

Treatment

The successful treatment of a chronic wound requires long-term, intensive management on a number of different fronts, according to Wolcott.

When Wolcott says long term, he means it. Biofilms are so tenacious, it can take four months to a year to heal a chronic wound, sometimes longer.



Dr. Randy Wolcott

A common first step to treating a wound is debridement, or scraping the biofilm -- a yellow- greenish sludge -- along with dead tissue off the top of the wound with a metal scalpel. For some patients, this can be painful even with anesthetic. Others feel nothing as diabetes has destroyed the nerve endings in their feet and legs.

Wolcott has six hyperbaric chambers where patients spend hours in a super-oxygenated environment that's good for healthy tissue and bad for biofilms. On willing patients, he uses sterilized maggots that feed on the biofilms and dead tissue, but leave healthy tissue alone.

Wolcott also uses lactoferrin and xylitol to treat biofilms. Lactoferrin occurs naturally in tears, mucus and breast milk and appears to prevent bacteria from clumping together. It is used commercially in meat packing plants to prevent biofilms from growing on hides.

Xylitol occurs in fruits, vegetables and other plants. It is also produced as part of normal human metabolism. It is used in toothpaste and chewing gum for its anti-biofilm properties.

An arsenal of antibiotics also plays a major role in Wolcott's treatments.

"Antibiotics are not worthless, but they have to be used in conjunction with other things," he said.

Wolcott's center treated and tracked 190 patients with critically poor blood circulation in the lower limbs and who had wounds deemed unhealable under the current standard of care. These wounds were considered the "worst of the worst," according to Wolcott, and typically would have resulted in a major limb amputation. Of those patients, the center was able to heal 146 -- a healing rate of 77 percent.

Beyond the treatments, Wolcott and Stewart both see education of physicians, scientists

and patients as one of the best short-term tools for battling biofilm-infected chronic wounds.

"The medical community is slow to change," Wolcott said. "This is not something physicians have been trained in. Their training tells them the most expedient treatment is amputation."

Medical schools are missing the problem too, Wolcott said.

"The National Institutes of Health says that nearly 80 percent of all human infections are suspected to be biofilm related, yet only 10 percent of the study of infection is about biofilms," he said.

"The majority of medical textbooks barely even mention biofilms," Stewart said. "The concept is not part of the curriculum in any way."

In moments of candor, Wolcott can barely conceal his outrage.

"The mainstream approach to biofilms is so frustrating to me. Right now, what is done is to neglect the biofilm until it needs to be treated with antibiotics. If there is a serious flare-up, the body part is cut off," Wolcott said. "It would be ridiculous if it weren't so barbaric."
