

Not all belays are equal. Waksmonski's belay was effective because she was attentive to and had good communication with Hrizo, and because the belay was rigged so that the force of the fall was taken by the anchor, not by the belayer. Otherwise, Hrizo's injuries could have been worse and Waksmonski could have been injured from the force of the fall as well. (Source: Lincoln Else, NPS Ranger, Yosemite national Park)

FALL ON ROCK—HANDHOLD CAME OFF, CLIMBING ALONE, LEFT NO INFORMATION ON WHEREABOUTS

California, Yosemite National Park, Tuolumne Peak

On July 15, at 4:30 p.m. I (Jeff Moore, 27) was injured when I dislodged a large rock while climbing a short Class 3-4 chimney on Tuolumne Peak in Yosemite National Park. I was climbing alone collecting data for a research project on exploring rockfall. I had not informed anyone of my itinerary, carried no cell phone, and was not wearing a helmet.

The research project had taken me to nearly the same spot the previous Monday to determine rates of cliff erosion by rockfall. On this Friday I had completed 2 sites and was heading for a third at a large cirque amphitheatre on the southeast flank of Tuolumne Peak near Tuolumne Meadows.

Approaching the site, I was stemming an inside corner when I grabbed a hold above my head and dislodged a large rock. The rock was about twice the size of my chest and it came free from the wall easily, causing me to fall about 15 feet in an upright position. While falling, the rock was at the level of my chest and I fought to move it away from my body. During the fall, the rock crushed my left ring finger, nearly severing it, and struck my right forearm, opening an eight-inch gash and destroying much of my forearm muscle. I landed on my feet and badly sprained one ankle. (At the time I thought it was broken.)

I assessed my situation, noticing significant bleeding from my right forearm. Both bones in my arm were visible but neither was broken. My right hand was rendered useless due to the muscle injury – clasped closed without the opposing muscles required to keep it open. I quickly dropped my backpack and took off my shirt to wrap my arm, at which point I was alerted to my left finger injury. The finger was almost totally severed, dangling by a small thread of tendon, but was not spurting blood. At the time, I considered pulling it off to ease my descent but did not. The combined injuries left me without dexterity, making it difficult to wrap my shirt tightly around my open arm wound.

Looking up, I could see Tenaya Lake four miles in the distance where my car was parked and where I would find help. I cursed myself for not having a cell phone but was thankful I was able to walk. Before descending, I opted to re-shoulder my backpack which had in it a treated nylon jacket, long

underwear top, water, food, headlamp, maps and aerial photos, a compass, and an emergency space blanket, none of which I could easily retrieve due to my hand injuries. I placed my left hand atop my right forearm so the shirt would soak up the blood from both injuries and did my best to hold both arms above my heart.

I began descending over steep slabs, ledges, and boulders within one or two minutes of my fall. I had studied maps of the area well and knew there was a trail some 2,000 vertical feet below the accident site, but in attempting to follow the most direct route, I was stopped by terrain too steep to descend in my condition. Backtracking and moving to a lower-angle route, I reached the trail in about one hour, during which time I suffered the first of two very painful tripping incidents. I remembered from the maps that once I reached the trail I should head in a counter-intuitive direction, away from Tenaya Lake, before the trail would swing around to the proper heading. Unfortunately, I arrived at the trail in a different place than I thought I would, and after walking for about a half an hour, I realized I was heading the wrong way. I turned around and hiked out.

During my two hours hiking on the trail I was badly attacked by mosquitoes: I was covered in blood, wearing no shirt, and couldn't fend them off with my hands. This stands out in my mind as being the worst part of my day. I also fell another time while crossing a slick-rock stream, which, aside from being painful, soaked my cotton pants. I encountered no other people on the trail.

I reached the highway at 7:30 p.m., three hours after the accident, and immediately flagged down a car. It slowed, looked me over, and drove on. Another car came by shortly and drove me to the Tuolumne Meadows ranger station.

Analysis

- Testing holds. Although I had been testing holds that day, I did not test this particular one, maybe because of its large size. I should have been more aware of loose rock, especially since I was climbing alone.
- I was not wearing a helmet. The terrain leading up to the section where I fell was never harder than Class 2, and in preparing for the trip I didn't envision needing a helmet. However, I was out studying rockfall, so wearing a helmet was probably appropriate. I should not have climbed the chimney without a helmet.
- Nobody knew where I was or when I planned to return. Due to circumstances (family and friends out of town), I had not told anyone of my itinerary for the day. There are a number of people I could have easily informed and did not do so.
- Hiking and climbing alone. Climbing alone warrants particular vigilance

for the considerations listed above. Specifically, informing others of your itinerary and using extra caution are critical, and I failed at both.

- I feel that a cell phone would have helped me get assistance sooner, even though reception is limited in the mountains. Carrying one could mean the difference between life and death, and I now feel it's worth it to always bring one along. (Source: Jeff Moore)

FALL ON ROCK, INADEQUATE PROTECTION, MISUSE OF EQUIPMENT (GRIGRI), NO HARD HAT

California, Yosemite Valley, Half Dome

On September 14, a clear day, Bela Christopher (Chris) Fehrer (35) was solo climbing the slab route when he fell 100 to 150 feet to his death.

Analysis

With dozens of Yosemite routes under his belt, including Mescalito, Wyoming Sheep Ranch, El Capitan (seven times), and a host of other hard walls, he was by no means a beginner. He was likely headed up the slabs to shuttle gear to the base of Tis-sa-ack (VI 5.9 A3+) in preparation for a solo climb.

Known to climbers as the “death slabs,” this approach, though much shorter than the nine-mile maintained trail around the south face, is notorious for loose rock and devious exposed fourth-class route finding. According to friends, he knew the approach well from previous Half Dome ascents. On this day he didn't follow the “standard” approach, a goat trail of sorts that zigzags across the slabs taking advantage of broken ledge systems. Instead, he headed up a more direct, steep corner system avoided by other climbers. After a short pitch of fourth class, he left most of his rack on a ledge, rigged a quick single-piece anchor, and rope soloed with a Grigri up a moderate fifth-class pitch. He placed a few nuts and cams as he went and built a three-piece anchor upon reaching the end of his rope.

Exactly what happened next will remain a mystery, but the climber fell before successfully clipping into his anchor. Rock fall has always been common below Half Dome's northwest face, and this climber's top anchor was surrounded by exfoliating flakes held in place by dirt and sheer luck. Though other causes are possible, a moss scar found while investigating the accident suggests he was standing on one of these flakes when it cut loose. As he fell, he ripped two of the four pieces he placed on the pitch. He tumbled down the slabs and landed on a large ledge just as his rope came taut on another piece. Two climbers found his body attached to the lead line by a Grigri, apparently having fallen the length of the pitch.

Beyond the objective loose-rock danger, rigging mistakes may have played a roll as well. When the climber was found, his Grigri was set on