Inhaling Pig Brains May Be Cause of New Illness

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Fittingly, the first person to detect a faint signal in all the noise was the interpreter.

The 33-year-old woman who worked for eight years working with Spanish-speaking patients at a medical clinic in southern Minnesota noticed something familiar as she translated the story of a young meatpacker last September.

Earlier last summer, she had heard a version of it from two other workers at the same slaughterhouse, and had told it to their doctors, who were different from her current patient's. When the consultation was over, she pointed this out.

The interpreter's insight set in motion a story, still unfolding, that may be making envious the ghost of Berton Roueche, the legendary chronicler of medical mysteries at the New Yorker magazine. A new disease has surfaced in 12 people among the 1,300 employees at the factory run by Quality Pork Processors about 100 miles south of Minneapolis.

The ailment is characterized by sensations of burning, numbness and weakness in the arms and legs. For most, this is unpleasant but not disabling. For a few, however, the ailment has made walking difficult and work impossible. The symptoms have slowly lessened in severity, but in none of the sufferers has it disappeared completely.

While the illness is similar to some known conditions, it does not match any exactly. Nor is the leading theory of its cause something medical researchers have studied. That is because the illness appears to be caused by inhaling microscopic flecks of pig brain.

"This appears to be something new," Minnesota's state epidemiologist, Ruth Lynfield, said last week.

The packing house, in Austin, Minn. (pop. 23,000), slaughters 1,900 pigs a day, working two meat-cutting shifts and one clean-up shift. Virtually everything is used, including ears, entrails and bone. The 12 sufferers of the neurological illness -- most are Hispanic immigrants -- all work at or near the "head table" where the animals' severed heads are processed.

One of the steps in that part of the operation involves removing the pigs' brains with compressed air forced into the skull through the hole where the spinal cord enters. The brains are then packed and sent to markets in Korea and China as food.

Investigators say there is no reason to suspect that either the brains or the pork cuts were contaminated. Their working hypothesis is that the harvesting technique -- known as "blowing brains" on the floor -- produces aerosols of brain matter. Once inhaled, the material prompts the immune system to produce
antibodies that attack the pig brain compounds, but apparently also attack the body's own nerve tissue because it is so similar.

If this theory is correct, the ailment -- for the moment called "progressive inflammatory neuropathy" -- resembles Guillain-Barre syndrome, an autoimmune condition that sometimes follows fairly benign infections, particularly those caused by an intestinal bacterium called Campylobacter. In the Minnesota cases, however, there appears to be no germ involved.

Although far from proved, the theory makes enough sense that the Centers for Disease Control and Infection, in Atlanta, has cast a net to about 25 other large-scale pig slaughterhouses in 13 states, seeking other cases.

CDC investigators believe they have found a few at a slaughterhouse in Indiana. Significantly, it is one of only two places other than the Minnesota packing plant that uses compressed air to empty pig skulls. All three have ceased that activity.

The identification of the new syndrome was aided by centralized contact with the patients in two places.

Several workers consulted the occupational nurse at Quality Pork Processors, and she reportedly noticed a pattern of complaints, too. Exactly when this was and what steps she took is uncertain, as management is not letting her speak to reporters. State and federal health investigators, however, praise the packing house for being fully open and cooperative.

All the workers also got their medical care at the Austin Medical Center, an 80-bed, 60-physician hospital and clinic owned by the Mayo Clinic, in nearby Rochester. Once the work-related connection was made, doctors there consulted colleagues and records, and found more cases among packing-house workers.

Nevertheless, nearly one year passed between the first case and the recognition of a "cluster." As is often true with new illnesses, the first case also turned out to be the most dramatic.

In November 2006, a Hispanic man came down with fever, malaise and rapidly progressing weakness. By the time he was admitted to a hospital in Rochester, he could not walk. Weeks, or possibly months before, he had been assigned the job of "blowing brains" on one of the shifts.

Like many of the subsequent patients, he had evidence in his bloodstream and spinal fluid of inflammation. He was given high-dose intravenous steroids, as is common for similar conditions. Over the course of a few months, he regained most of his function. But the cause of the problem remained mysterious.

In April, he returned to work and the same job at the head table. Within two months, he developed the less dramatic symptoms seen in other patients: widespread pain, and a sensation of weakness that is out of proportion to the actual weakness detected on a physical exam.

Such complaints are notoriously hard for physicians to evaluate. But nobody thought there was any fakery.

"These are hardworking folks. They are interested in making a living. They have no interest in being off of work," said Daniel Lachance, a Mayo Clinic neurologist who has examined nearly all of them.
The man was taken off work in June and recovered slowly over the summer. He returned to the plant in September.

By November, his painful symptoms had returned. But by then his physician knew of the outbreak, and the man's roller-coaster symptoms were starting to make sense. He is off work again, recovering.

Both the plant management, the state health department and the local doctors are now casting a wide net to find other, older cases.

Lachance, who has been a consulting neurologist for the Austin Medical Center for nine years, remembers a young Hispanic woman he saw in 2005. She had mild pain and weakness. He did not know what to make of her problem. He suggested some tests, but she never came back.

A huge number of lab studies are underway that are likely to shed light on the biological mechanisms of the illness. A harder question to answer may be: Why now?

Kelly Wadding, 55, started as a floor worker in 1970. He now owns and manages the company. He says it has been harvesting pig brains since 1998, using the same method and the same 70-pound pressure air hose.

"That is the million-dollar question," he said last week.

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