

Football Fanaticism: An Integrated Physiology Case Study

Dayton J. Ford

St Louis College of Pharmacy

Prelude

In the small city of Beaverton, Oregon, football is king. If you happen to be in the wrong tavern, rooting for the wrong team, it is quite possible that some locals will remind you (generally in not-so-nice terms) that “this here bar is a ducks bar, not a beavers bar!” or the reverse. Obviously, in Oregon, it would make sense that there is a rivalry between the fans of the University of Oregon Ducks and the Oregon State Beavers. Most often, a confrontation between Ducks fans and Beavers fans would simply be a typical verbal joust in which the Ducks fans would make pejorative comments about the name of the Oregon State football team and vice versa. However, some confrontations may become violent—especially when alcohol is involved.

While out on the town one cool August evening, a young walk-on wide receiver for the Oregon State Beavers, James Allen Jam (Jimmy Jam to his teammates), ran into a little bit of trouble. You see, Jimmy Jam was looking to meet up with some teammates of his at the Bucket-o-Blood saloon. Since Jimmy Jam was from Alabama and had very little knowledge of the saloons and taverns in Beaverton, it was really not much of a shock to find that he had mistakenly entered the Blood-n-Guts saloon.

The Blood-n-Guts was a typical working class gin mill. As you entered, there was a large, horseshoe-shaped bar in the center of the establishment with about 20 stools for patrons to sit at. There were tables both by the window and against one wall and there was a small landing that contained a pool table, two dartboards, two older video games (Capcom Bowling and Golden Tee golf), and one newer video game (Mortal Kombat).

Upon entering, Jimmy looked around to see if any of his teammates were in the bar, but he could not see any. It occurred to him that he might be early and that his teammates would show up within the next few minutes, so he sat at the bar and ordered a soda. As Jimmy looked around the bar, he thought to himself that this was a strange place for Oregon State football players to hang out. The walls were filled with University of Oregon banners and pictures of University of Oregon football stars. Jimmy began to feel a little uncomfortable (especially since he was wearing his Oregon State practice jersey) and began to pay more attention to the people in the bar. Many people were simply going about their business (drinking, playing pool, watching sports on the two television sets behind the bar, etc.), but there was one group of rough looking characters at one end of the bar who were staring at him intently. Jimmy could tell right away that some of the members of this group had already had too much to drink and so Jimmy thought that it might be a good idea to wait for his friends outside of the bar.

As Jimmy stood outside of the Blood-n-Guts waiting for his teammates, the group of rough looking characters that Jimmy had seen a few minutes earlier came out of the bar and began to harass him about the jersey that he was wearing. Jimmy explained to them that he was an Oregon State football player and that he was waiting for some teammates to show up. At this, one of the more inebriated members of the group said, “Boy you must be stupid ‘er sumpin.’ This here’s a Ducks bar, NO BEAVERS ALLOWED!” The rest of the group burst into laughter at this, which seemed to infuriate the heckler even more. He turned quickly and took a swing at Jimmy, who ducked and felt the blow whoosh over his head.

The drunken antagonist spun around and fell down, setting off another round of guffaws and several hoots and hollers from the others. When the drunken man got back up again, he charged straight at Jimmy. Jimmy sidestepped the man and watched as he hurtled uncontrollably into two trashcans sitting next to the curb. Trash was strewn all over the street as the rest of the group began laughing hysterically at the sight of their friend lying in the gutter, covered in trash. This made the drunken man positively livid. He reached for something in his jacket, and before Jimmy knew what it was, he saw two bright flashes and felt a searing hot pain in his abdomen. Jimmy fell to the ground and lost consciousness....

Jimmy was found about 15 minutes later by some passersby who ran into the bar and told the bartender to dial 911. Responding paramedics placed Jimmy on a back-board (to prevent injury of the spinal column during transport) and rushed him to the nearest hospital (Johnson Memorial).

In the ER

Jimmy's vitals upon arrival at the emergency room were as follows:

BP = 103/52
 Pulse = 108 beats/min
 Respiratory rate = 24 breaths/min
 Temperature = 96.7°F
 Blood PO₂ = 50 mm Hg

Jimmy was given a whole blood IV and prepped for surgery. Shortly after the surgery, Jimmy regained consciousness and was given a neurological exam. During the exam Jimmy showed signs of left lower extremity paralysis, an elevated left leg knee jerk reflex, left Babinski sign, and loss of pain/temperature sensation in the right leg (mostly below the knee). Jimmy was placed on IV Methylprednisolone (Solumedrol, 30 mg/kg) for one hour and an MRI was then ordered. After one hour had passed, the Solumedrol was reduced to 5.4 mg/kg. At this time, Jimmy's blood glucose level was 534 mg/dL. Jimmy was then placed on IV insulin.

Questions

1. Are Jimmy's initial vitals (when he first entered the ER) normal? Identify all abnormal values and explain why they may be abnormal.
2. Explain the mechanism whereby Jimmy has lost pain/temperature sensation in his right leg.
3. Explain what a "Babinski sign" and an elevated knee jerk reflex are and what the presence of each says about Jimmy's condition.
4. Approximately where (within the CNS) is the lesion that has caused the signs and symptoms that Jimmy has? What tracts are affected by the lesion? Try to be as specific as possible.
5. Why was Solumedrol given? What is its purpose in this case?
6. Explain why Jimmy's blood glucose level may be elevated. In other words, what most likely caused Jimmy's BG level to increase?

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