection – which encompasses the complementary techniques of endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) - is equally as effective as surgery and also provides several benefits. When compared to traditional cancer operations, endoscopic tissue resection is associated with:

- lower morbidity (that is, less complications, less medications, faster recovery),
- shorter length of hospital stay,
- less resource utilization, and
- decreased overall cost to the healthcare system.

“Advanced GI luminal tissue resection via an endoscopic approach preserves the continuity of the GI tract leading to faster recovery and improved quality of life for patients by avoiding the risk of long-term GI tract dysfunction and eliminating the need to surgically remove any segments of the GI tract,” states Belletrutti. “Specifically, in the upper GI tract this means potentially avoiding removal of the esophagus or stomach and the subsequent reconstructive surgery, or in the case of the rectum, avoiding the need for a permanent colostomy.”

Belletrutti completed his MD at the University of Toronto before completing training in Internal Medicine and Gastroenterology at the University of Calgary. Belletrutti then completed an Advanced GI Endoscopy Certification in Therapeutic Endoscopy at Memorial Sloan-Kettering Cancer Centre in New York City before re-joining the Department of Medicine in 2010.

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Dr. Paul Belletrutti

During a 2018 sabbatical supported by the University of Calgary Medical Group (UCMG) Professional Development Fund, Belletrutti traveled to Milan, Italy to continue his Advanced Therapeutic Endoscopy training at Humanitas Research Hospital under the mentorship of the advanced endoscopy team led by Drs. Roberta Masseli and Alessandro Repici, two world leaders in endoscopic tissue resection.
“Dr. Belletrutti has built on the work of the gastrointestinal endoscopy unit at the Peter Lougheed Centre to establish a centre of excellence for interventional endoscopy procedures and provide cutting-edge, efficient and cost-effective centralized care to southern Albertans with digestive diseases,” says Dr. Sid Viner, Zone Medical Director in AHS Calgary Zone. 

“Having this type of surgery done in a minimally invasive way and going home within the same day would have been unheard of even a few years ago.”

Andy Blundell, 68, was diagnosed with cancer of the esophagus three years ago but was advised not to undergo traditional surgery due to the potential of complications from his other health conditions. He was chosen to become one of the first patients to undergo the less invasive, endoscopic surgery in December, and had a scheduled follow-up surgery in February to remove a second tumour.

“When you consider the tumour was located sort of between my heart and my backbone, it’s just astonishing the difference it made going in and getting it out this way,” says Blundell.

“With an endoscopic submucosal dissection, we’re removing early cancers on either the stomach or the intestines through an endoscope,” explains Belletrutti. “With this minimally invasive surgical technique, we can remove just the cancerous tissue without removing an entire section of the GI tract, which leads to a faster healing time, less pain, a shorter length of hospital stay and fewer potential long-term complications.”

An endoscope is a small, flexible tube that contains a bright light and high-definition video camera, which is inserted into the GI tract through the mouth or anus. The video camera projects real-time images of the GI tract onto a monitor. Specially trained endoscopists like Belletrutti, with input from the entire surgical care team, visualize and remove cancerous tissue from the esophagus, stomach, small intestine, colon or rectum, using micro-surgical tools inserted through the endoscope, leaving the rest of the organs and entire GI tract in place.

“There’s much less pain. There’s no incisions in the skin, so recovery is much faster and there is minimal hospital stay. Patients can go back to normal activities and work much faster so, from a quality of life standpoint, it’s a big advantage and we’re achieving the same goal – to remove or cure the cancer,” says Belletrutti.

“The recovery was just astonishing,” says Blundell. “He was able to do it with just sedation. I enjoyed breakfast at home the next morning, less than 24 hours after my surgeries, and was out playing snooker with my friends the following afternoon. I guess I’m lucky that the technology developed more quickly than my tumour!”

Cancer of the GI tract affects about 6,000 Albertans each year. If treated in its early stages, these cancers can be cured and most individuals have a near normal life expectancy.