

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-era settlers adopted powdered slippery elm bark both for medicinal purposes and as a food during times of scarcity. Historic sources say 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 tree's 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 recommended 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, hy-

droxyl ion, and superoxide (Gastroenterology 1992;103:186-96).

Similarly, the therapeutic effects of widely used aminosalicic 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, have 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. Chemiluminescence also 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 bark 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 that are thought to derive from its demulcent properties.

Low-Tech Options for IBD Showing Promise

BY SHERRY BOSCHERT
San Francisco Bureau

MONTEREY, CALIF. — Development of new treatments for Crohn's disease or ulcerative colitis has generally focused on immunomodulators, cytokine therapy, and other biotechnology, but lower-technology options are now being tried as well, Dr. Joshua R. Korzenik said.

Probiotics, parasites, and fecal transplants each have shown some positive results, although none are ready for prime time, Dr. Korzenik said at an update in gastroenterology and hepatology sponsored by the University of California, Davis.

► **Probiotics.** Most studies on the use of beneficial bacteria to treat

inflammatory bowel disease have not supported this strategy, but one study of treating pouchitis produced interesting and positive results. Researchers are studying probiotics in the treatment of Crohn's disease and ulcerative colitis, said Dr. Korzenik, codirector of the Crohn's and Colitis Center at Massachusetts General Hospital, Boston.

The pouchitis study included 40 patients who were treated for ulcerative colitis with colectomy and an ileoanal anastomosis (or J-pouch) operation and subsequently developed a chronic inflammatory process, a problem that occurs in about 15% of J-pouches. Antibiotics can control the pouchitis, but long-term antibiotics are not ideal.

After bringing the patients' pouchitis into remission with antibiotics, researchers discontinued antibiotic therapy and randomized 20 patients to a potent probiotic called VSL#3, with another 20 patients assigned to placebo. The pouchitis returned in all patients on placebo by 5 months later, but 17 patients in the probiotic group remained in remission 9 months after starting therapy (Gastroenterology 2000;119:305).

Typical probiotics found in health food stores contain perhaps 1-20 billion bacteria. VSL#3, which is sold over the Internet, contains about 1.6 trillion bacteria, and patients in the study took three capsules per day. "You're still talking about relatively small potatoes," compared with the 100 billion to 1 trillion bacteria in each gram of stool, Dr. Korzenik noted.

The VSL#3 treatment regimen

costs about \$12-\$15 per day and is not covered by insurance.

► **Parasites.** Some researchers speculate that when the modern zeal for cleanliness eliminated helminth ova (infectious parasite eggs) from humans, this actually aided development of Crohn's disease and ulcerative colitis, he said, so that adding the ova back to the body might treat these diseases.

In one open-label study, 29 patients with active Crohn's disease took 2,500 *Trichuris suis* (pig whipworm) ova every 3 weeks for 24 weeks (Gut 2005;54:87-90).

The disease responded to the treatment in 79% of patients, and 72% of patients achieved remission. "The results are almost too good to be true, but it's very

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promising," Dr. Korzenik said. "It's not Fear Factor, so you're not taking down a cup of writhing worms. You're really just drinking down the eggs."

A separate placebo-controlled trial in patients with ulcerative colitis showed marginal benefit.

The ova are sold from Europe over the Internet as an expen-

sive product called TSO. "I suggested it be called Ova the Counter," he joked. The Food and Drug Administration is considering whether sales should be regulated. "It's not cheap, but it's very exciting as far as something that's very nontoxic and may actually have some benefit," he said.

► **Fecal transplants.** Also called "human probiotics" because the implanted bacteria come from donor stool, this treatment is modeled after fecal enemas used to treat some patients with refractory *Clostridium difficile* infection in order to reestablish normal flora.

In one open-label study of six patients with longstanding ulcerative colitis who received daily infusions for 1 week, all had improvement in symptoms (J. Clin. Gastroenterol. 2003;37:42-7). "At this point, I would not recommend this at all, but it's very curious," Dr. Korzenik said.

Conventional therapy for inflammatory bowel disease is generally antibiotics or aminosalicylates for mild disease, corticosteroids for moderate disease, and infliximab or surgery for severe disease. Several new cytokine therapies are likely to be approved in the next few years. "The fear is we may go from too little treatment to overtreating these patients," he said. ■