ROCKFALL — Triggered by Rappel Ropes

Canada, British Columbia, Coast Mountains, Waddington Range

On the morning of July 29, Matteo Agnoloni (30) and I, Ethan Berman (31), set off early from a bivy high on the ridgeline connecting Serra 3 and 4 in the Waddington Range. We were attempting a full traverse of the range and were in the midst of a long window of high pressure, with no clouds in the sky and no wind, a rarity on the west coast of Canada.

On our second day, we found ourselves rappelling from Serra 4 toward the Serra 4-5 col. From there, we planned to continue down the main north couloir of Serra 5 until we could climb up to the Serra 5–Asperity col. Before reaching the lowest point of the 4-5 col, we slung a solid block to rappel down a small ice gully leading into north couloir. We were well aware of the hazards. Our primary concern was natural rockfall from above. Given that the couloir and north face of Serra 5 were completely in the shade and that we could rappel directly to the better protected (climber's) right side of the couloir, it was an acceptable risk.

I rappelled first and after 30 meters met the main couloir diagonally. After another 10 meters, I looked for the most sheltered spot where I could also make V-threads. At around the 45-meter mark, the right side of the couloir had a place that might have protected us from natural rockfall. I considered stopping, but decided to continue down, since I wanted to minimize the number of rappels we had to make. I anchored as far right as I could and sunk a perfect ice screw. Matteo soon joined me. We had already made several rappels over the last couple of days, always doing our best to get out of the line of rockfall while pulling our ropes. This is often the most dangerous part of rappelling in the mountains.

When the lead line pulled, the rope snaked down the other side of the couloir. On its way down, the rope dislodged three toaster-sized blocks. "ROCK!" we both screamed. We watched as the three blocks took a large, unfavorable bounce from across the couloir and directly toward us. I ducked and could sense one of the rocks flying over me. The other two hit Matteo. He deflected one with his hand, and the other made a direct impact with his quad. It struck about two inches above the kneecap. The time was 12 p.m.

My first action was to place a second screw and clip us both into an equalized anchor. Matteo winced in pain but remained calm as we worked to assess the damage. He was still able to move his leg and was not immediately bleeding profusely, both good signs that he had not broken any bones or severed a major artery. He rolled up his pants to reveal a three-inch-long laceration that seemed very deep. It was oozing but not gushing. It looked serious but not life- or limb- threatening. We quickly decided that we should call for a rescue. Matteo activated the SOS button on his Garmin inReach.

My second action was to get us to a safer spot and one that would better facilitate a helicopter extraction. Being 60 meters down a couloir anchored into 50-degree ice was not a great place to spend the afternoon, and rappelling to the Radiant Glacier wasn't feasible, as it is a broken jumble of crevasses and seracs. I knew we had tomb back up and out. Given the relative low angle of the ice in the couloir, and the fact that Matteo was awake, coherent, and didn't seem to be losing too much blood, I tried to help him build confidence that he would be able to follow my leads up and out of the couloir.

We used climbing tape to close and apply pressure to the wound and wrapped two slings around his

upper thigh as a tourniquet. I gave him a dose of Tylenol 3 to help manage the onset of pain. He belayed me back up 60 meters of ice and I realized it would take two pitches to reach a safe location in the Serra 4-5 col above. I maintained verbal communication with Matteo throughout. After building an anchor, I sent a detailed message to my partner, Andrea, who is an experienced climber and would know how to relay good information to search and rescue. This would hopefully ease the worry of family at home, once they got word of Matteo's SOS call. After sending this message, I put Matteo on belay and set up a basic 2:1 hauling system to try to keep the rope as tight as possible.

Matteo was able to follow the low-angle ice quite well, kicking his uninjured right leg upward and placing the injured left leg next to it. He was soon anchored next to me. I led another long pitch to the top of the couloir and onto exposed rock, a much safer spot, although still not big enough to land a helicopter. We were both quite relieved when Matteo reached the platform and was able to sit down and raise his leg. It was clear he had been bleeding while moving, but he still seemed awake and coherent, and with manageable pain levels.

Around 5 p.m., Bella Coola Search and Rescue did a fly-by to assess the situation. I assumed they would try to long-line us out, but they had received the long-line request too late. I was concerned we would have to relocate, given our location in a tight col between two big towers.

The helicopter dropped a medic and additional crew on a flat glacier below. They then proceeded to extract us by hover exit/entry, first dropping a SAR member on the rocks with us, and then making three trips to extract us one at a time. I can only imagine this was possible due to perfect weather with no wind, as well as having an extremely talented and confident pilot. An hour later we were in an ambulance en route to the Bella Coola hospital. The next day Matteo was flown by air ambulance to Vancouver, where he got surgery to repair his partially torn quad muscle and tendon. The surgeon said he could see through the wound all the way to the femur. (Source: Ethan Berman)

ANALYSIS

The biggest takeaway is that, while rappelling, the utmost importance should be given to finding a sheltered location to build an anchor for pulling the ropes and setting up the next rappel. While climbing, we have the ability to move slowly and methodically, being mindful of loose rock. While rappelling, you can never fully plan for where the ropes are going to fall or what they will catch on. A sheltered anchor location should take precedence over a slightly longer rappel. We believed our anchor location was out of the rockfall line, but we did not fully consider where our ropes would fall after being pulled. If we had placed our anchor 15 meters higher, we would have been sheltered by a small rock rib and likely would have avoided injury.

Some smaller lessons: First, at the time of the incident, we were only anchored to a single ice screw. Although it was a bomber 16-cm screw in dense blue ice, the impact from the rocks could have shock-loaded the anchor. We estimate each of the rocks were in the 50- to 80-pound range. We had four screws on our rack, and two of these could have been used at the anchor, with a third screw used for drilling a V-thread (the fourth was a backup for the previous rappel).

Second, Matteo had been using a single alpine draw with two non-locking carabiners for his personal tether while rappelling. One non-locking carabiner was attached to his belay loop and the other attached to the anchor. Although unlikely, rockfall might have impacted the alpine draw (or the single screw), opening either carabiner and unclipping the anchor. An easy improvement would have been to girth-hitch the alpine draw to the belay loop and use the two free non-locking carabiners, opposite and opposed (or a locking carabiner), on the anchor. [Editor's Note: This tether would still be vulnerable to rockfall cutting the sling, an argument for redundant tethers. See this report from ANAC 2016.]

Third, our first-aid kit was inadequate. We had climbing tape, Tylenol 3 (acetaminophen with codeine), and blister pads. We had left a more substantial first- aid kit back at the hut. At bare minimum, we should have carried gauze, a tension wrap, and some sort of alcohol or disinfectant. With a slightly

less serious injury— and with proper bandaging and infection prevention—Matteo might have been able to continue climbing or we could have made it back to the hut on our own.

Last, neither of us had called for a rescue before, and we were not certain how information was relayed through the SOS button on our inReach. Messages were sent to a call center and then relayed to the local Royal Canadian Mounted Police, who then contact SAR. Had I known this, I would have included more detail and non-technical terms in my messages. I also would have relayed that the rescue would likely require a long-line extraction. Without that extremely talented pilot, we probably would have spent that night on the mountain. (Analysis: Matteo Agnoloni.)

Images

Ethan Berman rappels off Serra 4 toward the rubble-infested terrain below. (A) Location of eventual helicopter extraction. (B) Start of rappel into couloir. (C) Origin of rockfall that struck Matteo Agnoloni. (D) Site of accident, about 60 meters down couloir.

Matteo Agnoloni waits for Bella Coola SAR on the col between Serra 4 and Serra 5.

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