

## No answers

# The solution to the border's neural tube mystery still is not known

**Alison Gregor** EXPRESS-NEWS RIO GRANDE BUREAU

**PUBLICATION:** San Antonio Express-News

**SECTION:** A Section

**DATE:** April 17, 2001

**EDITION:** Metro

**Page:** 1A

Miguel Angel Rocha is the sprite with dark eyes in the giant portrait that hangs in his mother's modest home.

He's the boy with the grin as he plays ball in the streets. He's the ham who quickly warms up to visitors. He's the little tyrant who lovingly bullies his older sister and teases his nephew.

And then there are the twisted limbs, perforated with sores, that jut out from his wheelchair. There is the enlarged head tumescent with body fluid. And there is the twin brother born dead.

Miguel Angel, 10, has a birth defect called spina bifida, a malady that causes the boy's spinal cord to protrude from his back.

"I wish I knew why this happened," said Leonor Rocha, a longtime maquiladora worker, who bore a daughter with developmental disabilities before the birth of her son. "Why did this happen to Angel?"

For a decade, many mothers here have searched for the same answer. In Brownsville, a strange medical phenomenon first was noticed about the time Miguel Angel was born.

During six weeks in 1991, six babies were born without brains, a condition called anencephaly that is related to the condition afflicting Miguel Angel.

But the tally didn't end there.

Shocked scientists began investigating. They found 33 Cameron County children born in 1990 and 1991 with neural tube birth defects, a rate three times higher than the national average.

Neural tube defects develop when a sheath of embryonic cells fails to fold and close completely to form the spinal cord and brain during the third or fourth week of pregnancy.

Miguel Angel was left with a hole in his spinal column.

A Brownsville woman found out when she was pregnant in 1991 that the child she was carrying had anencephaly.

"I was so happy when I got pregnant," said Teresa Salazar, who already had two miscarriages. "Then I started having contractions suddenly. I never imagined."

Salazar chose to terminate the pregnancy at five months.

"I was devastated," said Salazar, who believed her home in the pesticide-dusted fields just outside Brownsville was cursed. "I said, 'Why? Why?' I told my husband, 'Please leave me. I'm not fit to bear children.'"

A decade later, Salazar has a healthy 7-year-old daughter, Valeria, but still no answers.

During the course of a decade, mother after mother has lamented. Meanwhile, scientists have conducted numerous studies, to no avail.

They have looked at pollution. They have looked at nutrition, specifically a deficit of folic acid. They have looked at genetics.

And while the scientists search, the community suffers.

In 1998, after the rate of neural tube defects steadily had dropped for six years, the number of cases inexplicably shot up again.

Some scientists have speculated the defects may have a cyclical pattern in Cameron County, with spikes in 1982, 1991 and 1998.

Rates for the defects have been as high as 36.5 per 10,000 live births, while nationwide, neural stem defects now are seen at a rate of about five or six per 10,000 live births.

That doesn't take into account Matamoros, a city separated from Brownsville by a tainted strip of river, where neural stem defects were extrapolated to rates of 32 per 10,000 births at one hospital in 1989 and 1990.

The Texas Birth Defects Monitoring Division has found neural tube defect clusters in other Texas counties on the Rio Grande; the mothers predominantly are Hispanic.

Anencephalic babies are at the root of the skewed rates, though the numbers of spina bifida babies also are slightly elevated.

But as the data swell, mothers still plead: What bogeyman is maiming South Texas' babies in the womb?

Along the border, speculation and suspicion have run rampant.

Some point to the maquiladoras - foreign companies operating in Mexico, sometimes, observers say, to escape the high cost of meeting strict environmental, labor and occupational safety regulations in their own countries.

Environmental activists accuse maquiladora owners of buying off scientists, and even whole governments, to prevent research into a possible link between neural stem defects and pollutants.

Gregg Wilkinson, head of epidemiology and biostatistics at the University of North Texas, found a correlation in the mid-1990s between the increase of maquiladoras and workers in Matamoros and the growing incidence of neural tube defects.

But the cause of that relationship remains unknown.

"It could be migration from areas where there's a high prevalence of neural tube defects, like Central Mexico and Central America," said Wilkinson, who conducted the study for the One Border Foundation.

"But it could be indicative of some kind of environmental insult that workers are exposed to."

While Wilkinson no longer is researching neural tube defects, a few other scientists suspect pollution is a factor. But research hasn't turned up anything concrete.

"We really haven't found a direct link between pollution and the increased risk of neural tube defects," said Stuart Shalat, a former Texas A&M epidemiologist who now teaches at a New Jersey medical school.

Shalat is analyzing environmental data collected over the course of years in the Lower Rio Grande Valley as part of a \$1 million National Institute of Environmental Health Sciences study.

While no tie has been found between pollution and the birth defects, scientists have uncovered high levels of toxins in the Rio Grande, surrounding irrigation canals and the soil.

"It's probably easier to describe the chemicals we're not seeing, which is almost none," Shalat said.

Even if data don't point to any specific chemicals as a cause of neural stem defects, Shalat said there is enough anecdotal evidence to warrant continued study.

Research has shown some chemicals, such as the trihalomethanes produced in chlorinated drinking water, and the solvents, like xylene and toluene, used to clean factory machinery, may be tied to increased rates of neural tube defects.

Rocha handled a toxic compound called melamine while pregnant with Miguel Angel. She spread the goopy resin on capacitor molds along with epoxy.

Rocha said she knows at least one other woman at the plant who gave birth to a child with birth defects like Miguel Angel's. Rumors circulate of others, she said.

When a similar realization hit Matamoros workers recently at Custom Trim and Auto Trim, owned by Breed Technologies, they banded together to file a NAFTA complaint against Mexico for failing to enforce safety regulations.

Several cases of anencephaly and spina bifida were discovered among laborers who worked with glues and solvents daily.

The case, heard last December in San Antonio, is awaiting a ruling. But labor advocates are not optimistic, given the laissez faire track record of the National Administrative Office of the U.S. Labor Department, which heard the case.

Ana Maria Castanon, another Matamoros mother whose child has spina bifida, worked as a secretary for a transport company located near "Chemical Row" at Parque Industrial Finsa.

Sliced by Michigan Avenue, the park formerly was a stronghold of General Motors and the automaker's suppliers until about 30 families sued in 1993, alleging the companies used and discarded chemicals in an unsafe fashion that caused birth defects.

According to Domingo Gonzalez, a Brownsville-based border activist involved in the suit, the companies settled for about \$28 million before going to trial in 1995.

"Since then, GM has stripped itself of all of its holdings here," Gonzalez said.

Castanon, who is Gonzalez's niece, said she drank water in the office bodega and spent time outside on grounds overshadowed by smokestacks while pregnant with her 5-year-old daughter Juanita, who has spina bifida.

It would be easy to point the finger at Parque Industrial Finsa. But Casta on stressed that neural tube defects may run in her family.

"I have an aunt who had a child who was born with the spine completely exposed and an enlarged head," she said.

Scientists say genes could be a major factor in determining where neural tube defects will strike. That role, the scientists say, somehow may be entwined with the ability of mothers to absorb folic acid, a B vitamin found to prevent the defects.

In the early 1980s, British scientists observed that certain drugs that were antagonists of folic acid seemed to cause neural tube defects. They began thwarting the defects by feeding pregnant mothers folic acid supplements.

A series of studies prompted the U.S. Food and Drug Administration in 1998 to begin fortifying flours and cereals with the B vitamin. The studies showed folic acid supplements could prevent 50 percent to 75 percent of neural tube defects.

However, those early studies focused largely on Anglo populations, and their success has not been duplicated consistently with Hispanic mothers.

Some scientists, such as Richard Finnell, of the University of Nebraska Medical Center, have found a large percentage of the Hispanic population may have a gene variant that makes it difficult to metabolize folic acid.

Far from showing that folic acid has no effect on Hispanic women, Finnell said his studies may show they need more folic acid.

Castanon notes that when she was carrying Juanita, she took vitamin supplements with folic acid. When pregnant with her healthy 3-year-old son, Reyes, she took nothing.

Salazar, however, says the opposite.

While she took no vitamins while carrying her anencephalic child, she made sure to take folic acid when Valeria was conceived.

"Thank God, she's healthy," said Salazar, who was one of the plaintiffs in the 1993 lawsuit against General Motors.

It remains to be seen if other South Texas mothers can achieve this peace of mind with folic acid. Studies by the Texas Department of Health show that only a small percentage of mothers in the Lower Rio Grande Valley are taking folic acid supplements.

Some health-care workers, such as Paula Gomez, director of the Brownsville Community Health Clinic, continue to express skepticism in folic acid, claiming it is a red herring drawing attention from the real problem of industrial pollution.

As the political wrangling continues, others find cause for hope in the absence of answers, believing that industrial pollutants will eventually prove to be the smoking gun.

"The other side of 'we don't know' is 'we don't know that it's not,'" Gonzalez said. "If you don't know what's causing it, you can't rule out anything."

**Caption: Miguel Angel Rocha, 10, emerges from a room in his family's Matamoros, Mexico, home. He was born with a variant of spina bifida. His condition may have been brought on by pollution along the border, but scientists have not found a direct link.**

**Juanita Castanon plays in her family's Matamoros, Mexico, grocery store. Juanita suffers from scoliosis and spina bifida occulta.**

**GONZALEZ**

**Miguel Angel Rocha, 10, enjoys a moment with friend Paco Hernandez on the street outside of his Matamoros, Mexico, home. Miguel Angel was part of a cluster of babies with neural tube defects.**