Fecal Transplants Made (Somewhat) More Palatable

By PETER ANDREY SMITHNOV. 9, 2015

Two years ago, Catherine Duff, then 57, tearfully described eight debilitating bouts of antibiotic-resistant Clostridium difficile infection to a government panel in Washington. She grew better, she said, only after treating the gastrointestinal infection at home with her husband’s feces, a blender and an enema bag.

Mark B. Smith, a young doctoral student in microbiology, was in the audience, almost as teary as Ms. Duff. Resolving to help patients like her, he started a nonprofit called OpenBiome, the first stool bank in the country, which distributes fecal samples from healthy donors to help cure people with tenacious C. difficile infections.

Now OpenBiome has made the process, called fecal microbiota transplantation, far simpler. The bank has come up with a capsule containing fecal microbes that can be taken much like any other drug — poop in a pill.

“It’s such an obvious improvement,” Dr. Smith said.

C. difficile resides among trillions of other bacteria in normal, healthy humans. When antibiotics wipe out the competition, the bacteria spread through the gut, producing toxins and causing persistent diarrhea. The disease afflicts an estimated 450,000 Americans annually, killing 15,000. Most pick up the infection in hospitals and nursing homes.

The offending microbes are themselves increasingly resistant to conventional antibiotics. A fecal transplant is often the last resort.

The donor’s stool is introduced into the intestine or colon of a sick patient via an enema, colonoscopy or nasal tubes. The healthy bacteria appear to displace C. difficile and re-establish a normal microbial community in the gut. (…)

Despite the improvement, the “pill burden” is substantial, and swallowing capsules filled with human feces is not without risk. Get potentially lifesaving gut microbes into the lungs, for instance, and the treatment could prove fatal.

Some suspect healthy human stool eventually may not be necessary at all. Seres Therapeutics, a Cambridge, Mass., biotechnology company, is conducting Phase II clinical trials of SER-109, a four-pill regimen made from spore-forming anaerobic bacteria extracted from donated human feces and treated with ethanol.

According to Dr. Roger Pomerantz, the chief executive of Seres, the company also has a second-generation pill that comprises similar microorganisms grown synthetically in the laboratory. He does not see a future for pills containing actual feces.

“I don’t see why anyone would do it,” Dr. Pomerantz said. “I can’t believe the future is sending feces around the country.” At the moment, however, these new formulations are still under development, and there is no alternative. (…)

Dr. Jessica R. Allegretti, a physician at Brigham and Women’s Hospital in Boston, is putting together trials of the capsules against Crohn’s disease, obesity and primary C. difficile.

“It really does reduce the time from evaluation to procedure. It really does broaden who can get treated on a much larger scale, and for that, capsules are the wave of the future,” she said — especially, she added, for disorders that appear to require multiple treatments, or “maintenance” doses.

“What capsules are allowing us to do is really pursue these long-term studies, long-term maintenance therapy, which is more practical for these chronic diseases,” she said. “Without capsules, we wouldn’t be able to do this kind of work.”

A version of this article appears in print on November 10, 2015, on page D5 of the New York edition with the headline: Waste as Its Own Solution.

1. What is a fecal transplant?
2. Why may a fecal transplant be inevitable for treating some conditions?
3. Are there plans to have alternatives to fecal transplants in the future? What do they look like?
4. In which cases are the capsuled fecal transplants especially useful?
5. What do you think about fecal transplants? Should they become a socially acknowledged treatment for obesity or other illnesses?