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THE DOCTOR'S WORLD

## **THE DOCTOR'S WORLD; LEECHES STILL HAVE THEIR MEDICAL USES**

By LAWRENCE K. ALTMAN, M.D.

MAINZ, West Germany THE leeches in the drug store window seemed to belong to a scene from ancient medicine, when doctors applied the worms to patients to "cure" just about every condition. But here the leeches were in a jar near electronic devices and bottles of modern miracle drugs.

Next to the leeches were posters showing people applying an ointment containing hirudin, the chemical in leeches that prevents clotting while they suck blood. Hirudin ointment was recommended for varicose veins and hemorrhoids, among other conditions.

For those who preferred leeches to the ointment, the pharmacist, Jurgen Bayer, sold inch-long hungry leeches at \$2 each. Some customers apply them to remove the blood beneath the skin that causes black eyes. Others apply leeches to their arms in the belief that their health will improve when their body produces a fresh supply of blood in response to the few ounces painlessly lost to the leeches.

Mr. Bayer is a homeopathic practitioner who began selling leeches about 10 years ago after he saw them in a window in a Munich drug store. He imports many leeches from Hungary, and his sales are highest in the summer. During the winter, when it is difficult to get enough from the frozen lakes, his supply often lags behind potential sales.

Leeches in modern medicine? A jolting thought. In medical school, nothing was taught about leeches. I knew about them only from medical history books. Beyond the fact that hirudin was prescribed as a blood thinner before heparin was available, what I remembered most was that leeches were the most famous example of both the changing fads in therapy and the cultural differences in medicine.

A few pharmacies still sell leeches in the United States, chiefly to people who once lived in Europe where leeches have seemed to be more popular than in America. In 1850, when patients might apply as many as 80 leeches at the same time for a wide variety of ailments, about 100 million leeches were sold in France. As late as 1953, Russian doctors used leeches on Stalin before he died.

In the early 19th century, a leading French physician, Francois J. V. Broussais, believed only active measures could abort disease because nature had no healing power. Dr. Broussais's customary therapy was to deprive the patient of his proper food and to apply leeches all over the body. By

ordering hundreds of leeches each day, he gained his reputation as the most sanguinary physician in history.

In the United States, doctors commonly prescribed bleeding, but without leeches. One of the strongest proponents of blood-letting was Dr. Benjamin Rush, who gained lasting fame as a signer of the Declaration of Independence and who in 1812 was the author of the first treatise on psychiatry in the United States. Dr. Rush and his colleagues must have killed many patients and made even more anemic before more scientifically minded physicians used statistical techniques to show that bleeding did not work.

Today, doctors still prescribe blood-letting, but on a drastically reduced scale. In one therapy for a condition called polycythemia vera, characterized by an excessive number of red blood cells, blood is drained by needle, not leeches. When patients accumulate fluid in their lungs in a condition called acute pulmonary edema, doctors sometimes remove a pint of blood to temporarily relieve that congestion.

Some doctors now prescribe a variation of blood-letting called plasmapheresis for several conditions. The aim is to remove certain harmful substances in the fluid portion of the blood. The blood is removed and the red cells are separated and re-injected into the body, while the fluid portion containing toxic products is discarded.

Before applying leeches, physicians traditionally cleansed the skin with soap and water and shaved the hair. If the leech did not bite readily, they moistened the skin with a few drops of blood, milk or water. If they wanted the leech to bite in a certain spot, they often cut a hole in a piece of blotting paper and applied it to moistened skin. And if they wanted to stop the leech before it had a full meal, they sprinkled a pinch of salt over the worm, which then dropped off suddenly.

Made curious by the display of leeches in Mainz, I asked colleagues elsewhere about their use today. Beyond the use of hirudin by researchers studying blood clotting, at least one serious new application has been found in recent years for the ancient remedy.

In France, doctors in Bordeaux, Nancy and Strasbourg use leeches as an adjunct to microsurgery. Over the last three years at the Hopital Saint Andre in Bordeaux, Prof. Jacques Baudet and Dr. Jean-Louis Bovet have prescribed leeches for certain plastic surgery patients when blood clots and congestion jeopardize the operation's success.

In some skin transplants in France, several leeches are applied to relieve small amounts of blood congestion, but the practice is impractical when there is too much congestion for the leeches to relieve.

Leeches are also used to help save fingers amputated in accidents. Surgeons, aided by microscopes, can restore blood circulation by sewing together tiny arteries severed in such accidents. But when microsurgeons cannot reconnect the delicate veins in the finger tips, blood can accumulate beneath the fingernail. The pressure can cause clots in the arteries, stopping the flow of blood and depriving the cells in the affected area from receiving oxygen and other vital nourishment.

Yet if blood congestion can be avoided long enough, the body can form new blood vessels that will drain the blood and allow the reimplanted finger to survive.

Before the Bordeaux team used leeches in such cases, the doctors often nicked the finger tip and applied cotton swabs to soak up the blood. But the technique did not work in all cases and blood transfusions had to be given to compensate for the excessive bleeding that occasionally resulted.

The Bordeaux microsurgions have told some patients to apply one leech in the morning and another at night, or up to 10 in a single day, and to repeat this treatment for up to nine days. Patients who were squeamish changed their minds when told: "It's your finger - maybe the leeches will save it."

Indeed, Dr. Bovet credits the leech therapy with helping to save several fingers and contributing to the success of other plastic surgery operations. That success has spread to this country, where microsurgions in a few centers adopted the leech technique after visits by the French doctors.

Leeches have helped save several fingers treated at Montefiore Hospital in the Bronx, according to Dr. Jane A. Petro, who said that because of past difficulty in finding a supply, her team recently had imported 100 leeches from France. "When the need to use leeches arises," Dr. Petro said, "it's virtually a part-saving procedure."