The Mystery of the Poisoned Boy

Part 1: A Mystery Illness

No one knew it at first, but the boy had been poisoned. His teacher was the first to notice his sudden change from a smiling, enthusiastic boy to a frightened, lifeless, child. She asked the principal to call his mother immediately to take him home. This was just the beginning of a frightening medical mystery.

Eight-year-old Miguel Torres (not his real name) seemed only a little sick when his mother, Maria, took him to the doctor. Since the doctor didn’t see anything wrong, he sent Miguel back home to rest. The doctor was completely surprised when the Torres’ were back in his office an hour later. Miguel’s mother was in a panic, but the doctor could now understand why. There had been abrupt and dangerous changes in Miguel. His skin looked washed out. He couldn’t open his eyes, his body was limp, and his muscles were twitching. His heartbeat was uneven, and he felt sick to his stomach. Suddenly Miguel had diarrhea. Then he vomited. Even more suddenly he was cold and senseless – almost unconscious. Knowing no logical reason for the rapid disintegration of Miguel’s health, the doctor telephoned a leading Fresno pediatrician, Dr. John P. Conrad, Jr., an expert in children’s diseases.

Questions for Part 1

Physician’s look at signs and symptoms when evaluating a patient. A sign is something that can be seen and or measured (ex: temperature, pale skin). A symptom is something that cannot be seen and is reported by the patient (ex: headache, stomachache, chest pain).

1. Make a list of the signs and/or symptoms Miguel had.
2. Explain how Miguel’s condition changed over time.
3. List 3 words you do not know the meaning of and try to determine the meaning from the text. Write down your best guess as to the meanings of the words.
4. Write 3 questions you would want answered if you were Miguel’s parent.
5. Make a prediction about what you think will happen next in the case.

Part 2: Further tests…

Dr. Conrad, who was associated with a hospital that worked only with children, realized that this case was urgent. He telephoned ahead to the Valley Children’s Hospital and ordered a blood test to check for diabetes. When Miguel and his mother arrived, everything was ready. The tests were finished by the time Dr. Conrad dashed in. The blood test didn’t show diabetes, but there was an alarming problem with Miguel’s white blood cell count. It was abnormally high.

Miguel’s skin was not only very pale, but now it was also cold and clammy. His heart was racing, and the muscles of his hands and feet were twitching. Dr. Conrad noted a new and important symptom. The pupils of Miguel’s eyes had narrowed to tiny specks. The pain in his stomach area was so bad he screamed when the doctor touched him lightly during the examination. Dr. Conrad stared at Miguel. Whatever was wrong with the boy had obviously gotten worse.

Background information

High white blood cell count is an increase in disease-fighting cells (leukocytes) circulating in your blood. High white blood cell count is also called leukocytosis. A high white blood cell count usually indicates:

- An increased production of white blood cells to fight an infection
- A reaction to a drug that enhances white blood cell production
- A disease of bone marrow, causing abnormally high production of white blood cells
- An immune system disorder that increases white blood cell production

Questions for Part 2

6. Describe how Miguel’s symptoms have changed.
7. List 3 words you are not familiar with and write down your best guess of the meanings based on the text.
8. Write down 3 questions you now have about the case and/or Miguel’s condition.
9. Read the background information and explain what a high white blood cell count might mean in Miguel’s case.
10. Make a prediction on what you think will happen next in the case.
Part 3: Organic Phosphates

What could it be? Was it bacteria that caused his violent diarrhea? Dr. Conrad tested for shigella, a bacterium that causes diarrhea. But the test came back negative.

Dr. Conrad had a hunch chemical poisoning was causing the damage. The symptoms pointed that way. He ran Miguel’s symptoms through his mind. Miguel was acting strangely. He looked lifeless, and he had a terrible stomachache. His pupils were almost invisible.

What kind of poisoning could it be? To Dr. Conrad’s practiced eye, Miguel’s acute illness looked as if it could be a reaction to an organic phosphate. Fresno is a big industrial farming area. The farmers were always spraying chemicals to kill insects. Perhaps Miguel had inhaled some toxic insecticide from a crop duster or local farm sprayer.

Dr. Conrad needed some leads. Mrs. Torres hesitantly told him that Miguel had mentioned seeing a spray machine and a spray plane that morning on the way to school. Dr. Conrad knew that organic phosphates are dangerous and can penetrate the skin. The symptoms show up in a few hours.

The facts weren’t all in yet, but because of Miguel’s condition and the possibility of it being a spray, the doctor decided to treat the case as if it were caused by an organic phosphate. He had no other ideas.

Questions for Part 3

11. Describe the information Dr. Conrad had about the area where Miguel lived that was important to the case.
12. What types of things should doctors know about the areas where they practice medicine and how would this information be useful?
13. If you were a forensic investigator called to investigate this case, describe what you would do if this was the information you were presented with.

Part 4: Improvement

Dr. Conrad had to accomplish three things to help Miguel survive while he tried to solve the mystery. First he had to replace the fluids that Miguel had lost with his violent vomiting and diarrhea. Dr. Conrad ordered intravenous fluids to be dripped into Miguel’s body. The next job was to fight against the poison in Miguel’s body. He had previous experience with chemical poisoning and had used the lifesaving drug atropine with good effect. Finally, Dr. Conrad needed to extract the poison, but he couldn’t do that until he knew which poison it was. In order to find that out he needed accurate blood tests. At eight thirty that night he had the blood tests back. It was organic phosphate poisoning. He had made the right guess.

The emergency staff at Valley Children’s Hospital was now checking Miguel every few minutes. The drug Dr. Conrad had chosen was working like a charm. If it hadn’t, the doctor would have had to use an even more powerful drug. But, everything was going so well, Conrad decided he did not need to. By ten o’clock Miguel’s condition had stabilized. Dr. Conrad was satisfied and went home.

Miguel continued to do well on the fluids and the atropine for several days. In the meantime, the local sprayers were questioned. Their answers surprised Dr. Conrad. They had not used organic phosphate on the crops. This was a puzzle! Where then did Miguel pick up the organic phosphate poisoning?

Questions for Part 4

14. As an investigator on this case, what are 3 questions you would ask the local sprayers?
15. As an investigator, when you found out the sprayers had not used organic phosphates, what would you do next?
16. List 3 words you are unfamiliar with and try to determine their meaning from the text.

Part 5: “All this seemed like a nightmare to Dr. Conrad.”

After six days in the hospital Dr. Conrad was delighted to see Miguel in his private office, well and back to normal. He told Miguel to go home and rest and see him in a week. Dr. Conrad examined his next two patients, but his office nurse interrupted him with an emergency. Mrs. Torres was back in the office, and she was in a panic. Miguel again! He was so sick he couldn’t get out of the car.

Dr. Conrad rushed out to the parking lot. Miguel was now sweating and breathing hard. He was in a state of shock. He couldn’t move his legs. Maria Torres explained that Miguel had gotten sick almost as soon as they had left the doctor’s office. She had turned the car around and raced back to the doctor.

Dr. Conrad jumped into the car and told Mrs. Torres to drive back to the hospital as fast as she could.
All this seemed like a nightmare to Dr. Conrad. The case was repeating itself, only this time Miguel appeared to be even sicker than before. Miguel’s violent cramps began again. He began to vomit. Dr. Conrad repeated his first prescriptions: fluids and atropine. Because the boy seemed in so much danger, he also added a more powerful drug.

Luckily Mrs. Torres had had the presence of mind to turn her car around and come back to the doctor’s office. This was a matter of life and death. The doctor and the nurses hovered around Miguel for the next few hours, and then slowly, slowly they saw some small improvement. Miguel would live. Dr. Conrad and the staff were ecstatic. By the next morning, Miguel stabilized. Everyone agreed he had made an unusual and remarkable recovery.

Questions for Part 5
17. Explain why you think Miguel’s illness was worse this time.
18. Make a prediction on why Miguel got sick again so soon after leaving the hospital. What do you think the source of his illness is?
19. Write 3 questions you would ask if you were an investigator on this case.

Part 6: What was causing Miguel to be so sick?

Now there was time to stop and think about the cause of Miguel’s strange illness. If Miguel had been poisoned somehow, and it hadn’t been a crop sprayer, how had he picked up the poison?

Conrad called the Fresno County Public Health Department the next morning and told them the facts of the case. Conrad asked for help in tracking down the source of the organic phosphate poison. Because the last episode happened in the car, maybe it was the Torres’ car. Dr. Conrad had also advised the health department that they should check everything the boy was wearing: the problem might be with his clothes.

An investigator and an assistant were sent out immediately. Soon they were talking with Mrs. Torres, checking for sprays around the house, garage, and car.

They checked to see if there was a garden spray or insecticide bomb. No. Did the family have phosphates in the garage, laundry area, or kitchen? No. What about Miguel’s clothes? Mrs. Torres showed them the blue jeans and shirt Miguel had worn that day.

There was a store label on the blue jeans. They asked Mrs. Torres if she had bought the jeans at that store. Her answer interested them. She had not bought them at a store, but had found them at a salvage sale at a local trucking company. She told them the jeans had looked so perfect when she bought them, and they were so cheap she bought five pairs.

They asked if her son had worn all five pairs. “No,” she answered, “only one.” Actually, Miguel had worn this same pair two times. He wore them to school the day he got sick, and he put them on again when he left the hospital to go to the doctor’s office.

Question for Part 6
20. As an investigator, what would be your next step?
21. Predict what you think will happen next in this case.
22. Do you believe this is a criminal investigation at this time? Why or why not?

Part 7: The Investigation Continues

The investigators could not contain their excitement. This had to be the answer! Miguel had been wearing the jeans both times when he had become so violently ill. It had to be the jeans.

To be absolutely sure, the health department workers decided to give the jeans a mosquito test. They carefully wrapped the five pairs of jeans and took them to the state health department laboratory. Here lab technicians put the jeans in the cage of one of the mosquito colonies they were breeding. Fifteen minutes later, every mosquito in the colony had died. Strangely enough, a nearby colony in the lab died five minutes later. The second colony hadn’t even had direct exposure to the jeans. The poison in the jeans was deadly.

Now the health department needed to find out three things: the product name of the poison; how many jeans had been contaminated by the poison; and the names of any other people who had bought jeans at the sale. Other children could get sick too.

At that very moment, something else was happening at the Fresno General Hospital. As Dr. Conrad was making the rounds of young patients with the residents and interns, he shared
with them the entire story of Miguel and his poisoned pants. This turned out to be a lucky coincidence for another eight-year-old.

The very next day, the chief resident telephoned Dr. Conrad for some advice. The resident had a young patient who had come to the hospital with many of the same symptoms as Miguel.

He had been vomiting, and he was dizzy and sweating. He seemed almost unconscious, and his pupils were so small you could hardly see them. The boy was also twitching and had severe cramps. The resident called Dr. Conrad and asked if the boy should be tested for phosphate poisoning. The resident and Dr. Conrad ordered the test.

The results came back in a few hours. The resident was right. The second boy was also poisoned by an organic phosphate. Now they would have to find out if this boy had the same kind of salvage sale jeans. They checked with the boy’s mother. Sure enough, the boy had been wearing a new pair of jeans. They too had been bought at a salvage sale.

The story was practically the same. The boy had worn the jeans to school and had become so sick the school had sent him home. He recovered slowly at home for a few days and then went back to school. Like Miguel, the boy had put on the same pair of jeans. Immediately afterward he had been rushed to the Fresno General Hospital, violently ill.

Fortunately for the boy, the resident had remembered and acted upon the unusual story Dr. Conrad had shared the day before.

Now there wasn’t another moment to waste. The rest of the jeans had to be tracked down. Miguel’s mother had bought five. This new pair made six. But how many other pairs were there in that salvage sale? The trucking company refused to cooperate, and said they didn’t know the answers. The health department called all the local newspapers and the television and radio stations. They issued an urgent call: DID YOU BUY JEANS AT A SALVAGE SALE? THEY ARE DANGEROUS. BRING IN THOSE JEANS.

Questions for Part 7
23. Explain why the jeans were taken to a state health department lab and not a forensics lab.
24. Describe the evidence used to make the connection between the two boys, the jeans, and the salvage sale. Was the evidence class or individual and why?
25. What do you think the next step in this case should be?
26. Why do you think there were no other cases?
27. Do you think this is considered a criminal case at this point? Why or why not?

Part 8: Conclusion
Four more pairs of jeans were returned to the health department. Later, the health department would find out there were only ten pairs in all. Of the four additional pairs returned, two had been worn. Strangely, the boys who wore those jeans never got sick. That small mystery was soon solved with a simple one-word answer: Washing. The two pairs of jeans had been washed before the boys wore them. The washing had eliminated all of the poison.

Tracing how the jeans had been contaminated proved to be a more difficult task. Eventually the health department learned that the jeans had been shipped in a giant truck with both machinery and chemicals. No one knew how, but one five-gallon can of organic phosphate had leaked. This leaked soaked ten pairs of jeans. The jeans shipment had stayed in a warehouse for some time, where the jeans dried and the visible stain from the chemical disappeared. However, when the jean order was delivered, the store didn’t think they looked clean and fresh. They returned the jeans to the trucking company. The jeans were then put into a distress sale at the trucking depot. As a result, two mothers almost lost their sons.

Questions for Part 8
28. Who do you think is at fault, is there fault, and why?
29. Write a paragraph explaining how you would defend the trucking company in this case using information from the case.
30. Write a paragraph explaining how you would prosecute the trucking company in this case using information from the case.

This case was made using a story from, “The Mystery of the Poisoned Boy.” Dian Dincin Buchman, 1992. Medical Mysteries: Six Deadly Cases. Scholastic, Inc. New York, NY.