

LIGHTNING DATA CENTER MINUTES
November 14, 2014
ST. ANTHONY HOSPITAL WEST, LAKEWOOD, CO

Monthly Quote: "Those who profess to favor freedom, and yet deprecate agitation, are men who want crops without plowing up the ground. They want rain without thunder and lightning." - Frederick Douglass

1. The meeting began at 11:45 AM and adjourned at 1:00 PM. Members present: Collier, Elder, Gift, Langford, A. Nibbe, M. Nibbe, Swanson, Wachtel, Wells, and Yarnell. Langford moderated the meeting. We also had five guests in attendance: Bob Johnson, and four patients.
2. Four case histories were presented. This is the first time that four patients have presented at a single meeting. There were many stories to tell, and it was very informative for each of the patients to compare their own experiences with those of the others. Summaries follow.
3. Patient #1: Female, age 69, was struck in the summer of 2014 in front of her home in a Colorado mountain community. She was in town and noticed a cloud which she "did not like the look of." She decided to head for the safety of her home. She walked two blocks to her car in light rain, so she was a little damp as she approached home 8 miles later. At home the roads were dry and no rain was falling. She checked the sky before getting out of her van. Overhead the sky was clear and blue. Time was just after 3:00pm.

The Flash. She opened the door and was exiting the vehicle when she felt "like someone had thrown a bomb in my lap." She may have lost consciousness briefly, but found herself on her stomach on the ground with "electricity running up and down my body." She did not hear thunder or see a flash, but several other witnesses saw the flash and heard the thunder in the direction of her house. This was the first flash of the storm, and the sky overhead was clear. During the episode she felt "a sharp jolt in my right side just under my arm and into my ribs." She felt current flowing for longer than an instant. Once the shocks stopped she was able to move quickly into her cabin.

Sequelae. While shaken, she did not immediately seek medical treatment. In the short term she suffered acute body pain, muscle cramps, limited mobility, ear aches and ringing, headaches, chest pains, trouble breathing, poor bladder control, short term memory issues, and sleeplessness. Four days later she sought medical care from her primary care physician. She was diagnosed with concussion and bruised eardrums. Blood work was OK. Her face was rough and red, but was not treated. That night she experienced severe facial pain, and the next morning when she washed her face all the skin peeled off. Three months after the incident she has a 15% loss of hearing, balance issues, intermittent pain in her chest (possibly related to an earlier injury), pain in her arms and legs, and tinnitus.

4. Patient #2: Male, age 22, was struck in the summer of 2013 in a rural field in central Montana. He had opened the gate in a chain link fence and was part way through with his left hand still on the gate. Adverse weather was predicted, but only rain was falling with no thunder. There were no warning signs to suggest imminent danger. The topography was slightly elevated, but generally flat and treeless. Time was just before noon.

The Flash. As he passed through the gate there was a flash and the patient lost consciousness. A companion in a nearby vehicle was not looking at him, but did see a general flash of light and heard a scream. The patient was airlifted to a hospital, where he first regained consciousness 1 hour after the incident. He was hospitalized for 25 hours. A wristwatch he was wearing no longer works.

Sequelae. Patient was unable to move the left arm or leg for two hours. The arm resolved, but 17 months later the leg “still hurts all day, every day” and is not fully functional. The patient now walks with arm crutches. He is sensitive to static electricity, is averse to storm conditions, and experiences emotional dyscontrol – particularly from loud sounds. He has disturbed sleep, memory issues, numbness in his left C8 nerve distribution, tinnitus & poor word recognition. His physical therapy was discontinued after a treating physician accused him of malingering.

5. Patient #3: Female, age 34, was struck in the summer of 2014 while rock climbing in Wyoming. She was guiding a trip and was versed in weather safety protocol. While eating lunch with her group she noted distant building dark clouds. She decided to call off the climbing activities for the day but went back up to retrieve deployed climbing gear. She was below the top of a prominent granite feature. No rain was falling. Overhead the sky was clear and blue. The storm was thought to be 15 to 20 miles distant. No thunder had been heard, and no static buildup was noted before the flash. Time was 2:15pm.

The Flash. There was a huge boom and strobe-like flashes. Patient was roped in, but fell backwards, and one arm was moved involuntarily. She remained lucid through the experience. She had 2nd degree burns including ferning on her right leg. Her jeans and a sock were shredded and her shoe was burned. Her right foot was grey and ashen. She experienced back spasm, but was able to do a self-assessment and climb down under her own power immediately after the incident. All but one person in her group felt current, but no others were severely injured. An ambulance transported her to hospital for treatment. No other close flashes were noted after the initial strike, the first of the day. Distant thunder was heard.

Sequelae. Patient spent three days in the hospital. She has superficial burns over 8% of her body – none required grafting. Her foot blistered and healed. Aside from these resolved issues this patient has no lingering physical or emotional conditions and considers herself very lucky!

6. Patient #4: Male, approximate age 50, experienced electric shock unrelated to lightning. In March 2001 he was working with a heat pump installed above a false ceiling. He was standing on a wooden ladder with his torso above the level of the ceiling.

The shock. While installing a heat probe, a wire from a commercial power source (likely 277 volts*) fell into his right hand. His left hand was holding a copper coil and he felt current propagate through his arms and across his chest. There were flashes of light, and he was unsure of how much time passed while he was connected. He was unable to let go of either conductor with his hands so he kicked the ladder out from under himself and fell to the concrete floor.

Sequelae. Patient landed on his head and neck. He was transported to hospital on a back board by ambulance and admitted for 3 days. He had burns on his palms slightly smaller than a 50 cent coin. One triceps tendon was torn, he experienced burning and itching sensations in a forearm and foot, has burns in his retina, and he had a fractured vertebrae from the fall. Subsequently his taste buds turned white and fell out twice, and he has had all his teeth replaced as they were fractured from involuntary jaw tightening. He experiences emotional dyscontrol, has problems with memory, math, numbers, navigation, panic, pain and anxiety. He has had a continuous low-grade headache since the accident with occasional spikes in the pain. Since the accident he is prone to snoring. He is unable to work.

7. Patients' experiences were compared and discussed. Two of the patients had some concern for safety. Patient #1 was heading for shelter. Patient #3 was intending to head for shelter but thought she had more time to do so. All patients were encouraged to seek the LSESSI group. Here is the link: <http://www.lightning-strike.org>
8. It was suggested that patients engaged with Workman's Comp to keep the medical claim open if possible because there can be delayed sequelae as described by Cherington (Cherington, M., Neurological Manifestations of Lightning Strikes, Neurology, 60(2):185, 2003.).
9. Phil Yarnell also mentioned an article in Outside Magazine from the October 2014 issue. I have linked this article below, and I want to make a special recommendation for everyone to check this article. It is one of the best I have read on the topic of lightning injury!
10. LDC Disclaimer: These minutes do not represent official positions of LDC or its members. They simply reflect the comments made at the meeting. Furthermore, the LDC does not explicitly or implicitly recommend or endorse *any* product or service. Any service or product presented in these minutes is done so for the purpose of discussion and analysis. The merit (or lack thereof) is open for consideration and review by the entire membership.
11. Next meeting: Friday, December 12, 2014 at 11:45 AM at St. Anthony Hospital West, room TBD. Subject: Round table discussion.

Respectfully Submitted,

Kenneth Langford, Photographer

* 277 Volts is the voltage between any phase of a 440 volt wye connected 3 phase service and neutral. There are two general insulation classes in North America for secondary systems: 300 volt class (300 volts to ground, or less); and 600 volt class (600 volts to ground, or less). 277 volts falls within the 300 volt class, and a special wiring system is not required to install such a branch circuit. This is the reason 277 volt commercial/industrial lighting is so popular.

In Case You Missed It...Lightning in the News

This is a monthly selection of news and videos about lightning and allied areas as reported in the media. A headline is listed, followed by a link to the article. Please note that some of the links are perishable, which means you'll need to go to the source for the article. Enjoy!

Outside Magazine, October 2014 issue: The Body Electric

<http://www.outsideonline.com/outdoor-adventure/nature/The-Body-Electric.html>

Outside Magazine, October 2005 issue: Struck

<http://www.outsideonline.com/outdoor-adventure/science/Struck.html>

Climate change may mean 50% more lightning by 2100

<http://centurylink.net/news/read/article/afp-climate-change-may-mean-50-more-lightning-by-2100-afp>

U.S. Lightning Strikes May Increase 50% Due to Global Warming

<http://www.wunderground.com/blog/JeffMasters/comment.html?entrynum=2860>

“A Bolt Out of the Blue” Boulder Weekly, Aug. 28 to Sep. 3, 2014, pp. 28-32

<http://www.boulderweekly.com/article-13279-a-bolt-out-of-the-blue.html>
