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Staff Article

Necrotizing fasciitis is a type of flesh-eating disease that dates back to about the fifth century B.C. according to writings of Hippocrates (a classical Greek physician). During the American Civil War, there were more than 2,000 cases reported among soldiers. Throughout history, there have also been small outbreaks, including one in San Francisco in 1996.

Necrotizing fasciitis has been found to infect people through breaks in the skin that allow bacteria to slip in. Breaks in the skin can include cuts, scrapes, burns, insect bites, surgical wounds, and puncture wounds (including IV drug use). Necrotizing means "causing the death of tissues" and fasciitis means "inflammation of the fascia", the tissue under the skin surrounding the muscle. A woman that has been documenting her journey with this disease on social media, Josie, was infected this way and now raises awareness for skin injuries that can lead to necrotizing fasciitis.

There are many strains of necrotizing fasciitis, but the most prominent strain is caused by a bacterium called Group A Strep (*Streptococcus pyogenes*). When the bacteria enter the body, they reproduce and release toxins/enzymes that damage the fascia and soft tissues. The bacteria can also protect themselves from the immune system, speeding up the infection process. It is currently unknown how the bacteria are able to do this, but one suggestion is the use of a component of the adaptive immune system in bacteria called CRISPR-Cas. CRISPR-Cas works to insert human DNA sequences into the bacteria so that they are not recognized as "an infected agent".

Some of the early symptoms of Group A Strep, according to the CDC, are red, warm, and/or swollen areas of the skin, severe pain beyond the area that is red, and a fever. Later symptoms include ulcers, blisters, black spots on the skin, changes in skin color, oozing from the infected area, dizziness, fatigue, diarrhea, and nausea. While it can be very difficult to diagnose this disease, acting fast is key for the survival of the patient. Hospitalization is necessary for

treatment, including IV antibiotics and surgery to remove the infection or infected parts of the body. It is important to note that it is extremely rare for this disease to be contagious.

Necrotizing fasciitis is labeled as a rare condition, with 0.40 cases per 100,000 people/year for adults and 0.08 cases per 100,000 people/year in children. The mortality rate for necrotizing fasciitis is between 20-40% (when the disease is caught early on), and this is considered high. The mortality rate is also higher in adults than in children. The mortality rate increases the later the disease is treated. According to the CDC, there are about 9,000 – 11,500 cases reported every year in the United States and about 1,000 – 1,800 deaths per year.

One person who suffered from necrotizing fasciitis and survived is Josie, who goes by the screen name @theoneleggedmom on TikTok. In an 18-part story, she talks about how she contracted a rare strain of this disease in her left leg. She is only 1 of 4 to contract the disease in the United States and the only one to survive. In addition to the rare strain she contracted in her leg, she also contracted the Group A Strep strain in her right arm. She starts her story by saying that she woke up one morning with what she thought was a late season flu. Later that same day, she got charley horses in both of her thighs that lasted about 6 hours. A charley horse is a sudden, involuntary cramping of the muscles in the legs. After she was admitted to the hospital, doctors found a football sized bruise that had formed on her leg. They quickly realized that she was suffering from necrotizing fasciitis. She was then sent to a larger hospital to undergo multiple surgeries to remove the infection. She initially lost her entire left leg and then, two days later, developed Group A Strep in her right arm. To stop the infection in her arm, doctors removed the muscle from the top of her arm and opened the arm up to clean out any lingering infection. Over the course of two months, she had twenty-eight surgeries but emerged healthy and free of necrotizing fasciitis. Josie is just one example of how this disease can heavily impact the lives of those who become infected and how those people can still emerge healthy and able to live their lives again, despite some difficulties.

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