

Capsule Endoscopy a Help in Celiac Disease

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NEW YORK — Capsule endoscopy, a promising alternative to upper endoscopy for the investigation and diagnosis of celiac disease, may one day negate the need for endoscopically obtained intestinal biopsies, Dr. Ernest Seidman said at an international conference on celiac disease.

"I don't think that we can yet say that the capsule should replace the biopsy in every case," said Dr. Seidman, professor of medicine and pediatrics at McGill University, Montreal, and also a consultant for Given Imaging, which makes the only FDA-approved capsule endoscope. "The consensus opinion is that capsule endoscopy is equivalent to histology [for celiac disease], but only in those with severe villous atrophy. More data is required to prove diagnostic equivalence for those with partial atrophy."

Usually, patients with serologic evidence of celiac disease undergo intestinal biopsy to verify the presence of villous atrophy, which is currently the definitive diagnostic finding. But a consensus of expert opinion from the

International Conference on Capsule Endoscopy in Paris last June suggested that the tool may be an alternative for patients who are unwilling or unable to undergo biopsy, for those whose initial biopsy is equivocal, and for patients with confirmed celiac disease who develop alarming symptoms despite adherence to a gluten-free diet (Endoscopy 2005;37:1055-9).

One advantage of capsule endoscopy in the investigation of celiac disease is that it offers unprecedented views of the small bowel in its entirety.

"So much of the small bowel has been a black box for us, and with capsule endoscopy, we can see areas that are not accessible with the upper endoscope," Dr. Seidman said.

Capsule endoscopy is also state-of-the-art technology for examining the intestinal lining for other small bowel disorders. "We can see target lesions that would not otherwise be detectable by other imaging methods. Moreover, villous appearance can be seen extremely well—the resolution of the camera is extraordinary. We see villi routinely without doing magnification, and when the villi are atrophic or edematous, it's

very apparent," he added.

Capsule findings of the intestinal lining that are suggestive of celiac disease include fissuring, scalloping, a mosaic pattern, nodularity, and delayed appearance of villi with a loss of circular folds, he said.

Although the avoidance of endoscopy and sedation may be particularly attractive when dealing with pediatric patients, children under the age of 8 years are rarely able to swallow the jelly bean-size capsule, he said, adding that getting them to demonstrate with a real jelly bean is a wise idea.

"Otherwise, you run into a situation where you have opened the blister pack, and you have the child holding it and saying they can't do it. It's an expensive way to get pictures of their face," he said.



Pillcam capsules are able to show unprecedented views of the small bowel.

There is a delivery device that allows the introduction of the capsule into the small bowel with an endoscope, but this negates much of the advantage of the capsule, he said.

Even after starting a gluten-free diet, patients with celiac disease might face up to a 40-fold increased risk of developing small bowel lymphomas, compared with people who do not have celiac disease.

Consequently, recurrent or persistent bowel symptoms in diagnosed patients following a strict gluten-free diet are to be carefully evaluated and investigated. Capsule endoscopy often reveals abnormalities in such patients, Dr. Seidman said.

"Small bowel tumors are notoriously silent until it's too late—and finding them is extremely difficult. Needless to say, capsule endoscopy is the most proficient way to look for these tumors," he said.

A recent study of capsule endoscopy in 47 celiac patients with abdominal pain or other symptoms suggestive of malignancy found cancer in 5%, ulcerations in 50%, and villous atrophy in 68% (indicating noncompliance with the gluten-free diet), he said (Gastrointest. Endosc. 2005;62:55-61). ■

ALTERNATIVE MEDICINE

AN EVIDENCE-BASED APPROACH

Slippery Elm for Inflammatory Bowel Disease

History of Use

Native American healers made extensive use of the inner bark of the indigenous tree *Ulmus fulva*, including it in remedies for conditions ranging from coughs to wounds. The tree itself is a member of the elm family, but it proved more resistant than most related species to *Ceratocystis ulmi*, the fungus that destroyed the elm forests of Europe and North America starting in the 1960s.

Colonial settlers adopted powdered slippery elm bark both for medicinal purposes and as a food during times of scarcity. It is said that for a 12-day period during the bitter winter of 1777-1778, George Washington's army at Valley Forge subsisted exclusively on a porridge made from slippery elm bark.

Slippery elm was included in the United States Pharmacopeia from 1820 until 1960. It was a popular over-the-counter remedy for cough and stomach upset and was included in many patent medicines. Its medicinal properties were believed to derive from the large quantities of viscid mucilage contained in the bark.

In Mrs. M. Grieve's *A Modern Herbal* (1931), she described multiple uses for a powder made from the bark, describing it as a demulcent, emollient, expectorant, diuretic, and nutritive. She considered it one of the most valuable remedies available to herbalists, describing gruel made from it as being "a wholesome and sustaining food for infants and invalids."

She also suggested a drink made of the powder stirred into boiling water for irritation of the mucous membranes of the stomach and intestines: "Taken unsweetened, three times a day, Elm Food gives excellent results in gastritis, gastric catarrh, mucus colitis and enteritis, being tolerated by the stomach when all other foods fail, and is of great value in bronchitis, bleeding from the lungs and consumption" (New York: Dover Publications, 1971, pp. 284-5).

The colorful history of slippery elm extends beyond herbal medicine. The mucilaginous properties of slippery elm bark also rendered it useful to certain pitchers during baseball's "deadball era" between 1900 and 1920. Spitball pitchers such as Hall of Famer Burleigh Grimes routinely (and legally) doctored the ball with spit made more mucilaginous with slippery elm, but the practice was phased out starting in 1920.

In Vitro Studies

Few scientific data are available on the physiologic or therapeutic effects of slippery elm. Nonetheless, it has become popular among the nearly half of patients with inflammatory bowel disease who use some form of complementary approach to alleviate their symptoms.

Supporting the use of certain herbal products in inflammatory bowel disease is the observation that chronic gut inflammation is associated with enhanced production of reactive metabolites of oxygen and nitrogen, with the predominant metabolites in ulcerative colitis being hypochlorite, hydrogen peroxide, hydroxyl ion, and superoxide (Gastroenterology 1992;103:186-96).

Similarly, the therapeutic effects of widely used aminosalicylic acid (5-ASA) agents for these disorders are thought to derive, at least in part, from their antioxidant properties (Aliment. Pharmacol. Ther. 1999;13:363-72).

A group of researchers from the academic department of adult and pediatric gastroenterology, Barts and The London, Queen Mary's School of Medicine and Dentistry, London, has performed in vitro studies to determine the antioxidant effects of several herbs used for gastrointestinal disorders.

Luminol-enhanced chemiluminescence was used to detect superoxide scavenging by extracts of the herbs, as well as by 5-ASA, and fluorimetry was used to detect peroxy radical scavenging. In addition, chemiluminescence was used to detect effects of the herbs on the generation of oxygen radicals in biopsy samples from patients with ulcerative colitis.

Herbs found to have dose-dependent peroxy radical scavenging effects included slippery elm, fenugreek, and devil's claw. When these herbs were incubated with inflamed biopsy specimens, they decreased oxygen radical release (Aliment. Pharmacol. Ther. 2002;16:197-205).

Use—and Misuse

According to the University of Maryland's Center for Integrative Medicine, the Food and Drug Administration has recognized slippery elm as safe and effective for pharyngitis and cough. A summary of slippery elm posted on the center's Web site notes that the herb is also widely used in herbal medicine for wounds and skin problems, as well as for gastritis and other gastrointestinal disturbances (www.umm.edu/altmed/ConsHerbs/SlipperyElmch.html).

The usual adult dose for capsules is 250-500 mg three times per day.

The Web site summary also notes that there have been no reports of health hazards caused by slippery elm when it is used in standard therapeutic doses, but cautions against taking the herb at the same time as other oral medications as it may interfere with absorption.

An unfortunate "side effect" of the burgeoning popularity of herbal remedies is the potential for overuse and endangerment of the source plants. Such is the case today for the slippery elm tree growing wild, particularly in the Appalachian area where theft of the bark has been an increasing problem.

Several arrests for poaching in Kentucky's Daniel Boone National Forest were made during the summer of 2006, the Associated Press reported.

The wood of the tree has no commercial use, and once the bark has been removed, the trees are left to die.

This destruction has led the National Center for the Preservation of Medicinal Herbs in Rutland, Ohio, to launch efforts to limit wild harvesting of slippery elm and to encourage its sustainable cultivation.

—Nancy Walsh

► In the form of a powder made from the bark of the tree, slippery elm was a favored Native American medicament and was included in the United States Pharmacopeia until 1960.

► It is popular among patients with inflammatory bowel disease, with effects thought to derive from its demulcent properties.

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