

Automatic Detection of Polyps

Summary

Over 14 million colonoscopies are performed annually in the United States, two thirds of which are performed to screen and survey colorectal neoplasia. Medicare pays \$90 per colon biopsy. The US Health Care system could save \$225 million annually by eliminating pathologic examination of diminutive polyps. Thus, the invention relates to a real-time endoscopic prediction of the histology of polyps.

Key Investigator

T. Dassopoulos, MD
N. Bourbakis, PhD

Field

Gastroenterology
Oncology
Software Imaging

Technology

Diagnostic Software

Key Features

- Obviate resection
- Save health dollars

Stage of Development

Preclinical Proof of
Concept

Status

Available for Licensing;
Available for Research
Collaboration

Patent Status

Patent Pending

Contact

Ping Sun, PhD
Patent Liaison
(214) 820-9651
Ping.Sun@BSWHealth.org

Market

Diminutive polyps, which are defined as ≤ 5 mm in size, constitute 80% of all polyps found during a colonoscopy and can be classified as either (1) hyperplastic (i.e., benign), or (2) adenomatous (i.e., potentially precancerous). While the risk of cancer within such diminutive polyps is minimal, an assessment of the polyp's histology is important because it determines how often the polyp undergoes surveillance going forward. Also, for various reasons, diminutive polyps are more difficult to assess and/or classify than their larger counterparts. As a result, a histologic assessment of diminutive polyps accounts for a significant portion of costs associated with colon cancer screening.

If colonoscopies could accurately distinguish diminutive adenomatous polyps from diminutive hyperplastic polyps, then adenomatous polyps could be resected and discarded without pathologic confirmation (i.e., according to a "diagnose and discard" strategy), while hyperplastic polyps could be left in situ (i.e., according to a "diagnose and leave" strategy). This would significantly reduce pathology costs associated with screening. Additional benefits would include reducing the costs of polypectomy equipment, decreasing post-polypectomy complications, and allowing a pathologist to communicate a recommended colonoscopy surveillance interval to the patient immediately after the colonoscopy.

Technology

The technology relates to a novel computation technique applied to video images for extracting features and patterns from different views of the polyps. The extracted patterns are synthesized to create better views for each polyp. The outcome images from each polyp are used for training and testing a machine learning system that will separate the types of polyps.